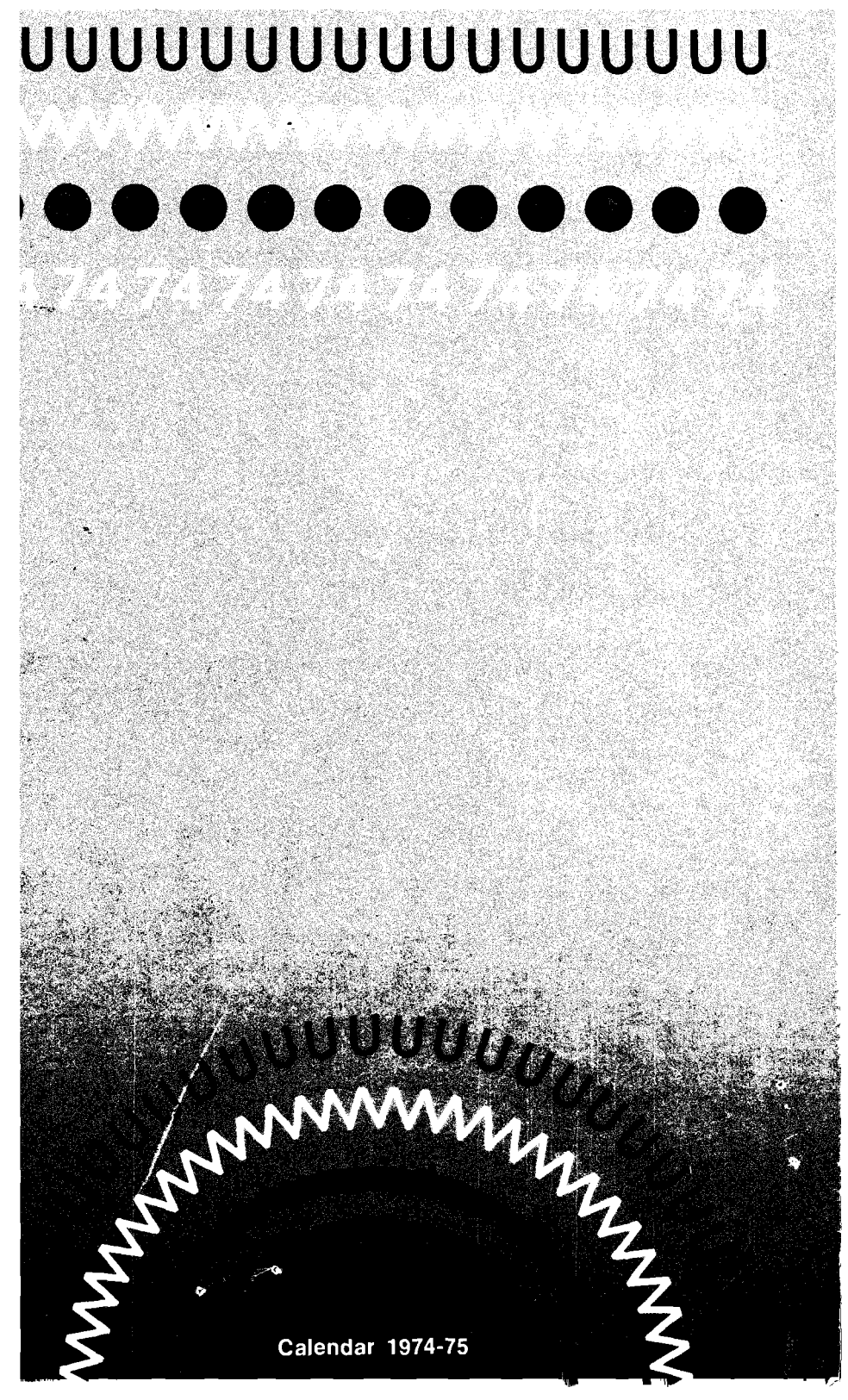

Calendar 1974-75

On timetables generated in the fall, second term half courses do not appear in the grid at the top of the page. They are included below the grid as part of your complete course listing.

A timetable will be available in the new year displaying second instead of first term half courses.

DATES FOR ADDS AND DROPS

September 27, 1974	:	Last day for adding a full course, a first term half course, or a full year half course.
October 11, 1974	:	Last day for dropping a first term half course.
November 8, 1974	:	Last day for dropping a full course, or a full year half course. A COURSE DROPPED AFTER THIS DATE WILL COUNT AS A FAILED ATTEMPT.
January 17, 1975	:	Last day for adding a second term half course.
January 31, 1975	:	Last day for dropping a second term half course. A COURSE DROPPED AFTER THIS DATE WILL COUNT AS A FAILED ATTEMPT.

Academic Calendar



The University of Western Ontario

London, Canada

1974

Notice

1. The Senate and the Board of Governors of the University of Western Ontario reserve the right to make changes in this calendar without prior notice.

2. Information and faculty listings herin are effective January 1, 1974. For up-to-date information, see the Faculty or Department concerned.

Index

See outside back cover Flip Index for Faculties, Schools and Colleges. Departments are arranged alphabetically within faculties. For alphabetical index see back pages. A Table of Contents follows.

Published by the Senate Secretariat, Stevenson-Lawson Building, under the supervision of the Senate Committee on Publications.

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Administration

OFFICERS OF THE UNIVERSITY

Official Visitor: His Honour, the Lieutenant Governor of Ontario

Chancellor: The Hon. John P. Robarts, PC, QC, LLD

President and Vice-Chancellor: D. Carlton Williams, BA, MA, PhD, LLD

Vice-President (Academic) and Provost: R.J. Rossiter, BSc, DM, MA, DPhil, LLD, BMBCh, FRIC, FCIC, FRSC

Vice-President (Health Sciences): (acting) D. Bocking, M.D., DTM, FRCP(C) FACP

Vice-President (Administration and Finance): A.K. Adlington, BA

Executive Assistant to the President: R.N. Shervill, BA, MA, PhD

Assistant to the Vice-President (Academic): W.S. Turner, BA, LLD

Assistant to the Vice-President (Administration and Finance): O.A. Greiner, BScChE

Secretary of the Senate: W.C. Howell, BSc, MSc, PhD.

Chief Librarian: R.E. Lee, BA, BSLS, MFA, PhD

Comptroller: R.R. Glover, BA

Registrar: W.G. Nediger, BA, MSc

THE BOARD OF GOVERNORS

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Vice Chairman: W.C.P. Baldwin
Mr. C.F. Way, Secretary

Chairman Emeritus

Colonel D.B. Weldon

Honorary Members

Mr. A.E. Shepherd

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The Chancellor, The President, The Mayor of the City of London, The Warden of Middlesex County

Appointed by the City Council of London

Mr. W.C.P. Baldwin, Mr. W.J. Evans, Mr. Frank Ross, Captain Joseph Jeffery

Appointed by the Lieutenant Governor in Council

Brigadier W.H. Hemphill, Mr. R.M. Ivey, R.I. Mann, David B. Weldon

Alumni Representatives

Miss J. MacFarlane, Dr. C.S. Ward

Elected by the Senate

Professor M.H.A. Keenleyside, Professor J.T. Nicholson, Dr. J.G. Rowe, Professor W.R. Wightman

Elected by the Board of Governors

Vice President A.K. Adlington, Mr. W.J. Blackburn, Dr. A.H.J. Lovink, Vice-President R.J. Rossiter, Mr. J.A. Taylor, David Rubinoff, Acting Vice President D. Bocking

ADMINISTRATIVE OFFICERS OF THE UNIVERSITY

Associate Registrar (Programs): Margaret P. May, BA

Associate Registrar (Systems): G. Harris, B.Sc.

Associate Registrar (Admissions): J.W.T. Wilgar, BA, MA

Associate Registrar (Communications): W.A. Barill, BA

Assistant Registrars: D.G. Henderson, BA; E.S. Isaacs; D.C. Thomas, BA; J. VanFleet, BA; G.E.M. Roberts, BA

Registrar, Althouse College: G.L. Hartsell, BA

Assistant Secretary of Senate: A.G.R. Sweeny, BA, PhD

Director, Summer School & Extension: Angela M. Armitt, BA, MA

Director, French/English Summer School at Trois-Pistoles: Gilles Gagnon, BA, LesL, MA CREDIT

Coordinator of Student Services: T.L. Hoskin, MA

Dean of Men: D.W. Klinger, BA, MA

Dean of Women: Leola E. Neal, MA, PhD

Executive Director, University Community Centre: Philip Ranke, MA

Foreign Student Advisor: R.W. McGraw, BA

Director, Office of International Education: D.G. Simpson, MA, PhD

Director, Student Financial Aid: E.J. McLeod, BA

Director, Food Services: L.A. Brooks

Manager, Bookstore: D.R. Mason, BA

Director, Information Analysis and Systems: B.G. Hartwick, BComm

Director, Computing Centre: G.T. Lake, BSc

Director, Physical Plant: R.M. Yeo, BSc, PEng

Director, Space Analysis and Planning: H.J. Schulz, Dipl.Ing (Arch.), MRAIC

Director, Career Planning and Placement Service: (TBA)

Director, Intercollegiate Athletics: R.K. Barney, BSc, MSc, PhD

Director, Health Services: H.J. Thurlow, MA, MD

Director, Educational and Vocational Planning: K.C. Murphy, BA, PhD

Director, University Relations and Information: L.T. Moore, BA

Director, Alumni Affairs: N.G. Bellchamber, BA

Director of Housing: A.K. Knill, BA

Manager, Residence Admissions and Off-Campus Housing: E.M. Laing

Business Manager, Residences: R.K. Gauld

Conference Coordinator: J. McArthur

Assistant Director of Libraries/Public Services: J.F. Macpherson, BA, MA, ALA

Assistant Director of Libraries/Processing: R.E. Stierwalt, BA, MLS

Assistant Director of Libraries/Collections Development: J.D. Hoover, BA, MA, BLS

ACADEMIC

DEANS

Arts, Faculty of: J.G. Rowe, SB, MA, PhD, BD, DD
Business Administration, School of: J.J. Wettlaufer, MBA, LLD
Dentistry, Faculty of: W.J. Dunn, DDS, FACD
Education, College of: E. Stabler, BA, MA, EdD
Engineering Science, Faculty of: A.I. Johnson, BASc, MChe
Graduate Studies, Faculty of: H.B. Stewart, MD, PhD
Law, Faculty of: (Acting) E.E. Palmer BA, MA, LLM
Library and Information Science, School of: W.J. Cameron, MA, PhD
Medicine, Faculty of: D. Bocking, MD, DTM, FRCP(C), FACP
Music, Faculty of: H.J. McLean, BA, MusB, MA
Nursing, Faculty of: M.J. Flaherty, BScN, BA, MA, PhD
Physical Education, Faculty of: E.F. Zeigler, BA, MA, PhD
Science, Faculty of: A.E. Scott, DSc, PhD
Social Science, Faculty of: G.L. Reuber, BA, AM, PhD

AFFILIATED COLLEGES

Brescia College,
1285 Western Road,
London N6G 1H2, Ontario.

Principal:
Sister Arleene Walker, BA, MA

Huron College,
1349 Western Road,
London N6G 1H3, Ontario.

Principal:
J.G. Morden, BA, LTh, DD, STM, DTh

King's College,
266 Epworth Avenue,
London N6A 2M3, Ontario.

Principal:
A.F. McKee, BA, MA, MSc, PUP

UNDERGRADUATE CALENDAR

1974

March 1,	Last day for receiving admission applications for the Faculty of Dentistry.
	Last day for receiving applications for graduation at Spring Convocation.
April 1,	Last day for receiving admission applications for Program in Occupational Therapy.
	Last day for receiving admission applications for the Faculty of Law.
April 5,	Last day for receiving admission applications for Evening Summer School and Summer Intersession from students applying for the first time. All supporting documentation must be submitted within seven days of this date.
April 11,	Last day of classes: Second Term ends for all Faculties except Dentistry, Medicine and Law.
April 12,	Good Friday.
April 15—May 4,	Examinations.
April 22,	Last day for receiving registration forms for Summer Evening Session and Summer Intersession.
April 30,	Last day for receiving admission applications for Program in Physical Therapy.
May 8,	Summer Evening Classes begin.
May 10,	All documentation must be complete for Spring Convocation.
May 13,	First day of classes Summer Intersession.
May 31,	Last day for receiving admission applications for Program in Communicative Disorders.
	Last day for receiving admission applications for Day Summer Session from students applying for the first time. All supporting documentation must be submitted within seven days of this date.
June 3—June 7,	Spring Convocation.
June 14,	Last day for receiving registration forms for Day Summer Session.
June 21,	Last day of classes Summer Intersession.
June 24—28,	Examinations, Intersession.
July 1,	Summer Day Session begins.

July 3,	Last day for adding or dropping a course without penalty in the Summer Day Session.
August 1,	Last day for application for graduation at Autumn Convocation.
	Last day for receiving admission applications from new students for Winter Session 1974-75 (full and part-time Intramural) from students applying for the first time. All supporting documentation must be submitted within seven days of this date.
August 9,	Summer School lectures end.
August 10—15,	Summer School examinations.
August 30,	Last date for return of Mail Registration in Professional Programs.
September 4,	Last day for receiving admission applications for Winter Extension and Correspondence Courses 1974/75 Session from students applying for the first time. All supporting documentation must be 9—11 within seven days of this date.
September 9-11	Registration—undergraduate, intramural students.
September 13,	Last day for receiving registration forms for Extension and Correspondence Courses.
September 16,	Regular day and extension classes begin.
September 21,	Extension Classes begin in out-of-town Centres.
October 4,	Last day for adding or dropping a full course, first term half course or a full year half course without penalty. Last day for late registration of full-time students.
October 14,	Thanksgiving Holiday.
October 25,	Autumn Convocation.
December 1,	Last day for receiving admission applications for the Faculty of Medicine.
December 14,	Classes end. First Term ends for all Faculties except Dentistry, Medicine and Law.
Dec. 14—Dec. 21,	Mid-Year Examination Period
1975	
January 6,	Classes resume.
January 24,	Last day for adding or dropping a second term half course without penalty.
February 24—28,	Auditions and General Musicianship Test, Faculty of Music
February 24—March 1,	Conference Week.

March 1,	Last day for receiving admission applications for the Faculty of Dentistry.
	Last day for receiving applications for graduation at Spring Convocation.
	Last day for receiving admission applications for the Faculty of Law.
March 3,	Last day for receiving requests for auditions in the Faculty of Music.
March 28,	Good Friday.
April 1,	Last day for receiving admission applications for Program in Occupational Therapy.
April 7,	Last day for receiving admission applications for Evening Summer School and Summer Intersession from students applying for the first time. All supporting documentation must be submitted within seven days of this date.
April 11,	Last day of classes. Second Term ends for all Faculties except Dentistry, Medicine and Law.
April 14—May 3,	Examinations.
April 21,	Last day for receiving registration forms for Summer Evening Session and Summer Intersession.
April 21—25,	Auditions and General Musicianship Test, Faculty of Music
April 28—May 2,	Auditions and General Musicianship Test, Faculty of Music
April 30,	Last day for receiving admission applications for Program in Physical Therapy.
May 5—9,	Auditions and General Musicianship Test, Faculty of Music
May 7,	Summer Evening Classes begin.
May 9,	All documentation must be complete for Spring Convocation.
May 12,	First day of classes Summer Intersession.
May 30,	Last day for receiving admission applications for Day Summer Session from students applying for the first time. All supporting documentation must be submitted within seven days of this date.
May 31,	Last day for receiving admission applications for Program in Communication Disorders.
June 2—6,	Spring Convocation.
June 13,	Last day for receiving registration forms for Day Summer Session.

June 16—20, Auditions and General Musicianship Test, Faculty of Music

June 20, Last day of classes Summer Intersession.

June 23—27, Examinations, Intersession.

CALENDAR FOR 1974

JANUARY

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CALENDAR FOR 1975

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ACADEMIC INFORMATION

I Degrees and Diplomas

1. DEGREES OFFERED

The University of Western Ontario offers Programs leading to the following degrees:

Undergraduate degrees:
- Bachelor of Arts (BA)
- Bachelor of Science (BSc)
- Bachelor of Engineering Science (BESc)
- Bachelor of Laws (LLB)
- Bachelor of Music (MusB)
- Bachelor of Musical Arts (AMusB)
- Bachelor of Science (Communication Disorders) BSc(CD)
- Bachelor of Science (Occupational Therapy) BSc(OT)
- Bachelor of Science (Physical Therapy) BSc(PT)
- Bachelor of Science in Nursing (BScN)
- Bachelor of Social Work (BSW)
- Doctor of Dental Surgery (DDS)
- Doctor of Medicine (MD)

Graduate degrees:
- Master of Arts (MA)
- Master of Teaching Arts (MAT)
- Master of Science (MSc)
- Master of Business Administration (MBA)
- Master of Clinical Science (MClSc)
- Master of Clinical Dentistry (MCID)
- Master of Engineering (MEng)
- Master of Engineering Science (MESc)
- Master of Library Science (MLS)
- Master of Music (MusM)
- Master of Science in Nursing (MScN)
- Doctor of Philosophy (PhD)

NOTE: For information regarding Programs in Theology, consult the Affiliated Colleges Section.

2. DIPLOMAS OFFERED

The University of Western Ontario offers Programs leading to the following diplomas:

Faculty of Social Science: Diploma in Journalism
School of Business Administration: Diploma in Business Administration
Althouse College of Education: Diploma in Education
(Post-Baccalaureate Program)
: Diploma in Education
(Technical Program)

II Admission to the University of Western Ontario

1.0 GENERAL

Admission to The University of Western Ontario is based on demonstrated ability to succeed in University level work and competition existing at the time of application. The following admission requirements approved by the Senate, are minimum requirements and their possession does not guarantee admission to the University. The University reserves the right to accept or reject any applicant, regardless of the applicant's academic record.

The implementation of admission regulations rests with the Senate Subcommittee on Admissions which rules on the admissibility, advanced standing and re-admissibility of applicants to various undergraduate programs *in the Constituent University. The Senate Subcommittee on* Admissions is also charged with the responsibility of formulating and recommending policy concerning admissions to the Faculties, Schools and Affiliated Colleges of the University.

Admission to professional Faculties in Dentistry, Law, Medicine, (and related programs in Communication Disorders, Occupational Therapy, and Physical Therapy), and Nursing; the School of Business Administration and the Affiliated Colleges is through their individual Admissions Committees.

Candidates for admission to the first year of an undergraduate program who wish full-time registration must submit their application through the Ontario Universities Application Centre (OUAC). Applicants to programs other than first year will use The University of Western Ontario application form and will apply directly to the University. For details consult the section of this calendar entitled "How to Apply For Specific Programs"

For information pertinent to Admission and course offerings prospective candidates are cordially invited to phone or write the Office of the Registrar at the Constituent University or the Affiliated Colleges.

Constituent University:
Office of the Registrar - Admissions
The University of Western Ontario
London N6A 3K7, Canada
519-679-2315

Affiliated Colleges:
Office of the Registrar
Brescia College
1285 Western Road
London N6G 1H2 Canada
519-432-8353

Office of the Registrar
Huron College
1349 Western Road
London N6G 1H3, Canada
519-438-7224

Office of the Registrar
King's College
266 Epworth Avenue
London N6A 2M3, Canada
519-433-3491

2.0 PRELIMINARY YEAR - BRESCIA COLLEGE

Brescia College offers a Preliminary Year program for students who have completed Ontario Grade 12 or the equivalent. Admission to the Preliminary Year is based on percentage, or rank in class, and on the principal's report.

The Preliminary Year consists of five courses as follows:

English 010

Four other courses selected from:

Geography 010; History 014; Mathematics 010; Religious Studies 010; French 002 or 010; German 001, 002 or 010; Italian 002; Latin 002 or 010; Russian 002 or 010; Spanish 002. (Note: A language at the 002 level is an intensive beginners course; a language at the 010 level presupposes Grade 12 or its equivalent.)

Satisfactory completion of the Preliminary Year with appropriate prerequisites (where applicable) qualifies the student for admission to most First Year programs.

All applications, enquiries and correspondence should be addressed to the Registrar, Brescia College, London N6G 1H2, Ontario.

3.0 CONCURRENT STUDIES PROGRAM (Admission of Grade 13 Students to one University course)

Grade 13 students who are attending Secondary Schools within commuting distance of the Constituent University or the Affiliated Colleges (Brescia, Huron, King's) in London, or one of the Extension Centres in Brantford, Chatham, Clinton, Kincardine, Owen Sound, St. Thomas, Sarnia, Simcoe, Stratford, Tillsonburg, and Woodstock may apply to take one University course concurrently with their Grade 13 studies. Admission and Registration will be determined in accordance with the conditions set forth below:

3.1 Eligibility

(a) Completion of four years of studies in a secondary school;

(b) Completion of one or more level V credits in a traditional academic area;

(c) Achievement of an 80% average in subjects taken in the third and fourth secondary school years;

(d) Registration in sufficient Grade 13 subjects to fulfill the admission requirements of the University;

(e) Nominated by the Principal of the secondary school attended.

3.2 Admission Procedure

Candidates are required to complete an application form indicating the university course desired, and have this forwarded by their Principal with full academic documentation concerning eligibility to the Secretary of the Senate Subcommittee on Admissions, Office of the Registrar, The University of Western Ontario prior to August 1. An application form may be obtained by writing to the Office of the appropriate Registrar. Admission to the program requires approval of the Dean of the Faculty or College offering the course selected and the Senate Subcommittee on Admissions.

3.3 Prerequisites for Courses

Registration in a course is subject to prerequisite standing (where applicable) in courses at the Secondary School level. A student may not register in a first year course at the University where an equivalent course is offered in the High School system.

3.4 University Credit

Credit for a course towards meeting the requirements for a degree shall be based on two conditions:

(a) satisfactory achievement in the work of the course;

(b) evidence at the end of the Grade 13 year that all the admission requirements have been fulfilled.

3.5 Tuition Fees

Tuition fees are waived for Grade 13 students enrolled in one University course.

4.0 ADMISSION REQUIREMENTS AND REGULATIONS

4.1 *Admission with Ontario Grade 13*

(a) Policy

Applicants seeking admission to The University of Western Ontario from Ontario Grade 13 will require a minimum of six (6) level five credits approved by the Ministry of Education in Accordance with Circular H.S.1, and this University, and a minimum final average of 60%. The possession of these

minimum requirements does not guarantee admission to the University.

Entrance to first year programs of study in the Faculties of Arts, Enineering Science, Music, Nursing, Science and Social Science and the Program in Occupational Therapy will be based upon competition existing at the time of application and the following factors:

(1) The academic record of work traditionally recognized as Grades 11, 12 and 13, including at least six level five credits;

(2) Satisfactory standing in level five subjects listed as pre-requisites for progression in the specific university program to which admission is sought; (Note: Since many undergraduate and graduate university programs require English, Mathematics and a second language, students are strongly urged to carry at least two of English, a language other than English and Mathematics throughout their secondary school years.)

(3) Evidence of proficiency in English, if English is a second language (see section 9.)

(4) The recommendation of the Principal (or designate) of the school in which the student completes his education at the secondary school level.

(b) Admission Procedure

Admission to first year undergraduate studies will be offered to selected Ontario Grade 13 students on May 31st, 1974 who present a minimum interim average of 60.0% on six level five credits. This offer of admission is made on the understanding that all students given an offer of admission must maintain a minimum of 60.0% on six level five credits on their final Grade 13 and/or Summer School marks. (Should a student fail to meet the above criteria, the University reserves the right to withdraw its offer of admission.)

Applicants who do not receive an offer of admission on May 31st, 1974 will be able to qualify for admission to selected non-limited enrolment programs on the basis of final Grade 13 and/or Summer School marks in accordance with the above criteria. It is the applicant's responsibility to submit final or Summer School marks directly to the Office of Admissions, The University of Western Ontario, or the Registrar of an Affiliate College (Brescia, Huron, King's), as soon as they become available.

4.2 Admission of Students From Canadian Provinces Other Than Ontario

Students from other Provinces in Canada are eligible for admission to First Year at this University on the basis of Senior Matriculation, if their academic records meet, in subject matter and standing obtained, the requirements for admission to this University and to a recognized university in their own Province.

Provided that the subjects are acceptable for admission, the following certificates and/or academic standings are considered as Senior Matriculation:

Alberta	Grade 12
British Columbia	Grade 12
Manitoba	Grade 12
New Brunswick	Grade 12
Saskatchewan	Grade 12
Nova Scotia	Grade 12 or First Year at Nova Scotia University after Junior Matriculation
Prince Edward Island	First Year at the University of P.E.I.
Newfoundland	First Year at Memorial University
Quebec	Grade 12 or its equivalent, i.e. completion of first year C.E.G.E.P. (General Program) or Collegial Program at Bishop's, McGill, or Sir George Williams, with appropriate standing. Note: Applicants who present the Diplome d'etude Collegiale with at least second class standing may be eligible for advanced standing in certain First Year subjects.

Notes:

1. If Grade 12 is presented as Senior Matriculation, a higher academic average may be required than the minimum 60% normally acceptable for applicants from Ontario Grade 13.
2. Students intending to register in a First Year Program should note the requirements of that Program.
3. Upgrading in certain subject areas may be required in order to satisfy the progression requirements of specific programs. This should be taken into consideration at the time of course selection during preregistration.

4.3 Applicants From Colleges of Applied Arts and Technology and Ryerson Polytechnical Institute

(a) Ontario Colleges of Applied Arts and Technology

Admission:

Applicants who have completed a two or three year CAAT Program with a cumulative average of "C" (60%) or better, or have a "C" average in the last two semesters of a two or three year CAAT Program, will be considered for admission to Year I of an appropriate program, except that,

Applicants who have achieved a cumulative average of "C" (60%) or better in the first year of a General Arts Program in a CAAT may be considered for admission to Year I.

Admission with Advanced Standing:

Applicants who have completed a three year CAAT Program with a cumulative average of "B" (70%) or better, or have a "B" average or better in the last two semesters of a three year CAAT Program will be considered for admission and for advanced standing to a maximum of five courses in Arts, Science and Social Science or the first year of a Professional Program.

Notes:

1. Where necessary, the grades for CAAT's whose marking schemes differ from that of this University shall be translated into the equivalent grades of The University of Western Ontario and admissibility assessed in those terms.
2. Exceptional cases may be considered by the Senate Subcommittee on Admission on the recommendation of a Faculty Dean.

(b) Ryerson Polytechnical Institute

Applicants from a Diploma Program at Ryerson Polytechnical Institute may be considered for admission and for advanced standing under the regulations governing the admission of applicants from Colleges of Applied Arts and Technology.

Applicants who hold a degree from Ryerson Polytechnical Institute may be considered for admission with advanced standing in a Baccalaureate Program as approved by the Senate Subcommittee on Admissions and the appropriate Dean.

Completion of a Degree Program shall entitle an applicant to consideration for admission as a Special Student in accordance with the regulations governing Special Student admission.

4.4 Applicants from U.S.A.

Students graduating from Grade 12 of an accredited High School in the U.S.A. with high standing (an A average) are eligible to apply for admission to first year at this University. The subjects of Grade 12 should be selected in accordance with the first year program requirements.

Upgrading in certain subject areas may be required for progression in a specific university program after first year. Students in good standing in a university year beyond the Grade 12 level are eligible to apply for admission with advanced standing in accordance with University regulations. Advanced standing for students applying from the first year of a four year general university program subsequent to completion of Grade 12 will be determined by the Dean of the Faculty to which application is made in conjunction with the Senate Subcommittee on Admissions.

4.5 Applicants from Foreign Countries

A separate handbook, entitled **Information for Foreign Students,** is available upon request from the Admissions Office, the Dean of the Faculty of Graduate Studies, or the Foreign Student Adviser of the University.

Prospective students should also contact the Department of Immigration of the Canadian Government, Ottawa, Ontario or the nearest Canadian Embassy or Consulate for visa information.

4.6 Admission as a Mature Applicant

Admission to first year of University studies may be granted to Mature Applicants. A Mature Applicant is defined as a candidate for admission who:

a) does not hold the Grade 13 standing (or equivalent) required for ordinary admission;

b) will be at least 21 years of age in the calendar year in which admission is sought;

c) has not normally been in full-time attendance at an educational institution within the previous two years;

d) has achieved at least "C" (60%) standing in any academic work attempted within the previous two years.

Notes:

1) Applicants who are admitted will be required to obtain academic counselling from the Dean of their Faculty prior to registration.

2) Applicants who have previously attended a University at a level equivalent to Year I at The University of Western Ontario will be considered as Transfer rather than Mature Applicants.

3) The policy specifications above may be modified for a particular applicant by the Senate Subcommittee on Admissions.

4.7 Registered Nurses

Registered Nurses wishing to proceed to a Bachelor of Science in Nursing (BScN) may be considered for admission to the three year Post R.N. Program in Nursing. Inquiries should be directed to: The Faculty of Nursing, The University of Western Ontario, London N6A 3K7, Ontario, Canada.

4.8 Applicants from Althouse College of Education

Students who have attended Althouse College of Education and who have not previously registered at the Constitutent University should contact the Office of the Registrar—Admissions with reference to the procedures to be followed.

4.9 Admission Based on Standing Obtained at a Recognized University or College

(a) Admission to First Year Without Advanced Standing

Students registered in a preliminary year or freshman year at a recognized University or Junior College to which students are admitted after Junior Matriculation (Ontario Grade 12 level) are eligible to apply for admission to first year at this University provided that their first or preliminary year program includes subjects equivalent to those required for admission to each program.

(b) Admission from Special University Programs in Ontario

Students applying to transfer from universities in Ontario to which they were admitted without having satisfied the normal admission requirements must present satisfactory standing in at least five (5) university courses in order to be eligible for admission to this University. Upon gaining admission such students will be considered for advanced standing in university courses successfully completed in accordance with the Senate regulations indicated below.

(c) Admission with Advanced Standing

Students in good standing in a university year beyond the Senior Matriculation level are eligible to apply for admission with advanced standing in accordance with the regulations set forth below, except that, advanced standing for students applying from the first year of a four-year general university program subsequent to completion of Grade 12 (Senior Matriculation), will be determined by the Dean of the Faculty to which application is made in conjunction with the appropriate Admissions Committee. Depending on the Faculty concerned, the award of advanced standing in such cases may be reduced as a result of overlapping in course content with subjects offered in Ontario Grade 13, i.e. advanced standing may be denied for a course(s) which is normally taken in Secondary School as part of the Grade 13 program in Ontario. Refer to the specific program(s) outlined in this calendar for course requirements.

(d) Eligibility:

(1) Applicants for admission must have completed the normal requirements for admission to The University of Western Ontario prior to the commencement of the academic session for which application is made.

(2) Applicants for admission to The University of Western Ontario transferring from an accredited University of College must be eligible for re-admission and registration on a full-time intramural basis at the last University or College attended in the academic session for which application is made.

(e) Conditions for Admission:

(1) Admission of students transferring from another University or College is not automatic; all such applicants will be assessed in competition with other new applicants in the light of academic requirements and enrolment limitations which are pertinent at the time of application.

(2) Applicants with at least a "C" (60%) average, and no failures in all previous work at the university level, will be eligible to apply for admission to the University.

(3) Applicants who have failed to obtain pass standing in one or more courses but who have an overall average of at least a "C" (60%) in all courses completed successfully will be considered by the appropriate Admissions Committee.

(4) Admission to a specific program of study is subject to the minimum requirements for admission and progression in that program.

(f) Conditions for Advanced Standing:

(1) The granting of advanced standing in a degree program of The University of Western Ontario is subject to the following general limitations:

—completion of the minimum of five full senior academic courses, or their equivalent, offered by the University. This regulation may be waived on written recommendation of the Dean on the advice of his Educational Policy Committee.

—completion of all specific requirements for graduation in the particular program to which admitted.

(2) Advanced standing may be granted for all courses completed successfully at another University or College provided that these courses, even though not offered at this University, are recognized as reaching acceptable University standards and may be appropriately included in the program of studies at The University of Western Ontario. The granting of such credit shall be subject to the following additional provisions:

—credit will not be allowed for any courses completed at another University in fulfillment of the basic requirements for University Admission (Preliminary Year); credit may be allowed for any additional courses completed concurrently.

—a First Year Program of study at another University may be granted credit up to a number of courses constituting the First Year of the Program in The University of Western Ontario to which admitted. Where more courses than the normal load prescribed at the other University were completed concurrently additional credit may be allowed.

—Advanced standing may be granted for a half course(s) successfully completed at another University. If a full course in the same subject with overlapping course content at the same level is taken at the University of Western Ontario, credit for only one full course will be allowed towards the fulfillment of the requirements for graduation in a degree program.

(3) The determination of prerequisites and course equivalency shall be at the discretion of the Departments concerned.

(4) In any event, the overall average in those courses allowed for credit must be at least 60%.

Notes:

Where necessary, the grades from other Universities or Colleges whose marking schemes differ from that of this University shall be translated into the equivalent grades of The University of Western Ontario and admissibility assessed in those terms.

Applicants for transfer for whom English is a second language must submit with their applications evidence acceptable to this University of proficiency in English.

4.10 Special Students - University Graduates

Special Students are those students already in possession of a university degree who wish to take further university courses.

Graduates of other universities who wish to enroll at The University of Western Ontario as Special Students must file an application form with the Admissions Office prior to the application deadline of the session for which admission is sought. Application forms may be obtained from the Admissions Office, The University of Western Ontario, London N6A 3K7 Ontario.

Special students are allowed to register in such courses as the Department(s) concerned may approve. Such students are not registered in a degree program. It is the responsibility of the applicant to contact the Department(s) in which he wishes to study and to obtain written permission for specific course registration. The written recommendation of the Department(s) must be forwarded to the Admissions Office in support of the application for admission.
Such applicants are also required to supply official transcripts of all university work completed, showing degree(s) earned. This documentation must be sent directly to the Admissions Office by the Registrar of the universities concerned.

Admission as a Special Student carries no implications with respect to acceptance to a Graduate Program. The Admission of Special Students will be granted in accordance with the regulations detailed below.

(a) Eligibility for Admission:

—Applicants for admission as Special Students must have completed a university degree prior to the commencement of the academic session for which application is made.

—The university degree of such applicants must be equivalent to at least a three year Bachelor's degree at The University of Western Ontario.

(b) Conditions of Admission:

—Admission of Special Students will be based on degree equivalency in terms of total number of years studied, level of study and standing obtained.

—Academic standing (performance) on work completed within the program for which the degree was conferred must be equivalent to a minimum overall average of "C" or 60% within the context of this university's grading system.

—Applicants for whom English is a second language must submit with their applications evidence acceptable to this University of proficiency in English.

—The Senate Subcommittee on Admissions shall have full jurisdiction and discretion in adjudicating the admissibility of Special Students.

(c) Conditions for Continued Registration:

A grade point total of eight (8) must be accumulated in the first five (5) full (or equivalent) courses attempted at the University of Western Ontario. Students registered in fewer than 5 courses or in a subsequent session following 5 course attempts must accumulate a grade point total of twice the number of courses attempted, e.g. a student registered in 3 courses must accumulate a grade point total of at least 6. The progression of students who fail to meet this latter condition shall be at the discretion of the Dean of the Faculty in which the student is registered. The Dean will notify the Registrar's Office in writing of the decision to allow progression where this condition has not been met. Failure to meet the minimum requirement of 8 grade points shall result in automatic withdrawal from the University.

4.11 Letters of Permission

(A) For *Transfer* of Credit to The University of Western Ontario:

A Letter of Permission is an instrument enabling a U.W.O. undergraduate student to be enrolled in a specific course(s) at another university without having to make formal application for admission to that institution. The courses, when successfully completed, are accepted for credit toward the student's program at this University.

(1) Application:

Application for the privilege of taking a course(s) at another university on a Letter of Permission must be made to the Dean of the Faculty in which the applicant is registered.

Approval shall be at the discretion of the Dean, who shall base his decision on the applicant's overall academic record, the appropriateness of the particular course to the applicant's program at The University of Western Ontario, and on any other factors he may deem relevant.

If the course selected is to be substituted for a required, principal, or prerequisite course, the Dean shall obtain approval of the Chairman of the Department(s) offering the required, principal, or prerequisite course.

Following approval of the application, the Dean shall authorize the Registrar to issue a Letter of Permission to the applicant and to the university concerned.

(2) Conditions:

a) If a Letter of Permission is granted to a student still in progress it must be provisional pending successful completion of the progression requirements for that session.

b) If a Letter of Permission is granted for the final course of a student's program to be taken during a Winter Session, graduation may not be prior to the next Fall Convocation.

c) Courses taken at another university on a Letter of Permission during a Summer Session shall be included within the maximum permissible academic load for the summer period, May to August.

d) An official transcript must be submitted by the student for any course attempted on a Letter of Permission.

i) Credit will be granted only when the course is completed successfully with a minimum grade equivalent to 60% (C) at The University of Western Ontario.

ii) Any course attempted shall be counted within the maximum allowable course attempts. Any course attempted under a Letter of Permission shall be assessed for Grade Points as follows:

D or less — 0
C — 2
B — 3
A — 4
A+ — 5

iii) The final mark/grade obtained shall not be counted in determining the minimum 60% overall average required for graduation.

e) The regulations with respect to Letters of Permission shall not apply in the instance where The University of Western Ontario has exchange or reciprocal agreements with another university.

NOTE:
Not more than five courses may be taken, under Letters of Permission, at another university to fulfill graduation requirements of a particular Baccalaureate Program at this University.

(B) For Transfer of Credit To Another University:

Students registered at other universities may request permission to take courses at The University of Western Ontario for transfer of credit toward their degree program at their home university.

Applicants who wish to take courses in this manner must obtain from the Registrar of their home university, a Letter of Permission. The Letter of Permission must name the specific course(s) which the student will be allowed to take at The University of Western Ontario for transfer of credit to the home university.

On completion of studies at this University, it is the responsibility of the student to arrange to have an official transcript of his course work sent to the Registrar of his university. Request for transcript should be submitted with cheque to the Office of the Registrar, Stevenson-Lawson Building, The University of Western Ontario, London N6A 3K7, Ontario. (One copy $1.00, two copies $2.00, and $.25 for each additional copy thereafter).

5.0 RE-ADMISSION

Re-admission to the University or to an Affiliated College (Brescia, Huron, or King's) following withdrawal for unsatisfactory academic standing is subject to the following conditions:

5.1 Submission of a formal application for re-admission to the appropriate Registrar prior to the deadline of the session in which registration is desired.

5.2 Eligibility for re-admission shall not commence until the lapse of at least one calendar year (12 months) from the time of withdrawal (i.e. the closing date of the academic session in which unsatisfactory standing was obtained).

5.3 Re-admission is not automatic. All such applicants will be assessed in competition with new applicants in the light of academic requirements, enrolment limitations, etc. which are pertinent at the time of reapplication.

5.4 All applications for re-admission shall be considered and approved or denied by the appropriate Admissions Committee, whose decision is final. Appeals against a ruling may only be considered on presentation of additional evidence.

(Note: Applicants must submit in support of their application for re-admission a type-written statement outlining the causes of their previous academic difficulties. The statement should also include the intentions of the applicant and a personal assessment of his chances for success.

5.5 Students who fail to maintain satisfactory academic standing following re-admission either in the immediately subsequent year or in any succeeding year shall not normally be readmissible to the University unless their record over a period of several years indicates significantly enhanced probability of success in academic work.

6.0 REQUIREMENTS OF SPECIFIC FIRST YEAR UNIVERSITY PROGRAMS

Candidates may apply for admission to one of ten First Year programs. The courses indicated as requirements must be taken and completed successfully at the Grade 13 level. In addition, certain other courses may be recommended.

Arts: Students are urged to take English to Grade 13 level. For Visual Arts, see specific section in this Calendar.

Engineering Science. **Two credits in Mathematics, one of which must be Calculus and one other Science subject.** Recommended preparation would include three credits in Mathematics, Physics, and Chemistry.

Home Economics	**Biology and Chemistry are required;** English and Mathematics are recommended. Students without Grade 13 Chemistry and Biology will be considered on recommendation of the Departmental Chairman.
Music	**A satisfactory audition and General Musicianship test are required.**
Nursing	**Chemistry, Biology, and Grade 12 Mathematics are required.**
Secretarial Science	**English required.**
Occupational Therapy	Biology recommended.
Physical Education	Biology recommended.
Science	NO required subjects. However, progression in a Natural Science program will be severely restricted without two credits in Mathematics, including one credit in calculus.
Social Science	English is strongly recommended and a second language would be valuable. Students interested in Economics, Geography, Psychology and Sociology are strongly urged to complete at least two credits in Mathematics, including one credit in Calculus, and to explore Computer Science where this subject is available.

7.0 HOW TO APPLY

Candidates for admission may apply for enrolment in the following sessions: Full-time intramural, Part-time intramural (offered by the Constituent University and the Affiliated Colleges—Brescia, Huron and King's), Intersession, Summer School (Day and Evening), Extension and Correspondence (offered by the Constituent University only).

Candidates for admission who are currently enrolled in Ontario Grade 13 and who wish full-time or part-time intramural studies beginning in September will apply through their High School. Application forms may be obtained from the School Principal or Guidance Officer.

Candidates for admission who are *not* currently enrolled in Ontario Grade 13, including previous Grade 13 matriculants, Mature Applicants, Applicants from other provinces in Canada, Foreign Applicants, Transfer Applicants, and Applicants for Re-registration and Re-admission who wish to enrol in Part-time or Full-time studies, *or* Applicants who wish to enrol in Intersession, Summer School (Day and Evening), Extension and Correspondence, should request an application form from the Admissions Office at the Constituent University or from the Registrar's Office of an Affiliated College, stating the session to which admission is sought. Further information with respect to course offerings and admission may be obtained from:

Constituent University

Office of the Registrar - Admissions,
The University of Western Ontario,
London, Ontario N6A 3K7,
Canada.
519-679-2314

Affiliated Colleges

Office of the Registrar,
Brescia College,
1285 Western Road,
London, Ontario N6G 1H2,
Canada.
519-432-8353

Office of the Registrar,
Huron College,
1349 Western Road,
London, Ontario N6G 1H3,
Canada.
519-438-7224

Office of the Registrar,
King's College,
266 Epworth Avenue,
London, Ontario N6A 2M3,
Canada.
519-433-3491

It is the responsibility of all applicants to ensure that the following information (if applicable) is forwarded to the appropriate Registrar's Office in support of any application made:

(1) All Pertinent Academic Documentation
Such documentation must be forwarded to the Admissions Office directly from the previously attended institutions e.g. Secondary Schools, Colleges and Universities.

(2) Letters of Reference (if applicable)
Such letters must be sent from the referee directly to the Admissions Office. The use of University supplied forms is preferable.

3) Proof of change of name if academic documents show a name other than that under which application is made (e.g. marriage certificate, statement from clergyman, notarized statement or legal document as applicable).

(4) Birth Certificate or other proof of age (for Mature Applicants).
An official Certificate of Birth must be submitted if proof of age is required.

(5) Employment Resume (if applicable)
An applicant must present a resume of employment for the period of time during which he has not been in attendance at an academic institution.

(6) Test of English Proficiency
A test of English Proficiency (if applicable) must be arranged well in advance

8.0 APPLICATION DEADLINES

All applicants must submit a completed application form before the application deadline date as indicated below. Candidates are strongly urged to forward applications and supporting documentation well in advance of the deadline date.

Final Application Dates—1974

March 1	—Faculty of Dentistry
April 1	—Program in Occupational Therapy
April 1	—Faculty of Law
April 5*	—Evening Summer Session; Summer Intersession
April 30	—Program in Physical Therapy
May 31	—Program in Communication Disorders
May 31	—Day Summer Session
August 1	—Winter Session Intramural, full-time and part-time
September 4*	—Winter Extension and Correspondence
December 1	—Faculty of Medicine

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March 1	—Faculty of Dentistry
April 1	—Program in Occupational Therapy
April 7*	—Evening Summer Session; Summer Intersession
April 30	—Program in Physical Therapy
May 30*	—Day Summer Session
May 31	—Program in Communication Disorders
August 1	—Winter Session Intramural, full-time and part-time
September 4*	—Winter Extension and Correspondence
December 1	—Faculty of Medicine

* All supporting documentation must be received in the Office of the Registrar—Admissions within seven days following the appropriate application deadline date.

9.0 ENGLISH PROFICIENCY

Proficiency in English. Lectures, seminars, and examinations in this University are for the most part conducted in English and it is essential that all students have an adequate knowledge of written and of spoken English. An applicant for admission for whom English is a second language must submit with his application evidence acceptable to this University of his proficiency in English. The University reserves the right to deny admission to applicants who do not demonstrate satisfactory knowledge of English, by means of one of the tests mentioned below, regardless of academic qualifications. If admission is granted, any student who thereafter shows an inadequate command of spoken and written English must improve his style until his work satisfies his instructor. The grade assigned to written or oral work presented in English shall take into account English usage.

Applicants whose first language is not English are required to write one of the following tests:

Test of English as a Foreign Language (T.O.E.F.L.), administered by the College Entrance Examination Board. The T.O.E.F.L. is offered on several dates each year in a number of centres in Canada, the United States and many other countries. Applicants are required to make their own arrangements to write the T.O.E.F.L. and to have the results sent directly to the Admissions Office by the testing agency.

The T.O.E.F.L. Bulletin of Information and Registration Form can be obtained by writing well in advance for them to: Test of English as a Foreign Language, Box 899, Princeton, New Jersey 08540, U.S.A.

English Proficiency Test of the English Language Institute (E.L.I., University of Michigan.)

Applicants are required to make their own arrangements to write the English Proficiency Test by writing to: The English Language Institute, University of Michigan, Ann Arbor, Michigan, U.S.A. This test is offered in Canada, the United States, and several other countries.

The Michigan Test can be written at this University on the second Saturday of each month, from 10:00 a.m.-12:00 noon, beginning in February, 1974. Arrangements to write this test can be made by contacting: The Admissions Office, Stevenson-Lawson Building, The University of Western Ontario, London N6A 3K7, Ontario.

III REGISTRATION AND CHANGES IN REGISTRATION

1.0 REGISTRATION

Every student attending the University must have been granted Admission in accordance with the prescribed policies of the University (see Section II) and must:

(i) register with the Office of the Registrar for the courses taken in any academic session at the designated time for that session (see Academic Calendar for sessional dates).

(ii) pay all prescribed fees or make satisfactory arrangements for payment with the Office of the Comptroller.

Students who do not register at the times designated for the academic session attended will be charged a late registration fee. (see Section E.) A student's registration shall not be considered to be complete until he has made arrangements for the discharge of his financial responsibilities to the University in accordance with the University policies.

No Student will be permitted to register until all outstanding accounts due to the University have been paid.

1.1 Registration Status

Each undergraduate student will be classified as Regular or Special and Full-time or Part-time.

A student's registration status is determined as follows:

1.11 Regular Undergraduate Student:—a student who registers in the regular course requirement for a Program and is proceeding toward a degree in that Program.

1.12 Special Undergraduate Student:—a student who has received a degree from this or another University and who registers to take further courses but who is not a candidate for a degree.

1.13 Full-time Undergraduate Student:—a student who registers in any session for 3½ or more courses (see also Section D, Course Load and Section E, Fees.

1.14 Part-time Undergraduate Student:—a student who registers for 3 or fewer courses in any session.

1.15 Graduate Student:—any student registered in the Faculty of Graduate Studies (see appropriate calendar Section).

1.2 Course Selection

A student proceeding to a degree must select his courses in accordance with any prescribed requirements for the Program in which he is registered.

Many courses have specified prerequisites or co-requisites or require the approval of the Department. These requirements and any enrolment limitations should be noted carefully prior to registration.

A student may substitute for prescribed courses only with the consent of the Chairman of the Department of his Honours program or area of concentration, and the written approval of the Dean of his Faculty of registration. All substitutions must conform to the basic requirements as laid down by the Senate.

Special Students must obtain Departmental approval for each course selected, prior to registration.

A student registering in the regular Winter Session and intending to take Second Term Half Courses shall register for these courses in the September registration period.

Each student is responsible for ensuring that his course registration is accurate and complete!

2.0 PRIORITY COURSE SELECTIONS

Registration of full or part-time students at the University of Western Ontario and its Affiliated Colleges (Brescia, Huron, King's) is based upon priority course selections which the applicant, on the basis of his academic plans and academic counselling, has submitted as being appropriate for him. This format has been adopted in order to optimize the course registrations for each student.

Students wishing to transfer their registration from the Constituent University to an Affiliated College (Brescia, Huron, King's) or from an Affiliated College to the Constituent University should normally apply for such transfer prior to returning their registration materials.

2.1 Registration Procedures

Undergraduate students registering for the first time; re-admissions; and special students: (See admission deadlines set forth at the front of this Calendar). Students in good standing returning to the University or to an Affiliated College (Brescia, Huron, King's) after being out for one academic year are considered to be readmissions.

Failure of any student to meet the admission or registration deadlines may limit the availability of courses open to him.

Each student who accepts an offer of admission to the University or an Affiliated College will be given a course selection form. Students should specify the courses in which they wish to register on this form and return it, by the date specified.

Students selecting their courses must observe the regulations set forth in this calendar including course prerequisites and program requirements.

Academic counselling is available to all students in order to assist them in selecting courses and programs of study appropriate to their academic goals.

Students who wish to enter courses that require the permission of a Department or of an instructor, must submit a statement giving him such permission with his course selection form.

Special students should note that they are required to submit a statement of permission from the Department concerned for each course that they wish to enter.

It is the responsibility of each student to ensure the completness and accuracy of his registration.

2.2 Continuing Undergraduate Students

A priority course selection period will be scheduled in March, 1974. Students will be requested at this time to make their course selections for the academic year 1974-75. Academic Counselling will be available during this scheduled period and students will be urged to use this service when making their course selections.

A course revision and registration form will be mailed to each student with his examination report. Students may revise their earlier course selections and return it by the date specified on the form.

All students will be scheduled into their courses as their registration forms are received, a timetable will be prepared for them, and they will be informed of the time and place for the completion of their registration in September.

3.0 COMPLETION OF REGISTRATION (SEPTEMBER)

Students who have submitted priority course selection forms will complete their registration in September by paying their tuition fees, at which time they will be given their completed timetables.

Students registering in the Faculties or Schools of Business Administration, Dentistry, Engineering Science, Law, Medicine, Music, Nursing, the Programs in Communicative Disorders, Occupational Therapy, Physical Therapy, and the Department of Secretarial Science will do so by mail during the summer. Details of the procedures to be followed will be forwarded to them with their spring examinations reports.

4.0 INTERSESSION SUMMER SCHOOL

Students registering in Intersession Summer School (Evening and Day), Extension or Correspondence courses may do so by mail. For details concerning the courses to be offered and the procedures to be followed, the calendars, covering Summer School and Extension and Correspondence or the Office of the Registrar should be consulted.

5.0 LATE REGISTRATION

The last date for late registration is Friday, October 4, 1974. While every effort will be made to accommodate late registrants, students must be advised that a number of courses at this date may be filled and that their course selections may, therefore, be limited.

6.0 CHANGES IN REGISTRATION

6.1 Adding and Dropping Courses

6.11 Intramural Sessions

The last day for a change in registration, in an academic program, without academic penalty, by adding or dropping a full course, or a first term half course is 3 weeks after the commencement of first term lectures. (Friday, October 4, 1974).

The last day for a change of registration in an academic program without academic penalty, by adding or dropping a second term half course, is three weeks after the commencement of second term lectures. (Friday, January 24, 1975) under the following conditions:

(i) a second term half course may be replaced by another second term half course.

(ii) a second term half course may be added if a full course has been dropped prior to the penalty date for first term.

(iii) a second term half course may be added as an extra half course with the permission of the Dean of the Faculty of registration.

(iv) a second term half course may be dropped without replacement.

6.12 Extramural Sessions

Adding a course:
Winter Extramural Session: the day before the third class session.

Evening Summer Session (12 weeks): two weeks after commencement of lectures.

Intersession and Summer School (6 weeks each): third day of lectures.

Dropping a course without academic penalty:
Winter Extramural Session: the day before the third class session.

Evening Summer Session (12 weeks): two weeks after commencement of lectures.

Intersession and Summer School (6 weeks each): third day of lectures.

6.13 Procedure

A course may be added or dropped only with the joint approval of the Dean of the Faculty in which the student is registered (or his designate) and the Chairman (or his designate) of the Department concerned.

6.2 Program Changes

Program changes may only be authorized when submitted on a **Change of Status Form** available at the Dean's Office.

(a) Changes from Full-time to Part-time

(b) Changes from Honors to General

(c) Changes in Faculty Affiliation

(d) Withdrawal from University

A student who wishes to withdraw from the University must consult the Dean of his Faculty or School and complete the Change of Status Form. A student who withdraws without providing official notice to the Registrar will not be eligible for any refund of fees nor for exemption from unpaid fees. Fee refunds will be made on a pro rata basis. No refund of tuition fees will be made for registrations cancelled after March 15.

7.0 COURSE REGISTRATIONS: CONSTITUENT UNIVERSITY AND AFFILIATED COLLEGES

(Brescia, Huron, King's)

A student who is registered at the Constituent University or at an affiliated college (Brescia, Huron, King's) should note that if a course, appropriate to his program is offered in an Academic Unit other than his own he may register in it providing that his Academic Unit does not offer the course. A student must, however, have the written permission of the Dean of the Faculty, School or Affiliated College in which he is registered prior to registering in a course in another Academic Unit which is also offered in his own Academic Unit.

IV PROGRAMS IN THE FACULTIES OF ARTS, SCIENCE AND SOCIAL SCIENCE LEADING TO THE BA OR BSC DEGREE

For other programs, see the appropriate Faculty or Department in this Calendar. Programs in Arts and Social Science are also offered in the Affiliated Colleges (Huron, Brescia and King's Colleges). For the Program in Social Work, see King's College. Home Economics is offered in the Constituent University and at Brescia College.

1.0 FIRST YEAR GENERAL PROGRAM

The purpose of the First Year Program is to offer one year of general education, and to prepare the student for his selection of a specific program. Thus the student can make a decision as to his future program on the basis of university work which may include subjects not available in secondary school. On the successful completion of the First Year General Program, the student is eligible to register in the second year of one of the Three-Year Programs or the second year of one of the Honors Programs.

Completion of first year Arts, Science, or Social Science may also be the first step in proceeding to programs in the following Faculties or Schools:

—SCHOOL OF BUSINESS ADMINISTRATION: admission into Year III of the Honors BA Program follows two years of a three or four year program in Arts, Science or Social Science.

—FACULTY OF DENTISTRY: admission to Year I of the four year program leading to the DDS degree follows two years of university study. A student who intends to study Dentistry will normally apply for admission to First Year Science.

—FACULTY OF LAW: admission to Year I of the three year program leading to the LLB degree follows two years of university study. A student who intends to study Law will normally apply for admission to First Year Arts or First Year Social Science.

—FACULTY OF MEDICINE: admission to Year I of the four year program in the Faculty of Medicine normally follows two years of university study. A student who intends to study Medicine will normally apply for admission to First Year Natural Science.

—PROGRAM IN COMMUNICATION DISORDERS: admission to Year II of the program leading to the B.Sc. (CD) degree follows First Year Science or First Year Social Science.

—PROGRAM IN PHYSICAL THERAPY: admission to Year II of the program leading to the B.Sc. (PT) degree follows First Year Arts, Science or Social Science.

1.1 Election of First Year Courses

The courses open to a student in the First Year General Program are grouped into four divisions: Faculty of Arts, Faculty of Science, Faculty of Social Science and Electives.

The student registering in the First Year General Program must elect courses in accordance with the following regulations:

(a) Five full (or equivalent) courses numbered 001 to 029 selected from the Faculties of Arts, Science, Social

Science and certain other courses listed in the General section of this calendar.

(b) Inclusion of courses from at least two of the Faculties of Arts, Science and Social Science.

(c) Inclusion of the equivalent of one full course in each of five different subjects.

Note:

It is the student's responsibility to choose courses which fulfill the prerequisites for the senior program and courses in which he may wish to continue his studies in second year.

Special prerequisites are stated in the listing of the individual Departments of the Faculty. If in doubt, students should seek appropriate counselling and consult directly with the Department concerned.

Generally a full load of senior courses will not be permitted if the student fails to obtain pass standing in one or more of his five courses. However in exceptional circumstances, the Dean of the Faculty in which the student is registered may grant permission for one deferment or substitution.

A student will be registered automatically in the Faculty from which he has selected the greatest number of courses. If, however, he selects an equal number from two or more faculties, he may choose his faculty of registration.

1.2 First Year Courses (as of Jan. 1, 1974)

Faculty of Arts

Classics 027
English 020, 024, 026
French 002, 010, 020
German 001, 002, 005, 010, 020, 022
Greek 002, 010, 020
Hebrew 001, 010, 020 (Huron College)
Italian 002, 020
Latin 002, 010, 020
Philosophy 020, 021
Polish 002, 020
Portuguese 002, 020
Russian 002, 020
Spanish 002, 020, 021
Ukranian 002, 020 (offered in alternate years)
Visual Arts 020, 021

Faculty of Science

Applied Mathematics 020, 022
Astronomy 20, 21
Biology 20, 21
Contemporary Science 022, 023 (Faculty)
Chemistry 020, 021, 023, 025
Computer Science 020, 021
Geology 020, 021
Geophysics 021
Mathematics 010, 020, 021, 024, 027
Physics 020, 021, 022, 026

Faculty of Social Science.

Anthropology 020
Economics 020, 021
Geography 020
History 020, 021, 022 (Huron College), 023, 024, 025, 026, 027, 028, 029
Journalism 021
Politics 020 OR one of 021a, 022a, 023a
AND
one of 024b, 025b, 026b
Psychology 020, 022 (Huron College)
Sociology 020

Others. Anatomy 020a, 029b, 023 (Science)
Business 020
Engineering Science 020, 021
Home Economics (Brescia College) 020a, 020b, 023a, 024b, 025b
Music 020, 020y, 021, 023, 025, 026, 028
Nursing 020, 028
Occupational Therapy 100a, 180b
Physical Education 020
Physiology 101 (Science)
Religious Studies 010, 020, 021, 025, 029 (Affiliated Colleges)
Secretarial Science 025 (Social Science)
Social Welfare 020 (King's)

2.0 FIFTEEN COURSE PROGRAMS

2.1 Degree of Bachelor of Arts

(a) Graduation Requirements:

The requirement for graduation in the General BA Program is completion of a program of **fifteen** courses subject to the following conditions:

(i) Satisfactory completion of the first year general program in accordance with the three regulations stated under the entry "Election of First Year Courses".

(ii) Satisfactory completion of at least **ten** courses in subjects offered by the Faculties of Arts, Science and Social Science (excluding Secretarial Science) and by the Affiliated Colleges (excluding Social Welfare and Home Economics)

(iii) No more than **eight** courses in one subject may be counted among the fifteen courses of the program.

(iv) Satisfactory completion of at least **seven** senior courses (numbered 100 or above).

(v) Achievement of a "D" grade or higher in each of the fifteen courses counted for Graduation.

(vi) Achievement of an overall numerical average of 60% in the fifteen courses counted for Graduation.

(vii) Students admitted with advanced standing are required to complete a minimum of five full senior courses, or their equivalent, offered by the University or one of the Affiliated Colleges.

(viii) Not more than five courses may be taken under Letters of Permission at another university to fulfill graduation requirements of a particular baccalaureate program at this University.

(b) Area of Concentration:

An Area of Concentration may be chosen by students registered in this program, subject to the following requirements:

(i) The Department teaching the subject selected will specify the four senior (100-499) courses required to fulfill the Area of Concentration;

(ii) Declaration of an Area of Concentration should be made after completion of the First Year Program;

(iii) The Area of Concentration completed shall be designated on the official transcript upon graduation; if more than one Area of Concentration has been declared by the student and completed with the requirements for graduation in the Three Year B.A. Program, each shall be so designated.

2.2 Degree of Bachelor of Science

(a) Graduation Requirements:

The requirement for graduation in a Three Year BSc Program is completion of a program of **fifteen** courses subject to the following conditions:

(i) Satisfactory completion of the first year general program in accordance with the three regulations stated in the entry "election of first year courses."

(ii) Inclusion of at least **ten** courses from the offerings of the Faculty of Science.

(iii) Inclusion of at least **two** courses offered outside the Faculty of Science.*

(iv) Inclusion of at least **eight** senior courses.

(v) Achievement of a D grade or higher in each course counted for graduation.

(vi) Achievement of an overall average of at least 60% in the courses counted for graduation and an average of at least 60% in the minimum number of senior courses required in the major subject or approved area of concentration.

(vii) Students admitted with advanced standing are required to complete a minimum of five full senior courses, or their equivalent, offered by the University or one of the Affiliated Colleges.

(viii) Not more than five courses may be taken under Letters of Permission at another university to fulfill graduation require-

ments of a particular baccalaureate program at this University.

Note: *This rule is waived for the joint programs in Biology and Chemistry and in Chemistry and Geology.

(b) Area of Concentration:

The student shall select on entering the Second Year a major subject or approved area of concentration in the Faculty of Science and include in this program at least FOUR senior courses in this particular subject in accordance with any Departmental specifications. The major Department or the advisor for the approved area of concentration should be consulted in the choice of the Faculty of Science courses. The student's choice of program and any changes in that program must be approved by the Dean of the Faculty of Science.

2.3 Progression Based on Grade Points and Attempts

2.31 General

Grade points and Attempts are used to determine eligibility for progression.

A Grade Point Total of at least six must be accumulated in the first five full (or equivalent) courses attempted.

A Grade Point Total of at least fourteen must be accumulated in the first ten full (or equivalent) courses attempted.

In any event, a student must complete the requirements for graduation in the Three Year BA or BSc Program within the first 20 full or equivalent courses attempted (including repeated courses).

Following failure to achieve the minimum requirements for progression, or following the accumulation of six or more failed attempts, withdrawal from the University is mandatory for a minimum period of twelve months, except as follows:

The Dean of the Faculty in which the student is registered may waive this regulation, in which case it shall be the Dean's responsibility to Specify in writing the requirements that the student must meet in order for him to maintain his registration.

When a student has attempted four courses, and the Grade Point Total is five or less, registration in an ensuing session for more than three courses (on a full-time intramural basis) must be authorized by the Dean of the Faculty in which he proposes to register.

When the number of courses attempted in the current academic session; plus the total number of prior attempts, exceeds five but does not reach ten, the Grade Point Total for determining eligibility for further registration shall be calculated on the basis of the courses previously attempted, plus the course(s) of the current session, in a manner most advantageous to the student to reach five attempts with a minimum of six grade points.

When the number of courses attempted in the current academic session, plus the total number of prior attempts, exceeds ten, the

Grade Point Total for determining eligibility for further registration shall be calculated on the basis of the courses previously attempted, plus the course(s) of the current session, in a manner most advantageous to the student to reach a total of 10 attempts with a minimum of 14 gradepoints.

No student may register for more than a total of 20 course attempts prior to fulfilling the basic requirements for graduation (15 passes, with an average of 60%). In exceptional circumstances, further attempts may be authorized by the Dean of the Faculty concerned, but only if the cumulative average on successful attempts is at least 60 percent.

2.32 Progression on Readmission (following withdrawal for unsatisfactory standing):

In fifteen-course programs offered by the Faculties of Arts, Science, Social Science and the Affiliated Colleges

(a) The total number of "course attempts" permitted shall not exceed:

(i) 23 attempts, where the total number of courses still to be completed at the time of readmission is 10 to 15.

(ii) 22 attempts, where the total number of courses still to be completed at the time of readmission is 5 to 9.

(iii) 21 attempts, where the total number of courses still to be completed at the time of readmission is 1 to 4.

(b) a Grade Point Total of eight (8) must be accumulated in the first five full courses (or equivalent) attempted following readmission.

2.33 Attempts

An attempt is a course registration. Failure to cancel a course registration formally with the Office of the Registrar prior to the final Add/Drop date of the session will constitute an attempt.

2.34 Grade Point Scale:

Grade Points are assigned for achievement in courses as follows:

Mark Range	Grade Range	Grade Points	
		Full Courses	Half Courses
90 - 100	A+	5	2.5
80 - 89	A	4	2.0
70 - 79	B	3	1.5
60 - 69	C	2	1.0
50 - 59	D	1	0.5
Below 50	F	0	0

2.35 Explanation of Examination Report Comments

DRP Dropped after final date for dropping a course without penalty.
INC Incomplete.
F Failure.
P or F Pass or Failure for courses designated as Pass/Fail.
SUP Supplemental (in faculties offering that privilege).
SPC Special.
DEF Deferred.
WDN Withdrawal without penalty.

3.0 HONORS PROGRAMS

3.1 Admission to Second and Subsequent Years

Students in the Arts, Science and Social Science Programs are not registered in specific honors programs during their first year at this University. There are specific requirements for admission to the second year of all four-year Honors Programs based upon the courses selected and the standing obtained in the first year.

A student will be automatically accepted if he has an average of at least 70 percent with no grade of less than 60 percent in the courses listed as principal courses by the Department(s) of the subject(s) in which he is specializing. He must also have a passing grade in each of the courses listed as subsidiary courses by the Department(s) concerned.

A student with an average of 60 to 69 per cent in the principal courses of his Honors Program, and a passing grade in each of the subsidiary courses, may be accepted by special permission of the Department(s) concerned.

3.2 Progression and Graduation

If a student fails to progress in an Honors Program, he may apply for transfer to a Three-Year Program.

A student who passes all courses in the Fourth Year of an Honors Program for the degree of Bachelor of Arts or Bachelor of Science and satisfies all other requirements for graduation, but fails to qualify for an Honors degree, shall be awarded a BA or BSc degree without designation. Such a student may write a subsequent examination in order to qualify for an Honors degree.

A student will automatically graduate if he has a grade average of at least 60 percent in the principal courses of the Fourth Year, and a passing grade in all subsidiary courses.

A student who has a graduating average of at least 60 percent and a passing grade in all subsidiary courses, but whose grade average in the principal courses of the Fourth Year falls below 60 percent may graduate with an Honors degree only on the recommendation of the department(s) concerned.

A student expecting to enter an Honors Program should carefully consider the requirements of that program before selecting his first year courses.

In all years of all Honors Programs, options must be approved by all departments concerned.

The Ministry of Education accepts a degree in an Honors Program as the academic qualifications for a High School Assistant's Certificate, Type A, for teaching in the elementary and secondary schools of Ontario.

For further information on Honors Programs, consult the Faculty sections of this Calendar.

4.0 ACADEMIC ELECTIVES PROGRAM

Ontario Scholars and other students demonstrating outstanding academic potential, who are applying for full-time admission to First Year in the Faculties of Arts, Science or Social Science, are eligible to enter the Academic Electives Program.

The privileges of this program may be extended to any full-time student who has maintained an A average in each year of his University studies.

The program allows these students, with the Dean's approval in consultation with the departments concerned, to elect their own program of studies.

Admission to the Program shall be granted by the Dean of the Faculty designated by the applicant. The Dean shall appoint an advisor from among his faculty members for each student registered in his Faculty.

Selection of each course in the Program shall require the approval of the Chairmen of the Undergraduate or Curriculum Committee of the appropriate departments.

Achievement of an "A" average in a minimum of five courses per session is necessary for progression in the Program. The privileges of the Program shall be withdrawn upon transfer to another undergraduate program.

Degree Requirements:

(i) BA (General, without designation) with a minimum of fifteen courses of which no more than five are 20 level courses.

(ii) BA or BSc (General, with designations in an area or areas of concentration) with a minimum of fifteen courses, of which no more than five are 20 level courses.

(iii) BA or BSc (Honors, without designation) with a minimum of twenty courses of which fifteen must be honors courses.

(iv) BA or BSc (Honors, with designation in one or more areas of concentration) with a minimum of twenty courses of which fifteen must be honors courses.

Each Affiliated College may offer an Undergraduate Academic Electives Program leading to a BA degree under the same conditions. Admission to the Program shall be granted by the Dean or Principal of the Affiliated College in consultation with the Dean of the appropriate University Faculty.

5.0 STATISTICS COURSES

The following are statistics courses offered at this University;

Economics 135, 255
Psychology 281, 283a, 355b.
Sociology 31, 231, 400a & b.
Nursing 228.
Physical Education 255b.
Social Work 346.
Applied Mathematics 233, 343a.
Mathematics 135, 137a, 138b, 255b.

Some of these courses are anti-requisites of others. Please check with your Department or Faculty before Registration.

V GENERAL ACADEMIC POLICY

1.0 ACADEMIC STANDING

1.1 Policy

Students will be provided with the following information no later than the beginning of each course, and preferably before termination of scheduled classes:

(a) a written outline of each course offered by the Department (or Faculty), containing a general description of course content. If the course is taught by more than one person, the name of the course chairman shall be given in the outline;

(b) a statement of what will be expected of the registrant;

(c) a statement of the kinds of evaluation which will be used in assessing performance;

(d) as far as possible a clear indication of when assignments shall be due. When it is not practicable to assign exact dates, a tentative time period shall be suggested, for announcement later in the classroom of the exact dates.

1.2 Assignments and Term Tests

(a) Students will be informed of the exact dates for submission of course assignments at least six weeks prior to the last day of scheduled classes;

(b) Additional assignments will not be set in these last six weeks;

(c) Term tests or final examinations (apart from practical, laboratory or performance tests) will not be given in the three weeks preceding the final examination period in the Spring;

(d) For first term half courses, no term tests or final examinations (apart from practical, laboratory or performance tests) will be given in the three weeks preceding the mid-year examination period. No term tests for full courses or full-year half courses will be given in the week preceding this period. Final examinations for first term courses are given priority in this period, but term tests may be held at this time.

1.3 Examinations

Wherever possible, Departments (or Faculties) will ensure that final grades in their courses are derived largely from documented evidence demonstrating academic achievement, i.e. written or practical examinations, essays, reports, problem assignments. This does not preclude the use of oral examinations as part of the evaluation process.

The regular periods for written examinations are April/May for courses offered in the Fall/Winter Session and mid-August for courses offered in Summer Session.

In addition, a mid-year examination period has been established in December for first-term courses.

The privilege of examination in the work of a course may be withdrawn for unsatisfactory lecture (or laboratory) attendance or for continued poor term work.

Comprehensive examinations may be required for some Honors Programs at the end of the final year. They may be written or oral, or a combination, and are in addition to examinations in the courses of the Programs.

1.4 Deferred Examination

The Dean of a Faculty may grant the privilege of writing a deferred examination to a student unable to write an examination in the regular period. A deferred examination is normally written in an examination period, and may be written only at the University or an Affiliated College.

1.5 Special Examinations

A special Examination is any examination other than the regular examination, and it may only be offered with the consent of the Department concerned and with permission of the Dean.

Special examinations may be written only at the University or an Affiliated College. The examination fee is $15.

1.6 Supplemental Examinations

Supplemental Examination privileges are offered only in the Preliminary Program at Brescia College, or in Undergraduate Courses offered by the Faculties of Dentistry, Law, Medicine, and then only in exceptional circumstances.

1.7 Failure to Appear at Examinations

A student who fails to appear for an examination at the time set in the timetable will not be allowed to write the examination thus missed. He may, with the approval of the Chairman of the Department concerned, petition his Dean for standing, or permission to write a special examination. Petitions will be entertained only when they are submitted on compassionate grounds with supporting documents.

1.8 Aegrotat Standing

Aegrotat standing is the granting of credit for a course where the required examination was not taken. The credit shall be a mark/grade based on evaluation of achievement in the term work of the course.

Aegrotat Standing may be granted only for a student who has been unable to take the required final examination for medical or compassionate reasons.

A request for Aegrotat Standing must be submitted to the Dean of the Faculty/School of registration, normally before the end of the regular examination period. The application must be accompanied by documents supporting the request. The Dean may grant Aegrotat Standing on the recommendation of the Instructor or Department concerned. It shall be denied if, in the opinion of the Dean and the Instructor or Department concerned, there is insufficient evidence on

which to base a mark/grade. The Dean shall inform the student in writing, and the Registrar, of his decision as soon as possible.

If Aegrotat Standing is awarded, the student's record shall show the mark/grade assigned only.

If Aegrotat Standing is not granted, a student may petition his Dean for the privilege of writing a Deferred Examination.

1.9 Incomplete Standing and Extensions

A student who, for medical or compassionate reasons, is unable to complete his term work prior to the last day of classes and who wishes an extension in order to complete it, should submit a written request to his Instructor. If the request is supported by the Instructor and his Department Chairman, the latter shall forward to the Dean of the Faculty in which the student is registered a recommendation that the student be granted Incomplete Standing. The recommendation shall include the following information:

a) the type and extent of the work to be completed;

b) the date on which it is due;

c) the name of the faculty member who will receive and grade it;

d) the date by which a final grade will be forwarded to the Office of the Registrar.

If Incomplete Standing is granted, the Dean shall inform the student, Instructor and Department Chairman.

Failure of the student to meet the extended assignment deadline shall result in a grade of zero for the assignment unless the Dean authorizes a further extension for medical or compassionate reasons.

The authorization of the Chairman of the Department or Departmental Faculty of Graduate Studies Committee is sufficient for granting Incomplete Standing for graduate students.

2.0 GENERAL REGULATIONS AND DEFINITIONS

2.1 Term Work

Term work in a course will not be credited to a student beyond the academic session in which the course is taken.

2.2 Courses and Credits

2.21 Full and Half Courses

Two half courses are the equivalent of one full course in undergraduate programs, whether or not they have been taken in the same subject.

2.22 Options

An option is defined as one full course or two half courses.

2.23 Course Numbering

A new course numbering system has been instituted this year. Most courses whose numbers have been changed will be identified; for instance "020 (formerly 20)."

Courses numbered 100-499 are defined as Senior Courses.

001-019: courses at the pre-University level.

020-099: first year University level courses.

100-199: all other general courses.

200-299: Year 2 honors level and all honors courses not requiring prerequisites.

300-399: Year 3 honors level courses with prerequisites.

400-499: Year 4 honors level courses with prerequisites.

A course number with the suffix "a" indicates a course completed in the Autumn Term (usually a half course).

A course number with the suffix "b" indicates a course completed in the Spring Term (usually a half course).

A course number with the suffix "y" indicates a half course offered at any other time of the year.

Intramural registration in half courses must be made at the Fall Registration.

Prerequisites for half courses where specified, shall be observed in the same manner as for full courses.

Prerequisite: A course which must be taken prior to registration for credit in the desired course.

Corequisite: A course which must be taken concurrently with (or prior to registration in) the desired course.

Antirequisite: A course which, if already completed successfully, does not permit registration for credit in the desired course, and cannot be taken concurrently with it.

2.24 Course Load

The normal course load in any year of the 15 course B.A. and B.Sc. Programs is FIVE full (or equivalent) courses but one additional full (or equivalent) course may be included in any academic year with the consent of the Dean of the Faculty in which the student is registered.

The number of half courses in relation to a normal course load, shall be limited to five in each of the Fall and Winter Terms, except with the permission of the Dean of the Faculty of registration.

2.25 Extra Courses

Permitted only with the approval of the Dean of the Faculty of Registration.

2.26 Prerequisite for Senior Courses

A First Year student who has successfully completed an introductory course at the University of Western Ontario, or equivalent course elsewhere, will be permitted to enrol in a senior course upon the written recommendation of the Department concerned, and with the written approval of the student's Dean.

2.27 Duration of Retention of Course Credit

Where a department recognizes a course as fulfilling prerequisite requirements for progression, course credit may be granted regardless of the year in which prior study was completed, unless a department requires the repetition of a course prior to granting permission to progress in a subject. In that case, no credit is granted for the course earlier completed.

2.28 Substitutions

A student may substitute for a prescribed course only with the consent of the Chairman of the Department of his Honors program or area of concentration, and the written approval of the Dean of his Faculty of registration. All substitutions must conform to the basic requirements as laid down by the Senate.

2.3 Residence Requirements

At least ten of the full (or equivalent) courses must be completed from those offered by The University of Western Ontario. This requirement does not apply to students admitted with advanced standing.

2.4 English Language Proficiency

Any student who shows an inadequate command of spoken and written English must improve his style until his work satisfies his instructor.

The grade assigned to written or oral work presented in English shall take into account English usage.

3.0 PROGRESSION FOLLOWING ADMISSION WITH ADVANCED STANDING (All Programs)

(a) In addition to courses passed, all courses attempted at another University in which pass standing was not obtained will be counted in determining the total number of attempts allowed on admission to complete the minimum requirements for graduation.

(b) A Grade Point Total of eight must be accumulated in the first five full (or equivalent) courses attempted at The University of Western Ontario.

(c) To be eligible for graduation, a student granted advanced standing must obtain an average of 60 percent or higher on work completed at this University.

(d) Students admitted with advanced standing must complete a minimum of five full (or equivalent) senior courses (numbered 100 or higher) to graduate, as well as completing the specific requirements of their program.

Note: These regulations may be waived by the Dean, on recommendation of the Educational Policy Committee of his Faculty Council.

5.0 GRADUATION

Students expecting to graduate are required to submit to the Registrar a formal Application to Graduate.

Applications from students who expect to graduate in the Spring Convocation must be filed with the Registrar by March 1st of each year, and by those who expect to graduate in the Autumn Convocation, by August 1st of each year.

6.0 ACADEMIC RIGHTS OF STUDENTS: PETITIONS AND APPEALS

6.1 Definitions

A petition is "a request that a regulation be waived on compassionate grounds or because of extenuating circumstances".

An appeal is "a request that a grade on a particular piece of work, or a final standing in a course or program, be changed, on grounds provided by the individual appealing."

6.2 Procedure

Each step of the petition and appeal procedure shall be completed within a reasonable time. (An appeal must be filed with the department concerned within six (6) weeks following the date of issuance of an examination report).

A petitioner or appellant should have completed all stages of the Appeal process prior to applying to the Senate Review Board (Academic). This means that in the case of an appeal, the individual must have appealed to and been unsatisfied by the relevant instructor, the Chairman of the Department, and the Dean of the Faculty in which the course is offered. In the case of a petition, the petitioner must have requested relief from and been unsatisifed with the response of the Dean of the Faculty. Normally, the Dean of the

Faculty in which the petitioner is registered will be the relevant Dean; however, if the petition refers to a regulation related to a specific course, the relevant Dean will be the Dean of the Faculty which offers that course.

In summary, the stages of the appeal or petition processes are:

Appeal Process	Petition Process
1. Instructor	1. Dean
2. Department	2. Senate Review Board (Academic)
3. Dean	
4. Senate Review Board (Academic)	

The Senate Review Board (Academic) is the ultimate body to which students may appeal academic decisions affecting them. It hears the application of students appealing to the Senate against prior rulings of Deans and Faculty Councils relating to petitions and appeals. Further appeals of a procedural nature may be considered directly by the Chairman of Senate.

The petitioner is appellant may appear before the SRBA with or without counsel or by agent. The right to counsel is accorded only at the level of the SRBA. Cost of legal counsel shall be borne by the party concerned unless the final tribunal makes an order as to costs.

FEES

A NOTE ON FEES

Fees paid by students, commonly referred to as "tuition fees", consist of

(a) the basic tuition fee, covering admission, instruction, use of library facilities, examinations, diploma and (unless specified) laboratory fees; this fee is tax deductible;

(b) Supplementary fees, assessed in certain courses or programs requiring specific apparatus, supplies or instructional aids, or assessed to recover costs to the university of certain services or procedures of registration or admission; these fees are not tax deductible;

(c) activity fee, covering specific extra-curricular activities or services such as athletics, student government, health services, the University Community Centre, etc.; these fees are not tax deductible.

Undergraduate Fees

Faculties of Arts, Science, Social Science, Physical Education and the School of Business Administration	$655.50
Faculty of Education	$657.00
Faculty of Engineering Science	
1st year	$655.50
2nd, 3rd and 4th years	$715.50
Faculty of Dentistry not including instruments fee	$840.50
Faculty of Medicine	$840.50
Program in Occupational Therapy	$675.50
Faculty of Nursing and programs of Physical Therapy and Communication Disorders in the Faculty of Medicine	$630.50
Faculties of Music and Law	$665.50

(The above fees include a $67 non-academic charge for the University Community Centre Recreation and Athletic Building, the University Students' Council, Athletics, and Health Services.

This charge is non-refundable after the first day of classes. A tax certificate for the remainder will be available by the last day of February each year.

Other Tuition Fees

Summer School and Extension	per full course	$125.00
	per half course	$62.50
Correspondence	per full course	$125.00
Non-Credit	per full course	$60.00

Other Charges

Late registration fee	$25.00
Withdrawal during registration week (including transfer to Affiliated College) (minimum charge)	$50.00
Supplemental examination	$10.00
Supplemental examination at an outside centre	$15.00
Special examination	$15.00
Transcript of academic record	$1.00
Other fees on request	

THE BOARD OF GOVERNORS RESERVES THE RIGHT TO AMEND FEES AFTER THE PRINTING OF THIS LIST.

Payment of Fees (Subject to Change)

A student who registers for 3½ courses or more shall be considered a full-time student and will pay full fees.

Fees may be paid in two installments. 1st term fees are due and payable on or before registration day. The amount is greater than one half the total fee. Specific amounts will be indicated with the registration materials or on request. 2nd term fees are due and payable on or before the first day of the second term, without a reminder from the University. The second installment includes a deferred charge of $5.00.

Deferment of Fee Payments

Notwithstanding the regulation that fees must be paid either by mail not later than two weeks prior to the beginning of classes, or alternatively in person on the dates specified, exceptions may be permitted under the following circumstances:

a. A student who has evidence of having been awarded a Canada Student Loan which must be assigned to the University to pay the fees:

b. A student who has evidence of having been awarded a scholarship, bursary, or similar award, which may be used to pay the fees:

c. Deferment of fee payment may be granted by the Fees Supervisor in certain special circumstances provided that the student can show satisfactory evidence of ability to pay on or before October 15th.

Late Payments (Students in Professional Faculties)

First Term Fees

It is the responsibility of each student who has, at the time of registration, made arrangements for late payment of fees, to pay at least first-term fees by October 15th of each year. A student who, for some reason, has not received his loan, award, or the like, must notify the Fees Supervisor and discuss with him a possible extension.

Second Term Fees

It is the responsibility of each student to pay second term fees by the due date of each year. A student who for some reason has not

received his award or scholarship must notify the Fees Supervisor to discuss a possible extension.

Cancellation of Registration

A student who has failed to comply with the above regulations may have his registration cancelled as of the date on which the unpaid fees were due.

Reinstatement

On the written recommendation of the Dean of the relevant Faculty or School a registration which has been cancelled under the regulation above may be reinstated only by the immediate payment of all fees due and a $25.00 late registration fee.

Academic Sanctions

In instances of non-payment of any portion of prescribed fees and of delinquency in the return or replacement of University property on loan, the University shall

(a) not issue a Grade Report

(b) not issue a Permit to Register

(c) not issue a transcript or degree diploma

(d) not permit further registration.

Moreover, the above prohibitions shall be in force until such time as indebtedness to the University has been cleared to the satisfaction of the University.

These same prohibitions shall apply for violation of Residence Understandings, provided that the Senate establish a Review Board.

Refund of Fees

A refund schedule is calculated and prorated weekly for most undergraduate programs. Details of the amounts are available in the Registrar's Office or the Fees Section, Office of the Comptroller.

Transcripts

A transcript is a photocopy of your permanent academic record at this University, duly certified by the Registrar, and bearing the embossed seal of the University. It is considered to be "privileged information" and is available only upon the written request and payment of a fee by the student.

It is invariably required as one of the supporting documents for application to another University; Graduate School; Canada Council, etc., and commonly requested by prospective employers.

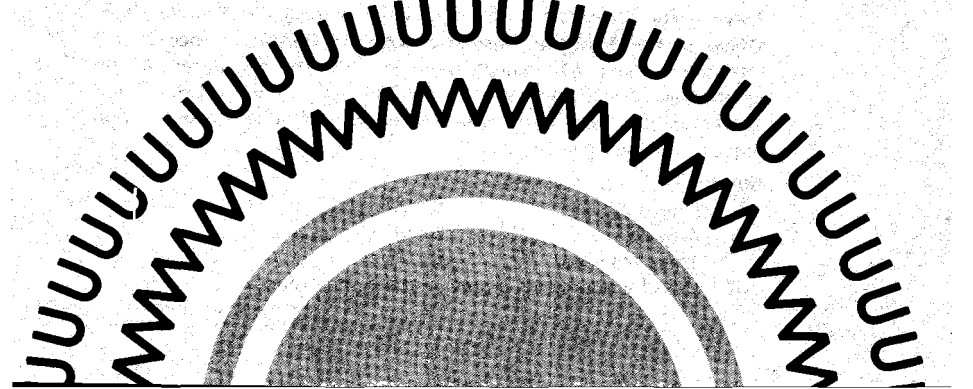
Request for Transcript forms are available from the Enquiry Desk, Office of the Registrar, Stevenson-Lawson Building. Since official transcripts must be mailed directly from the Registrar to the institutions designated by the student, you must provide their addresses. Unofficial transcripts are issued by mail to students, upon request, for their own use.

Rates:

One copy:	$1.00
Two copies:	$2.00
Three copies:	$2.25

(25¢ for additional copies on the same order)

Faculty of Arts



Faculty of Arts

Dean
John Gordon Rowe, SB Harvard; BD Episcopal Theological School, Cambridge, Mass.; MA, PhD Toronto; DD Huron College
Assistant Dean
Graham Stewart Rose, BSc, PhD Birmingham

PROGRAMS

GENERAL PROGRAMS

The Faculty of Arts offers three year Programs leading to a BA degree with an area of concentration in Classical Studies, English, Visual Arts, French, German, Greek, Italian, Latin, Philosophy, Russian and Spanish.

HONORS AND COMBINED HONORS PROGRAMS AND COMBINATIONS

The Faculty of Arts offers four year Programs leading to an Honors BA. Honors programs in a single subject are designed for students with a special interest in that subject, and provide them with the opportunity to concentrate their work in a particular field. Each program introduces students to the subject as a whole, and gives them some degree of mastery of it. A minimum of fifteen courses (including both principal courses and options) is required in the three senior years. Such programs prepare students for the Ontario High School Assistant's Certificate, Type A, in the principal subject, as well as for admission to graduate work in the subject.

Each honors program has a structure established by the Department concerned. Since there is often choice among the principal courses and since, in general, options are chosen by the student (in consultation with the Department), honors programs are flexible enough to permit a variety of patterns within the regulations outlined above. The following patterns are two examples:

(a) A program of courses which will lead to an Honors Degree in one subject supported by related courses in other subject. A student may, for instance, take an Honors Degree in English or in French, and in his options concentrate on, say, the modern period, by taking courses in Contemporary Literature, Modern Drama, Modern History, Modern Art, Contemporary Philosophy, Current Topics in Economics, Contemporary Science, and so on.

(b) A program of courses which will lead to an Honors Degree in one subject supported by courses in other subjects which may or may not be related to the honors subject but which are of interest to the student.

Within the Faculty of Arts, any two of the following subjects may be studied in a Combined Honors program: English, Visual Arts, French, German, Greek, Latin, Philosophy, Russian, and Spanish. A Combined Honors Program consists of a maximum of seven courses in each of the two subjects (excluding prerequisites at the 020 level), plus enough options to make up fifteen courses in the three senior years. Combined Honors programs involving a subject within the Faculty of Arts and a subject in another Faculty are also available, and are listed separately with the Departments concerned.

Combined Honors Programs provide students with the opportunity to do concentrated work in two subjects. These programs are more than the combination of two halves of a single honors program but less than the combination of two single honors programs. As such, a combined program may not qualify a student for graduate work in either principal subject without further course work at the honors level. These programs, in general, are accepted by the Department of Education of Ontario as the academic qualification for the High School Assistant's Certificate Type A, in the two principal subjects, but students should consult the Registrar at Althouse College of Education for specific requirements.

A combination of Honors courses in two subjects is also available in some departments which will permit a student to study both of them for the first two years at the honors level and, at the end of that period, to decide, after consultation with both of the Departments involved, to take an Honors Degree in one subject and the equivalent of a General Area of Concentration in the other, during the third and fourth years. This combination is possible within the Faculty of Arts and in a number of instances with Departments outside the Faculty. Interested students should consult their departmental advisers.

Students seeking options within the Faculty of Arts are reminded that the Departments of French, German, Russian and Spanish and Italian offer literature courses in translation with no language prerequisites. These are listed as such by the respective departments.

The Faculty of Arts wishes to encourage every student to find the total program of study which will satisfy his individual needs, but it can help him to work out such a program only when he seeks individual counselling. Both the Dean's Office and the Departments are ready to provide such counselling: it is up to the student to seek it.

DEPARTMENT OF CLASSICAL STUDIES

Talbot College

Chairman of Department: D. E. Gerber, BA, MA UWO; PhD Toronto. (on leave 1974-75)
Acting Chairman: C. L. Murison, MA Edinburgh; MA Cantab.
PROFESSOR EMERITUS: Ralph; PROFESSORS: Gerber, Raymond; ASSOCIATE PROFESSORS: Avotins, Littlewood, Murison; ASSISTANT PROFESSORS: Broege, Crowther, Moscovich, Stanley-Porter;

FIFTEEN COURSE (GENERAL) PROGRAM AND COURSES

CLASSICAL STUDIES

(ability to read Greek and Latin not required)

The requirements for a concentration in Classical Studies in the Three-year program consist of Classical Studies 27 (or permission of the Department) and any four senior Classical Studies courses.

027. Classical Literature in Translation. A study of the development of literary genres in the Greek and Roman world, including prescribed reading of specimens of each type in translation, plus lectures and discussions on general background.
3 hours (lecture), - full course.

130. The Art of Prose. A study of the development of classical rhetoric, its influence on higher education and poetry, and the beginnings of stylistic literary criticism.
2 hours (lecture), - full course.
Not offered 1974-75

132a. Women in Classical Antiquity. The status of and attitudes towards women in Greece and Rome.
2 hours (lecture), - half course, first term.

133b. Classics and the Contemporary Scene. A study of various issues of social relevance to the modern world in the light of what the ancient Greeks and Romans felt about them.
2 hours (lecture), - half course, second term.

135. Greco-Roman Political Theory and Institutions. A study of the theories of leading classical writers on

politics and their relationship with the institutions of various states of the Greco-Roman world.
2 hours (lecture), - full course.

137. Classical Mythology. A study of Greek and Roman mythology, with some reference to its influence in modern European literature.
2 hours (lecture), - full course.

139. Greek and Roman Religion. Greek, Roman and Christian contributions to the religious life of the classical world.
2 hours (lecture), - full course.

140. Greek History. A survey of the history of Greece from the Minoan and Mycenaean period to Rome's ascendancy.
Antirequisite: Classical Studies 275.
2 hours (lecture), - full course.

141. Roman History. A survey of the history of Rome from its beginnings to the fall of the Western Empire.
Antirequisite: Classical Studies 275.
2 hours (lecture), - full course.

143. Roman Law. The origin and substance of Roman Law and its application in the everyday life of the Roman world.
2 hours (lecture), - full course.

147. Classical Civilization. Greece and Rome, with emphasis on cultural and social life rather than political history.
2 hours (lecture), - full course.

148. Byzantine Civilization and Art. An examination of the essence of Byzantine civilization, the bridge between the ancient and the modern world. Approximately a third of the course will be devoted to art, the most obvious expression of the Byzantine genius.
2 hours (lecture), - full course.

GREEK

The requirements for a concentration in Greek in the Three-year program consist of Greek 020 and four senior (i.e. honors) Greek courses chosen by students in consultation with the Department Chairman.

002. Elementary Greek. An accelerated preparatory course for those who wish to begin the study of Greek at the University, and to have the possibility of proceeding directly to Greek 020.
Antirequisite: Grade 13 Greek
4 hours (lecture), - full course.

010. Intermediate Greek. Selections from Freeman and Lowe, Greek Reader; Plato, "Crito"; composition, sight translation.
Antirequisite: Grade 13 Greek.
Prerequisite: Grade 12 Greek.
3 hours (lecture), - full course.

020. Advanced Greek. Plato, "Apology"; a play of Euripides; composition, sight translation.
Prerequisite: Grade 13 Greek, or Greek 010, or Greek 002 with permission of the Department.
3 hours (lecture), - full course.

LATIN

The requirements for a concentration in Latin in the Three-year program consist of Latin 020 and four senior (i.e. honors) Latin courses chosen by students in consultation with the Department Chairman.

002. Elementary Latin. An accelerated preparatory course for those who wish to begin the study of Latin at the University, and to have the possibility of proceeding directly to Latin 020.
Antirequisite: Grade 13 Latin
4 hours (lecture), - full course.

010. Intermediate Latin. Selections from prose and poetry; composition and sight translation (Normally offered only at Brescia College, in Summer School, or by Correspondence).
Antirequisite: Grade 13 Latin
Prerequisite: Grade 12 Latin.
3 hours (lecture), - full course.

020. Advanced Latin. Vergil, "Aeneid" IV; Pliny, Selected Letters;

composition and sight translation. Prerequisite: Grade 13 Latin or Latin 010, or Latin 002 with permission of the Department.
3 hours (lecture), - full course.

HONORS PROGRAMS AND COURSES

CLASSICS

Requirements for Admission. First Year: Greek 020, Latin 020 and one other course as principal courses, English and another modern language as recommended options.

After the First Year the program consists of six honors Greek courses, seven honors Latin courses (Latin 200, 250, 260, and any four others), Classical Studies 275, the Comprehensive Examinations (Greek 495 and Latin 495), and one free option.

LATIN AND GREEK

Requirements for Admission. First Year: Latin 020, Greek 002 or 010 and one other course as principal courses, English and another modern language as recommended options. The requirements for admission to Greek 020 must be completed by the beginning of the second year.

After the First Year the program consists of seven honors Latin courses (Latin 200, 250, 260, and any four others), Greek 020, 200, 250, 300, 350, Classical Studies 275, the Comprehensive Examinations (Latin 495 and Greek 495), and two free options.

LATIN

Requirements for Admission. First Year: Latin 020, Greek 002 (if taken), and one or two other courses as principal courses, English and another modern language as recommended options. If Greek 002 is not taken until the Second Year, the requirements for admission to Greek 020 must be completed by the beginning of the Third Year.

After the First Year the program consists of eight honors Latin courses (Latin 200, 250, 260, and any five others), Greek 002 or 010, 020, 200 and 250, Classical Studies 275, the comprehensive Examination (Latin 495), and two free options.

COMBINED HONORS PROGRAMS

Latin or Greek may be combined with English, Fine Art, French, German, Philosophy, Russian or Spanish in a Combined Honors Program.

Requirements for Admission. First Year Program (Arts, Science or Social Science) with Latin 020 or Greek 020 and two other courses as principal courses, one of which must satisfy the requirements for the second subject in the Combined Honors Program, as detailed under the listing of the department concerned.

After the First Year the program consists of a total of at least fifteen courses: a minimum of six Latin courses (Latin 200, 250, 260, and any three others) or six Greek courses (Greek 200, 250, 300, 350, 355, 400), Classical Studies 275, the Comprehensive Examination in Latin (Latin 495) or Greek (Greek 495), the required courses in the second subject, as listed by the department concerned, and enough options to complete the total.

HONORS COURSES

CLASSICAL STUDIES

275. Greek and Roman History. (Offered by this Department but counts for History students as History course). A survey course emphasizing the 5th century B.C., 1st century B.C. and A.D., with introductory lectures on historical methodology and the Ancient Near East.
Antirequisites: Classical Studies 140 or 141).
3 hours (lecture).

GREEK

200. Greek Epic. Selections from Homer and Hesiod.
Prerequisite: Greek 020.
3 hours (lecture).

250. Greek Prose I. Selections from Lysias and Demosthenes; composition and sight translation.
Prerequisite: Greek 020.
3 hours (lecture).

300. Greek Drama. One play each of Aeschylus ("Persae" or "Prometheus Vinctus"), Sophocles ("Oedipus Tyrannus" or "Antigone"), Euripides ("Hippolytus" or "Bacchae"), Aristophanes ("Frogs" or "Clouds").
Lectures on the theatre and the drama.
Prerequisite: Greek 200 or 250.
3 hours (lecture).

350. Greek Prose II. Selections from Thucydides and Plato's "Republic" (one term on each).
Prerequisite: Greek 250.
3 hours (lecture).

355. (Former 450). Greek Prose III. Selections from Herodotus and Aristotle.
Prerequisite: Greek 250.
3 hours (lecture).
Not offered 1974-75

400. Greek Lyric and Hellenistic Poetry. Selections.
Prerequisite: Greek 200 or 300.
3 hours (lecture).
Not offered 1974-75

495. Comprehensive Examination. A three-hour paper in sight translation of Greek authors, to be written in the final year.
Not offered 1974-75

LATIN

200. Roman Personal Poetry. Lyric and Elegy (Selections from Catullus, Horace, Tibullus, Propertius, Ovid).
Prerequisite: Latin 020.
3 hours (lecture).

250. Roman Prose. Cicero, composition and sight translation.
Prerequisite: Latin 020.
3 hours (lecture).

260 (Former 300). Vergil. Selections from "Eclogues", "Georgics" and "Aeneid".
Prerequisite: Latin 020.
3 hours (lecture).

270 (Former 350). Roman Drama. One play each of Plautus, Terence and Seneca, with supplementary readings in translation.
Prerequisite: Latin 020.
2 hours (lecture).
Not offered 1974-75

301a (Former 400a). Roman Satire. Selections from Horace, Persius, Juvenal and Seneca.
Prerequisite: any two honors Latin courses.
3 hours (lecture), - half course, first term.
Not offered 1974-75

302b (Former 401b). Silver Age Epic. An examination of the genre of epic with readings from Lucan and other representative authors.
Prerequisite: Latin 260 (Formerly 300).
3 hours (lecture), - half course, second term.
Not offered 1974-75

351a (Former 450a). Roman Philosophical Prose. Selections from Cicero and Seneca.

Prerequisite: Latin 250.
2 hours (lecture), - half course, first term.
Not offered 1974-75

352b (Former 451b). Roman Philosophical Poetry. Selections from Lucretius.
Prerequisite: Latin 200 or 260 (formerly 300).
2 hours (lecture), - half course, second term.
Not offered 1974-75

375. Roman Historiography. Selections from Livy, Tacitus and other representative authors.
Prerequisite: Latin 020, Classical Studies 275, or permission of the Department.
3 hours (lecture).

377y. (Former 477y). Latin Composition.
Prerequisite: Latin 250.
1 hour (tutorial), - half course, whole year.
Not offered 1974-75

475a. Selected Topics in Ancient History.
Prerequisite: Latin 375.
2 hours (lecture), - half course, first term.
Not offered 1974-75

476b. Roman Literary History and Criticism.
Prerequisite: Any four honors Latin courses or permission of the Department.
2 hours (lecture), - half course, second term.
Not offered 1974-75

495. Comprehensive Examination. A three-hour paper in sight translation of Latin authors, to be written in the final year.
This is the equivalent of a full course.
Not offered 1974-75

DEPARTMENT OF ENGLISH

University College

Chairman of the Department: T. J. Collins, BA, MA UWO, PhD Indiana
PROFESSOR EMERITUS: Klinck; PROFESSORS: Atkinson, Barker, Bates, Bolgan, Collins, Conron, Fleck, Hair, Graham, A. K. Hieatt, C. B. Hieatt, Rajan, Rans, Reaney, Sanborn, Stingle, Woodman; ASSOCIATE PROFESSORS: Bandeen, Chapin, Devereux, Kaula, Parker, Somerset, Wilson; ASSISTANT PROFESSORS: Arnold, Auksi, Bieman, Brown, Dragland, Garber, Gaudet, Gedalof, Good, Hensley, House, Lundgren, McKay, Mellamphy, Redekop, Smith, Straulman, Surette, Tausky, Woodruff, Young, Zezulka; LECTURERS: Baker, Fox, Ross, Shroyer, Stanko, Willis.

ENGLISH LANGUAGE AND LITERATURE

Requirements for Admission

First Year Program with English 020, or English 024, or English 026, and French or a foreign language 020, 021, or 022, and one other course as the principal courses. Students who fail to qualify for automatic admission but who complete the first year with an average of at least 60% in their principal courses, and at least 60% in English 020, 024, or 026 SHOULD APPLY to the Department for consideration.

Five courses constitute a normal load in each of Second, Third, and Fourth Years. Students who wish to take extra courses may do so, after consultation with the Department. In each of Second, Third, and Fourth Years, a student must take at least two honors English courses.

After First Year, the program consists of a minimum of nine honors English courses and six options. The honors English courses may be taken in any sequence, but must be distributed as follows:

at least one of: 320, 321

at least one of: 330, 331

at least one of: 340, 341

at least one of: 350, 360

at least two of: 370, 381, 382, 383

at least one of: 302, 332, 333, 342, 371

any two honors English courses not already chosen.

Additional honors or general English courses may be chosen as options.

English 495 (Comprehensive Examination) is required in Fourth Year in addition to the normal five-course load. Students must obtain a grade of at least 60% in this Examination before they may be admitted to an honors degree in English. A student who fails the Examination may repeat it once only.

The Examination is held on the first Saturday in April and on the Saturday which ends the first week of lectures in the Fall term (mid-September). Students in the Fourth Year of the Honors English Language and Literature program must write the Examination in April, and may write it in September only if they fail the April Examination. The reading list and any other material on which the examination is based may be obtained from the Department of English.

ENGLISH AND DRAMA

Requirements for Admission

First Year Program with English 020, or English 024, or English 026, and French or a foreign language 020, 021, or 022, and one other course as principal courses. Students who fail to qualify for automatic admission but who complete the first year with an average of at least 60% in their principal courses, and at least 60% in English 020, 024, or 026 SHOULD APPLY to the Department for consideration.

Five courses constitute a normal load in each of Second, Third, and Fourth Years. Students who wish to take extra courses may do so, after consultation with the Department. In each of Second, Third, and Fourth Years, a student must take at least two honors English courses.

After First Year, the program consists of a minimum of twelve honors English courses and three options. The honors English courses may be taken in any sequence, but must be distributed as follows:

at least two of: 320 or 321; 330 or 331; 340 or 341

at least one of: 350, 360, 370

at least one of: 381, 382, 383

at least two of: 302, 332, 333

at least two of: 402, 342, 371

Dramatics 303

any three honors English courses not previously chosen.

Additional honors or general English courses may be chosen as options.

English 495 (Comprehensive Examination) is required in Fourth Year in addition to the normal five-course load. Students must obtain a grade of at least 60% in this Examination before they may be admitted to an honors degree in English. A student who fails the Examination may repeat it once only.

The Examination is held on the first Saturday in April and on the Saturday which ends the first week of lectures in the Fall term (mid-September). Students in the Fourth Year of the Honors English and Drama program must write the Examination in April, and may write it in September only if they fail the April Examination. The reading list and any other material on which the Examination is based may be obtained from the Department of English.

COMBINED HONORS PROGRAMS

Within the Faculty of Arts, English may be studied with Visual Arts, French, German, Greek, Latin, Philosophy, Russian or Spanish in a Combined Honors Program.

Requirements for Admission

First Year Program (Arts, Science or Social Science) with English 020, or English 024, or English 026 and two other courses as principal courses, one of which must satisfy the requirements for the second subject in the Combined Honors Program, as detailed under the listing of the department concerned. Students who fail to qualify for automatic admission but who complete the first year with an average of at least 60% in English 020, 024 or 026 SHOULD APPLY to the Departments for consideration.

After the First Year, a combined Honors Program consists of a total of at least fifteen courses: a minimum of six honors English courses, six or seven courses in the other principal subject, and two or three options. The honors English courses may be taken in any sequence, but must be distributed as follows:

at least two of English 320 or 321; 330 or 331; 340 or 341

at least one of English 350, 360, 370

at least one of English 381, 382, 383

at least one of English 332, 333, 342, 371

any honors English course not previously chosen.

For courses required in the other principal subject see the listing of the Department concerned.

Five courses constitute a normal load in each of Second, Third, and Fourth years. Students who wish to take extra courses may do so, after consultation with the Department. In each of these years, a student must take at least two honors English courses. Additional honors or general English courses and additional honors courses in the other principal subject may be chosen as options. Options are to be chosen in consultation with the Departments concerned.

ENGLISH AND HISTORY

Requirements for Admission

First Year Program with English 020, or English 024, or English 026 and any course in History 020 series and one other course as principal courses. Students who fail to qualify for automatic admission but who complete the first year with an average of at least 60% in their principal courses, and at least 60% in English 020, 024 or 026 SHOULD APPLY to the Departments for consideration.

After the First Year, the program consists of a total of at least fifteen courses: a minimum of six honors English courses, six honors History courses, and three options. The honors English courses may be taken in any sequence, but must be distributed as follows:

at least two of English 320 or 321; 330 or 331; 340 or 341

at least one of English 350, 360, 370

at least one of English 381, 382, 383

at least one of English 332, 333, 342, 371

any honors English course not previously chosen.

Second Year: The Department of History recommends the following courses: History 236; 231 or 234. Students are free to choose others from the 200 or 300 series.

Third Year: Recommended: History 335; one other course in the Honors History 300 series or, with the permission of the instructor, from the Honors History 300 or 400 series.

Fourth Year: two courses chosen from the Honors History 300 or 400 series.

Five Courses constitute a normal load in each of Second, Third, and Fourth Years. Students who wish to take extra courses may do so, after consultation with the Department. In each of these years, a student must take at least two honors English courses and two honors History courses. Additional honors or general English courses and additional honors History courses may be chosen as options. Options are to be chosen in consultation with the Department concerned.

COURSES

Detailed descriptions of the following courses may be obtained from the Department of English, University College, Room 173.

020. General Literature and Composition. An introduction to selected major works of literature in English, indicating something of the historical range and the modal and generic variety of that literature.
3 hours.

024. Forms of Fiction. An introduction to the study of a) a selection of fiction ranging from the Greek epic to the modern novel, including both short and longer forms; b) a variety of fictional modes and narrative techniques.
3 hours.

026. Forms of Drama. An introduction to the study of (a) the main principles of dramatic art; (b) selected aspects of dramatic and theatrical history; (c) the major dramatic genres.
3 hours.

GENERAL COURSES

These courses are for upperclassmen who wish to take English courses as options, but do not have English 020, or English 024, or English 026; for students in the Three-year Program in English who want a wider variety of senior courses (such students will also have taken English 020, or English 024, or English 026, and can therefore also choose to take Honors courses, or a combination of General and Honors courses); and for students in the Honors English programs who want a greater selection of subsidiary courses.

130. Comparative Literature. A course of reading in English or in English translations of some of the great books of Western civilization from Homer to Joyce with particular emphasis on the growth of epic, drama and fiction.
3 hours.

131. Contemporary Literature. An introduction to the poetry and prose of the contemporary scene.
3 hours.

132. Introduction to Linguistics. An introduction to the chief types of scientific study of language, designed primarily for the student who is either a native speaker of English or whose

major field of study is English language and literature. Examples of various language types and systems are studied, with English as a constant point of reference.
3 hours.

133. Children's Literature. Readings from significant books written for children, selected primarily for literary quality. Some attention will be given to the historic evolution of "Children's Literature" as a separate class, but the principal aim of the course will be to consider the nature and development of the two major genres: nonsense verse and romance.
3 hours.

134. Fantasy, Science Fiction, and Other Forms of Romance. A study of such forms as fantasy, utopian literature, the gothic novel, and science fiction.
3 hours.

135. The Literature of the Bible. A study of extensive readings in the prose and poetry of the Bible, including the Apocrypha, with supplementary readings in later literature. Attention will be given to genres, styles, structural and symbolic patterns, and the use of Biblical materials in later literature.
3 hours.

136. Contemporary Drama. An introduction to the drama of the contemporary scene.
3 hours.

137. The English Language. A study of the history of the language, dealing with changes in sounds, spelling, and grammar, leading to a detailed study of modern English.
3 hours.

138. Canadian Literature and Culture. An introduction to as many images of our civilization as possible: poetry, prose fiction, social documentaries, autobiographies as well as Eskimo, French and Indian texts in translation. This material is informally related to our painting, music and films through the use of slides and tapes.
3 hours.

Film 140. Film, 1895-1970. A study of the evolution of the cinema from 1895 to the present day. This survey is designed to acquaint the student with both technological and aesthetic developments in the medium through an analysis of the work of the major film-directors in their historical and social perspective. In addition to lectures and tutorials, there will be one viewing of a film each week.
3 hours.

Film 141. Contemporary Film.
Prerequisite: Film 140, or permission of the Department.
A study of contemporary film through an examination of the works of the major film-makers and of the aesthetic and technological influences on their works. In addition to lectures and tutorials there will be at least one viewing of a film each week.
3 hours.

Film 142. Problems.
Prerequisite: Film 140 or 141, or permission of the Department.
3 hours.

Speech 143. The Major Forms of Oral Discourse. For effective communication of ideas: Public Address, with basic purposes; Group Discussion; Debate; Voice and Diction; Interpretative Reading.
2 hours.

NOTE: Film 140, Film 141, Film 142, and Speech 143 cannot be credited as part of an area of concentration in English in the three-year BA Program.

HONORS COURSES

The following courses are available to any student regardless of program who has at least a C standing in English 20, or English 24, or English 26, or the permission of the Department.

300. The Novel.
3 hours.

301. Criticism. A survey of the major critics and problems in terminology and practical criticism.
3 hours.

302. Greek and Roman Theatre and Drama.
3 hours.

303. Dramatics. Studies in the principles and theories of directing, acting and design.
2 hours lectures, 2 hours laboratory.

320. Old English Language and Literature. With special emphasis on Beowulf.
3 hours.

321. Chaucer and His Age.
3 hours.

330. Literature of the Sixteenth Century. Excluding drama.
3 hours.

331. Literature of the Seventeenth Century. Excluding drama.
3 hours.

332. Shakespeare.
3 hours.

333. Medieval to Jacobean Drama (1300-1642). Excluding Shakespeare.
3 hours.

340. Literature of the Restoration and Early Eighteenth Century (1660-1727).
3 hours.

341. Literature of the Eighteenth Century (1727-1790).
3 hours.

342. The Drama: Restoration to Romantic.
3 hours.

350. Literature of the Romantic Revival (1798-1832).
3 hours.

360. Literature of the Victorian Period (1832-1900).
3 hours.

370. Modern Literature (1890-1945).
3 hours.

371. Modern Drama.
3 hours.

381. Canadian Literature.
3 hours.

382. Literature of the United States to 1885.
3 hours.

383. Literature of the United States from 1885.
3 hours.

401. Problems Course.
Prerequisite: English 020, or English 024 or English 026, and permission of the Department.
3 hours.

402. Problems Course: Drama.
Prerequisite: English 020, or English 024, or English 026, and permission of the Department.
3 hours.

403. Advanced Dramatics. Advanced work in directing, acting, and design.
Prerequisite: 303 or permission of Department.
4 hours.

490. Thesis. Individual instruction in the selection of a topic, the preparation of materials, and the writing of a thesis. Students who wish to take this course must apply to Professor C. E. Sanborn, Chairman, Committee on Undergraduate Studies, Department of English. This course is restricted to students in Year Four of an Honors English Program.

DEPARTMENT OF FRENCH

University College, Room 138.

Chairman: Dr. C. A. Venesoen, LèsL., DèsL. Laval.
PROFESSORS: Bush, Sanders, Torrens (Emeritus), Tuchmaier, Venesoen; ASSOCIATE PROFESSORS: Atance, Baguley, Balsé, Creighton, Forsyth, Heller, Issacharoff, Jones, Walters; ASSISTANT PROFESSORS: Arnold, Brunet, Davies, Gagnon, Ly, Ross, Saraydar, Vilquin, Youssef; LECTURERS: Bowker, Dupraz, Goldschlager, Holmes, Jones, Keypour

15-COURSE (GENERAL) PROGRAM AND COURSES

The required courses for a concentration in French in the Three-year program are: French 271, 290 and at least 2 of the following: French 232, 381 (strongly recommended), 396, 338, 360, 370, 380, 390.

A student will normally proceed to a concentration in French with French 020 or French 021 as a prerequisite, in the absence of which he may register only with the approval of the Department.

All courses are given in French unless otherwise stated.

COURSES

002. Intensive French. Grammar, composition, oral practice. This course is designed for students beginning French, or having a limited knowledge of French.
Antirequisites: Grade 12 or 13 French.
5 hours, tutorials, lab.

010. Intermediate French. Grammar review, composition, translation, oral practice. (One hour per week in the language laboratory may be required).
Antirequisite: Grade 13 French.
Prerequisite: Grade 12 French or French 002 or by permission of the Department.
3 or 4 hours, tutorials.

020. French Language and Literature. This is the basic Freshman course in French, providing training in Language and Literary studies.
Antirequisite: 021.
Prerequisite: French 010, Grade 13 French, or by permission of the Department.
4 hours, lectures, tutorials, lab.

021. French Language. A study of the French language based on cultural (non-literary) written material, translation exercises and basic grammar problems.
Prerequisite: French 010 or Grade 13 French, or by permission.
4 hours, lectures, tutorials, lab.

130. The French Novel. A study of typical examples of the novel, taken from French literature of the seventeenth through the twentieth centuries.
Prerequisite: French 020, French 021 or by permission of the Department.
3 hours, lectures, tutorials. NOT offered in 1974-75

131. Language. Grammar, composition, translation, oral practice. (One hour per week in the language laboratory may be required).
Antirequisite: 271.
Prerequisite: French 020, French 021 or by permission of the Department.
3 or 4 hours, lectures, tutorials.

132. French Civilization.
(See French 232).

134. French Drama. A study of typical examples of French dramatic literature of the seventeenth through the twentieth centuries.
Prerequisite: French 020, French 021

or by permission of the Department.
3 hours, lectures, tutorials.

136. French Poetry. A study of representative French poems from the nineteenth century to the present.
Prerequisite: French 020 or by permission of the Department.
3 hours, lectures, tutorials. NOT offered in 1974-75

138. French-Canadian Literature. A study of major French-Canadian literary works.
Antirequisite: 338 (Formerly 398).
Prerequisite: French 020, French 021 or by permission of the Department.
3 hours, lectures, tutorials.

139. Modern French Literature in Translation. A study of French novels and plays. This course is taught in English.
3 hours, lectures, tutorials.

140. Currents of Thought in Modern France. A study of major French authors of the twentieth century who have made a significant and durable contribution to modern thought. This course is taught in English, with French texts in translation.
3 hours, lectures, tutorials.

141. Advanced Grammar and Composition. (One hour per week in the language laboratory may be required).
Antirequisite: 381.
Prerequisite: French 131 or 271 or by permission of the Department.
3 or 4 hours, lectures, tutorials.

142. French-Canadian Civilization. A series of readings drawn from material concerned with French-Canadian Civilization, and discussion on them.
Prerequisite: French 020, French 021 or by permission of the Department.
3 hours, lectures, tutorials.

143. Commercial French. Translation of commercial correspondence, readings.
Prerequisite: French 131, 271 or by permission of the Department.
3 hours
lectures, tutorials.

045 (Former 45). Scientific French. Reading of Scientific French from textbooks and journals, supplemented by individual readings in the special field of study of each student.
Prerequisite: French 002, 010 or Grade 13 French.
1 hour, lecture, tutorial, half-course.
Not offered in 1974-75

HONORS PROGRAMS AND COURSES

FRENCH LANGUAGE AND LITERATURE

Requirements for Admission

First Year Program (Arts, Science or Social Science) with French 020, or French 021 and two other courses as principal courses. Options are to be chosen in consultation with a Departmental adviser.

SECOND YEAR
Principal Courses French 232, 271, 290

Subsidiary Courses Two Options

THIRD YEAR
Principal Courses French 380 or 390, 381, 396, 338 or 360 or 370.

Subsidiary Course One Option

FOURTH YEAR
Principal Courses French 400, 410, 420 or 430, 491, 495*, 338 (if not previously taken).

*Comprehensive Examination

Subsidiary Course One Option

COMBINED HONORS PROGRAMS

Within the Faculty of Arts, French may be combined with English, VISUAL Arts, German, Greek, Latin, Philosophy, Russian or Spanish in a Combined Honors Program.

Requirements for Admission: First Year French 020, or French 021 and two other courses as principal courses, one of which must satisfy the requirements for the second subject in the Combined Honors Program as detailed under the listing of the department concerned.

After the First Year, the program consists of a total of at least fifteen courses, a minimum of seven honors French courses, six or seven courses in the other principal subject, and one or two options. The French courses must be taken as follows:

Second Year

French 271, 290

Third Year

Either Two courses: 381 and one of 338, 360, 370, 380, 390, 396; or Three courses: 381 plus one of 380, 390, 396, plus one of 338, 360, 370, 396

Fourth Year

French 491, 495 and one or two of 400, 410, 420, 430. (420 and 430 may not be taken together).

COMBINATIONS

French may be taken in combination with other subjects to allow the student to take an Honors Degree in one subject and the equivalent of a General Degree Area of Concentration in the other.

French may be combined with such subjects as English, Visual Arts, German, History, Journalism, Latin, Music, Philosophy, Political Science, Russian, Spanish and Italian.

In all these combinations the French Department requires that French 271 and French 290 be taken in the second year. For required second year courses in the other subject of the combination, the student should consult the Department concerned.

In the third and fourth years, should the student opt for Honors French with an Area of Concentration in the other subject, his French courses will be the third and fourth year principal courses in the French Language and Literature Program. Should the student choose to take Honors in the other subject and an Area of Concentration in French, the required French courses will be two from the following: French 232, 380, 390, 381 (strongly recommended), 396, 338, 360, 370.

Students interested in registering in combinations should consult their Departmental Advisers in both Departments before choosing their courses.

HONORS COURSES

All students in Honors Programs will take a comprehensive examination (French 495) during their final year.

232. French Civilization. A study of modern France, her historical background and political, economic, social and cultural development.
Antirequisite: 132 (Formerly 32)
Prerequisite: French 020, French 021 or by permission of the Department.
3 hours, lectures, tutorials.

271. Language. Grammar, composition, oral practice, phonetics, history of the French Language. (One hour per week in the language laboratory may be required). This course is required for a concentration in French.
Antirequisite: 131 (Formerly 31)
Prerequisite: French 020 or 021 or by permission of the Department.
3 or 4 hours, lectures, tutorials.

290. Introduction to French Literature. A study in depth of some major French texts, with training in the skills of literary analysis. This course is required for a concentration in French.
Prerequisite: French 020, 021 or by permission of the Department.
3 hours, lectures, tutorials.

360 (Former 398). 20th Century French Literature.
Prerequisite: French 290.
3 hours.

370 (Former 398). 19th Century French Literature.
Prerequisite: French 290.
3 hours.

380 (Former 378). 18th Century French Literature.
Prerequisite: French 290.
3 hours, lectures, tutorials.

381. Language. Grammar, composition, translation and oral practice. (One hour per week in the language laboratory may be required). This course is recommended for a concentration in French.
Antirequisite: 141 (Formerly 41)
Prerequisite: French 271.
3 or 4 hours, lectures, tutorials.

390 (Former 378). 17th Century French Literature.
Prerequisite: French 290.

396. History and Structure of the French Language. Historical phonetics and Grammar, Linguistics and Grammatical Systems of modern French.
Prerequisite: French 271.
3 hours, lectures, tutorials.

338 (Former 398). Literature of French Canada.
Antirequisite: 138 (Formerly 38)
Prerequisite: French 290.
3 hours, lectures, tutorials.

400. Senior Seminars. Selected topics
Prerequisites: French 338 or 360 or 370 or 380 or 390.
2 hours, lectures, tutorials.

410. Supplementary Studies. Selected authors and texts
Prerequisites: French 338 or 360 or 370 or 380 or 390.
2 hours, lectures, tutorials.

420. Literature to 1500. Selected authors and texts.
Prerequisites: French 338 or 396 or 360 or 370 or 380 or 390.
2 hours, lectures, tutorials.

430. Mediaeval French Literature.
Prerequisite: French 338 or 396 or 360 or 370 or 380 or 390.

491. Language. Composition, translation and oral practice; introduction to comparative stylistics.
Prerequisite: French 381.
3 or 4 hours, lectures, tutorials.

495. Comprehensive Examination. Dissertation, written in French, which will test the student's knowledge of specific areas of French literature, plus a brief oral examination consisting of an "explication de texte". Further details on the material to be examined may be obtained from the office of the Department of French.

Department of German

University College

Chairman of Department: Professor R. M. Immerwahr, AB Swarthmore; MA Northwestern; PhD California (Berkeley).
PROFESSOR EMERITUS: Kalbfleisch; PROFESSORS: Immerwahr, Tracy; ASSOCIATE PROFESSORS: Anderson, Schluetter, Spencer; ASSISTANT PROFESSOR: Purekevich; LECTURERS: Hess, Kimpel

CONCENTRATION IN GERMAN

The requirements for a concentration in German in the three-year program consist of 4 senior courses in German. These may be one language course (e.g. 291, 391 or 491) and three literature courses, or two language and two literature courses.

Courses on German literature in translation (e.g. 132 and 124) may not be counted among the requirements for a concentration in German. The courses must be chosen in consultation with a departmental Advisor. A student will normally proceed to a German concentration with German 20 or 22 as the prerequisite, in the absence of which he may register in a German concentration only with the approval of the Department.

GENERAL COURSES

001. Introductory German. Study of the sounds and structure of the language. Intensive oral and written practice. Readings in prose and poetry.
Antirequisites: Grade 13 German, 002 or 005.
3 hours.

002. Intensive German for Beginners. A more intensive course than German 1. Designed for students who begin German at the University and who contemplate making German their subject of concentration or desire to enter the German Honors courses.
Antirequisites: Grade 13 German, 001 or 005.
3 lecture hours, 2 laboratory hours.

005. Elementary Scientific German. The elements of German grammar and readings in scientific German.
Antirequisites: Grade 13 German, 001 or 002.
3 hours.

010. Intermediate German. Further study of the structure and idiom of the language. Readings in modern prose and poetry. Oral and written practice.
Antirequisites: Grade 13 German or 002.
Prerequisite: German 001 or permission of the Department.
3 hours.

020. German Language and Literature. Survey of German Literature, conducted largely in German, with further work on the language.
Antirequisite: 022
Prerequisite: Grade 13 German or 002 or 010 or permission of the Department.
3 hours, (plus optional lab hours).

022. German Conversation and Contemporary Readings. A course designed to increase proficiency in the use and comprehension of spoken and written German. Systematic oral practice and discussion of contemporary texts. Conducted in German. This course is a first year alternative to German 020.
Antirequisite: 020
Prerequisite: as for German 020.
3 hours, (plus optional lab hours).

124 (Former 36). Modern German Fiction in Translation. This course is designed to introduce the English-speaking student to German writers

of the late 19th and 20th centuries who have influenced contemporary literature and thought (e.g. Mann, Kafka, Hesse, Grass). The course will be given in English and may not count towards a German concentration.
3 hours.

132. History of German Civilization. A survey of German civilization from the Middle Ages to 1945. Includes literary and philosophical currents, social and political developments and the most important trends in the visual arts and music. Readings and lecturers in English. This course may not be counted toward a concentration in German.
(May be taken as half-course (a or b))
3 hours.

142 (Former 42). German Lyric Poetry.
Prerequisite: German 020 or 022 or permission of the Department.
3 hours.

190 (Former 30). Shorter Prose Fiction from Goethe to the Present.
Antirequisite: 290.
Prerequisite: German 020 or 022 or permission of the Department.
3 hours.

194 (Former 44). A study of some major German novels of the nineteenth and twentieth centuries.
Antirequisite: 294 (Formerly 444).
Prerequisite: German 020 or 022 or permission of the Department.
3 hours.

199 (Former 40). German Drama from the Classical Period to the Present.
Antirequisite: 299 (Formerly 390).
Prerequisite: German 020 or 022 or permission of the Department.
3 hours.

INFORMATION ON HONOURS COURSES AND PROGRAMS

GERMAN LANGUAGE AND LITERATURE

Requirements for admission. First Year Program (Arts, Social Science, or Science) with German 020 or 022 (or 002 or 010) and two other courses as principal courses.

SECOND YEAR

Principal Courses

Two or three of: German 232, 253, 290, 291 (or, as recommended by the Department, either 391 or 491).

Subsidiary Courses

Two or Three Options

THIRD AND FOURTH YEARS

Principal Courses

German 399, 391, 320, 310, 370, 394, 380, 382, 491 as required to make a total of nine in the three senior years (see note below).

Literature courses in the 300 and 400 series may be taken in any sequence, but students are advised to include at least one course from each of the following:

A) 310, 370 (earlier German Language and Literature)

B) 380, 382 (the classical period)

C) 399, 320, 394 (courses emphasizing literature of the 19th and 20th centuries)

Subsidiary Courses

Three or four Options

NOTE: There is to be a total of nine German Honors courses in the three senior years and a comprehensive examination in the spring designated as German 495. Additional German courses may be taken as options. Students are normally required to take the three language courses 291, 391 and 491. Students fully proficient in spoken and written German are required to include as their only language course German 491.

GERMAN AREA STUDIES

Requirements for Admission. First Year Program (Arts, Science or Social Science) with German 020 or 022 (or 002 or 010).

Students should be aware that a twenty-level course is a prerequisite to Honors work in many subjects and should select their first year program accordingly.

After the first year the program consists of eight German Honors courses and six courses drawn from any two (or three) of the following departments, schools or faculties: Anthropology, Business Administration, Economics, Visual Arts, Geography, History, Music, Philosophy, Political Science, Sociology and such others as may be found appropriate.

In addition there is one option in the three senior years.

The German courses would normally be taken as follows:

Second Year

Three of the following:

German 232, 253, 290 and 291. (but see note below)

Third and Fourth Years

German 399, 391, 320, 310, 370, 394, 380, 382, 491, as required to make a total of eight courses in the three senior years.

NOTE: Students are normally required to take the three language courses 291, 391 and 491.

Students fully proficient in spoken and written German are required to include as their only language course German 491. Other students with considerable proficiency are required to take German 391 and 491.

For appropriate options, see departments concerned.

Other courses and departments could be added.

COMBINED HONORS PROGRAMS

German may be combined with English, Fine Art, French, Greek, History, Latin, Philosophy, Russian or Spanish in a combined Honors Program.

Requirements for Admission. First Year Program (Arts, Science or Social Science) with German 020 or 022 (or 002 or 010) and two other courses as principal courses, one of which must satisfy the requirements for the second subject in the Combined Honors Program, as detailed under the listing of the other department concerned. (Students who take German 002 or 010 in the first year must take German 020 or German 022 along with their second year courses).

After the First Year the program consists of a total of at least fifteen courses: a minimum of seven German Honors Courses, the required courses in the second subject, as listed by the department concerned, and enough options to complete the total.

The German courses must be taken as follows:

Second Year

2 or 3 of: 232, 253, 290, 291 (or, as recommended by the Department, either 391 or 491).

Third and

Fourth Years

399, 391, 320, 310, 370, 394, 380, 382, 491 as required to make a total of seven in the three senior years. Literature courses in the 300 and 400 series may be taken in any sequence.

NOTE: There is to be a total of seven German Honors courses in the three senior years. Students are normally required to take the three language courses German 291, 391 and 491. Students fully proficient in spoken and written German are required to include German 491 as their only language course. A comprehensive examination in the spring, designated as German 495, is recommended in addition to the seven German Honors courses for all students planning to do graduate work in German.

GERMAN AND HISTORY

Requirements for Admission. First Year Program (Arts, Science or Social Science) with a 020-level History course and German 020 or 022 and one other course as principal courses. After the First Year the program consists of a total of at least fifteen courses, a minimum of seven honors German courses, seven honors History courses, and one option.

The German courses must be taken as follows:

Second Year

2 or 3 of: 232, 253, 290 and 291 (or, as recommended by the Department, either 391 or 491).

Third and Fourth Years

399, 391, 320, 310, 370, 394, 380,

382, 491 as required to make a total of seven in the three senior years.

NOTE: There is to be a total of seven German Honors courses in the three senior years. Students are normally required to take the three language courses German 291, 391 and 491. Students fully proficient in spoken and written German are required to include as their only language course German 491. A comprehensive examination in the spring, designated as German 495, is recommended in addition to the seven German Honors courses for all students planning to do graduate work in German.

History courses must be taken as follows:

Second Year

History 231, 236

Third Year

Two of History 330, 235, 226, 346, 356

Fourth Year

Three of History 230, 226, 356, 436, 456, 460

Subsidiary Courses

One option in the Second Year. (An additional German or History course may be selected).

HONORS COURSES

Students may enter honors courses only if they have completed German 020 or German 022 or have obtained the approval of the Department). Literature courses in the 300 series may be taken in any sequence.

232. History of German Civilization. A survey of German civilization from the Middle Ages to 1945. Includes literary and philosophical currents, social and political developments and the most important trends in the visual arts and music. Readings in modern German.
(May be taken as half-course(a or b))
Prerequisite: German 020 or 022 or permission of the Department.
2 hours lecture, 1 hour tutorial.

253. Contemporary Society in Recent German Writing. A survey of German writing of all kinds, exemplifying social trends, problems, issues and ideologies in the four German-speaking countries in the past ten or twelve years.
Prerequisites: 020, 022 or permission of Department.
3 hours.

290. German Prose and Poetry of the Nineteenth Century.
Antirequisite: 190 (Formerly 30)
Prerequisite: German 020 or 022.
3 hours.

291. Conversation and Composition.
Prerequisite: German 020 or 022 or equivalent competence in written and spoken German.
3 hours.

310 (Former 425). Medieval German Literature. Selected writings from the period 800 to 1500, read partly in modern German translation, with emphasis on Middle High German lyric and epic poetry.
3 hours.

320 (Former 420). German Literature of the Twentieth Century.
3 hours.

370b (Former 430). German Literature of the Sixteenth and Seventeenth Centuries.
(half-course, second term)
3 hours.

380 (Former 480). German Classicism. Goethe.
3 hours.

382 (Former 482). Lessing and Schiller.
3 hours.

391. German Culture. Aspects of German intellectual and cultural history will be the basis of the discussion and writing.
Prerequisite: German 291 or equivalent competence in written and spoken German.
3 hours.

394 (Former 444). The German Novel from the Eighteenth Century to the Present.
Antirequisite: 194 (Formerly 44).
3 hours.

399 (Former 390). German Drama of the Nineteenth Century.
Antirequisite: 199 (Formerly 40).
3 hours.

491. Contemporary Germany. The discussion and writing will centre on contemporary German society.
Prerequisite: German 391 or equivalent competence in written and spoken German.
3 hours.

German 495. A written examination which will test the student's general knowledge of German language and literature and their historical development as well as his critical and evaluative ability. Required for the honors program in German Language and Literature and recommended for all students contemplating graduate study in German.

LINGUISTICS

Courses in Linguistics and related studies in language are offered cooperatively by faculty members in the Arts and Social Science Faculties. Students interested in work in Linguistics should choose from among the courses listed below (more detailed course descriptions and prerequisites can be found listed under the various departments). Before beginning study, however, students are urged to obtain a copy of the booklet "Course Offerings in Linguistics" which is available from the Department of English, Room 173, University College or from the Department of Anthropology, Room 3324, Social Science Centre.

ANTHROPOLOGY 241.	General Linguistics
ANTHROPOLOGY 245a.	Topics in Language and Culture
ANTHROPOLOGY 246b.	Topics in Language and Society
ANTHROPOLOGY 335a.	Historical Linguistics
ANTHROPOLOGY 336b.	Structure of a Non-Indo-European Language
ANTHROPOLOGY 325a.	Readings in Anthropology
ANTHROPOLOGY 326b.	Special Topics in Anthropology
ENGLISH 132.	Introduction to Linguistics
ENGLISH 137.	History of the English Language
FRENCH 396.	History and Structure of the French Language
PHILOSOPHY 455.	Philosophy of Language
PSYCHOLOGY 233.	Psychology of Language
RUSSIAN 493.	Introduction to Russian Linguistics

DEPARTMENT OF PHILOSOPHY

Talbot College

Chairman: R. W. Binkley, BA Colorado; PhD Minnesota
PROFESSORS: Binkley, Butts, Davis, Hooker, Johnson, Johnson, Leach; ASSOCIATE PROFESSORS: Block, Bronaugh, Bub, Freed, Henry, Hockney, Lennon, Marras, Maynard, Pearce, Williams; ASSISTANT PROFESSORS: Beaman, Harper, Muehlmann, Nicholas, Shorten.

THREE-YEAR PROGRAM

There is no special departmental requirement for concentration in Philosophy. Philosophy 020 or 021 is recommended in first year, however, and it is also recommended that the student include at least some courses from Philosophy 130, 131, 142 and 148, in the second and third years, as well as some honors courses. Students concentrating in Philosophy should consult with the assistant chairman of the Department each year before registration.

GENERAL COURSES

020. Introduction to Philosophy. A survey of selected philosophical problems, with reference to both classical and contemporary philosophers. Specimen topics include: the mind-body problem, the existence of God, perception and matter, freedom and determinism. Primarily for Freshmen. 3 hours.

021. Reasoning and Critical Thinking. An introduction to basic principles of reasoning and critical thinking designed to enhance the student's ability to evaluate various forms of

reasoning as found in everyday life as well as in academic disciplines. The course will deal with such topics as inductive and deductive reasoning, the nature and function of definitions, types of fallacies, the use and misuse of statistics, and the rudiments of logic. Practical application in several fields will be stressed.
3 hours.

130. The Philosophical Foundations of Western Thought. A survey of the history of Western philosophy tracing the development of major philosophical ideas and discussing their role in the formation of the Western intellectual tradition.
2 hours.

131. Introduction to Logic. An introduction to Aristotelian logic, propositional logic, and general quantification. Related problems in the philosophy of logic, semantics, and inductive logic will also be examined.
Antirequisite: 251.
2 hours.

132. Philosophy of Literature. A philosophical critique of man, values and society based on an analysis of representative literary works. Readings will include works of such authors as Dostoevsky, Nietzsche, D. H. Lawrence, Thomas Mann, Sartre, Camus, Unamuno, Huxley, Beckett, Hesse etc.
2 hours.

134. Introduction to Philosophy of Science. A critical examination of philosophical issues involved in scientific method, confirmation of scientific hypotheses, scientific explanation, concept formation and theory construction. Normally philosophical problems arising in formal and natural sciences will be examined.
2 hours.

135. Aesthetics. Conceptual problems relating to the production and appreciation of the fine arts. Specimen topics include the nature of the work of art and of artistic expression, artistic criticism, fiction, metaphor, appreciation, and the logic of value judgments.
Antirequisite: 255 (Formerly 355)
2 hours.

136. Ancient Philosophy. A survey of the principal developments from the Presocratics (600 B.C.) to Plotinus (250 A.D.). Primary emphasis will be placed on the critical reading of selected original sources.
Antirequisite: 256.
2 hours.

137. Social and Political Philosophy. A critical study of selected problems in classical and contemporary social and political thought. Specimen topics: social justice, authority and the individual, concepts of democracy, legitimacy of revolution.
Antirequisite: 237 (Formerly 337).
2 hours.

138. Existentialism. A course designed to acquaint the student with the fundamentals of the existentialist movement. Among philosophers considered will be Heidegger, Sartre, Merleau-Ponty, Jaspers, Marcel and Berdyaev.
Antirequisite: 238 (Formerly 338).
2 hours.

139. Philosophy of Education. Analysis of major issues of educational theory and policy; the role of education in a culture and in the life of the individual, its ends and means, the contribution of teacher and student curriculum. Emphasis is placed upon underlying concepts and values.
2 hours.

140. Philosophy of Law. A critical study of some of the main problems in the philosophy of Law. Questions of basic theory will be considered as well as applications to particular issues. Specimen topics: nature of law, law and morality, 'hate' literature, pornography, the insanity defense.
Antirequisite: 237 (Formerly 337).
2 hours.

142. Ethics. A critical study of the central issues of moral philosophy, with reference both to classical and to contemporary authors. Specimen topics include egoism, hedonism, utilitarianism, relativism, subjectivism, rationality in ethics, and the nature of moral judgment.
Antirequisite: 262 (Formerly 362).
2 hours.

143. Philosophy of Religion. Conceptual problems relating to personal and institutionalized religion. Specimen topics include: the nature of religious experience and knowledge, analysis of the concept of God, analysis and comparison of important types of religious philosophy.
Antirequisite: 253 (Formerly 353).
2 hours.

146. Critiques of Contemporary Culture. Critical examination of prevailing value systems from the point of view of philosophy. Philosophical issues concerning the nature and standards of such criticism will also be discussed. Specimen topics: culture and values; conservative, liberal and radical critiques; the arts and the sciences in society; the idea of Utopia; leisure and work; cultural identity; value change.
2 hours.

147. Early Modern Philosophy. A critical examination of basic philosophical literature from Continental Rationalism and British Empiricism, with special emphasis on such figures as Descartes, Spinoza, Leibniz, Locke, Berkeley, and Hume.
Antirequisite: 257.
2 hours.

148. Contemporary Philosophy. A critical study of selected 20th Century philosophers. Movements and figures discussed vary from year to year. Specimen topics include pragmatism, positivism, existentialism, linguistic analysis: Russell, Moore, Whitehead, Dewey, Wittgenstein.
2 hours.

149. Special Topics in Philosophy. Special topics accommodating the interests of the instructor and students, selected from various areas in Philosophy, e.g. value theory, philosophy of mind, philosophy of mathematics, philosophical ideas in literature.
(Offered on demand)
Prerequisite: one course in Philosophy
2 hours.

156. Theory of Rational Choice. Analysis and critique of decision-making processes. A survey at the elementary level of decision theory, game theory, systems analysis and other recent technical developments is combined with a philosophical consideration of the underlying concept of rationality in practical decision, of the relevance to decision-making of moral and other values, and of concrete applications in the realms of social policy and business.
2 hours.

157a. Philosophy of the Social Sciences. A general introduction to basic methodological and philosophical problems in the social sciences - especially psychology and sociology. Sample topics: functionalism, teleological explanation, the role of interpretation and value judgment in the social sciences.
Antirequisite: 244 (Formerly 344).
half course, first or second term; 2 hours.

158b. Philosophy of History. A critical examination of various theories of history and historical understanding. Sample topics: models of historical explanation, value-neutrality, the meaning of causation in history, the problem of historical relativism, utopias and historical determinism.
Antirequisite: 244 (Formerly 344).
half course, first or second term; 2 hours.

159. Science, Philosophy and Culture. A comparison of the foundations of myth, mysticism, philosophy,

and science as sources of knowledge. The course will examine both philosophically and historically what steps were necessary in the emergence of the modern scientific attitude from a background of myth, religion and metaphysics.
2 hours.

HONORS PROGRAMS

All selections of courses by students in Philosophy honors programs require written departmental approval and students must consult with the Department each year before registration for this purpose.

PHILOSOPHY

Requirements for Admission. First Year with, at minimum, three principal courses which should include Philosophy 020 or 021. With permission of the Department of Philosophy, a student who has not taken Philosophy 020 or 021 may enter this program.

After the first year this program requires, at minimum, nine honors Philosophy courses and six options. Some of the options may be additional Philosophy courses and probably should be in the case of a student contemplating graduate work in Philosophy. Philosophy 254 must be taken in the second year and at least three 400 level Philosophy courses must be taken. For the rest, the student makes his own selection of courses in consultation with the Department and with its approval. Second year students are recommended to select from among 251, 256, 257, while third year students are to select from among 237, 238, 244, 250, 351, 253, 255, 357, 262, and 395.

The normal load is five courses each year including at least two honors Philosophy courses. These and one other course (which shall be an honors Philosophy course, if taken) shall be considered as principal courses. Additional courses may be taken with the approval of the Department.

PHILOSOPHY WITH MINOR

Requirements for Admission. First year General program (Arts, Science or Social Science) with, at minimum, three principal courses which should include Philosophy 020 or 021 and whatever principal courses are required by the Department of the Minor. With permission of the Department of Philosophy, a student who has not taken Philosophy 020 or 021 may enter this program.

After the first year the program requires, at minimum, seven honors Philosophy courses, five honors courses in the Department of the Minor and three options. Some of the options may be additional Philosophy or Minor courses, and probably should be in the case of a student contemplating graduate work. Philosophy 254 must be taken in second year and at least two 400 level Philosophy courses must be taken. The selection of Minor courses requires the approval of the Department of the Minor which must be consulted each year before registration, along with the Philosophy Department.

The normal load is five courses each year including at least two honors Philosophy courses and one course from the Minor, which shall be considered as principal courses. Additional courses may be taken with the approval of the Departments.

COMBINED HONORS PROGRAMS

Within the Faculty of Arts, Philosophy may be combined with English, Visual Arts, French, German, Greek, Latin, Russian or Spanish in a Combined Honors Programs.

Requirements for Admission. First Year with Philosophy 020 or 021 and two other courses as principal courses, one of which must satisfy the requirements for the second subject in the Combined Honors Program, as detailed under the listing of the department concerned. With the permission of the Department of Philosophy, a student who has not taken Philosophy 020 or 021 may enter a Combined Honors Program.

After the first year the program requires a total of at least fifteen courses, which must include at least six honors Philosophy courses, the required courses in the second subject as listed by the Department concerned, and enough options to complete the total requirements. Some of the options may be additional Philosophy courses, or courses in the second subject, and probably should be in the case of a student contemplating graduate work. The honors Philosophy courses must include Philosophy 254, which should be taken in the second year, and at least one 400 level Philosophy course. For the rest, the student makes his own selection of courses in consultation with the Departments and their approval. The normal load is five courses each year including, at least, two honors Philosophy courses and two honors courses in the second subject. Additional courses may be taken with the approval of the Departments.

Outside the Faculty of Arts, Philosophy may be combined with History, *Mathematics, or Psychology in a Combined Honors Program.*

PHILOSOPHY AND HISTORY

Requirements for Admission. First Year three principal courses, including Philosophy 020 or 021, and History 020. With the permission of the Philosophy Department, a student who has not taken Philosophy 020 or 021 may enter this program.

After the first year this program requires, at minimum, six honors Philosophy courses, six honors History courses and three options. Some of these options may be additional Philosophy or History courses, and probably should be in the case of a student contemplating graduate work. The Philosophy courses must include Philosophy 254, taken in second year; and at least one 400 level Philosophy course. The History courses must include at least four 300 or 400 level courses. *History 231 and 236 are recommended, but not required, in second year.* For the rest, the student makes his own selection of courses in consultation with the Departments and with their approval. The normal load is five courses each year including two Honors Philosophy and two History courses, which shall be considered as principal courses. A student who wishes to qualify for a Type A certificate in History must choose additional honors or general History courses as options after consultation with the Registrar of Althouse College.

PHILOSOPHY AND MATHEMATICS

Requirements for Admission. First Year three principal courses, including Mathematics 024 or 027 and Philosophy 020 or 021. With the permission of the Philosophy Department, a student who has not taken Philosophy 020 or 021 may enter this program.

After the first year, this program requires, at minimum, six honors Philosophy courses, six honors Mathematics courses and three options. Some of these options may be additional Philosophy or Mathematics courses and probably should be in the case of a student contemplating graduate work. The Philosophy courses must include Philosophy 254, taken in second year; Philosophy 251 or 351, taken in second or third year and at least one 400 level Philosophy course. The Mathematics courses must include: Mathematics 250 and 256, taken in second Mathematics 470 and one of 450, 456 or 460, taken in fourth year. Mathematics 278 is recommended but not required. For the rest, the student makes his own selection of courses in consultation with the Departments and with their approval.

The normal load is five courses each year including at least two Honors Philosophy courses and two Honors Mathematics courses, which shall be considered as principal courses. Additional courses may be taken with the approval of the Departments. A student who wishes to qualify for a Type A certificate in Mathematics must choose additional honors or general Mathematics courses as options after consultation with the Registrar of Althouse College.

PHILOSOPHY AND PSYCHOLOGY

Requirements for Admission. First Year with Psychology 020 and Philosophy 020 and two other courses as principal courses. If Psychology 020 was not taken in the First Year, it must be selected as an option in the Second Year. With the permission of the Departments, a student who has not taken Philosophy 020 may enter this program.

After the First Year, this program requires seven Honors Psychology courses, six Honors Philosophy courses, and two options. Some of the options may be additional Psychology and Philosophy courses, and probably should be in the case of a student contemplating graduate work. The normal load is five courses per year including at least two Honors Psychology and two Honors Philosophy courses. A student must have his course selections approved by the Departmental Advisors to the Philosophy and Psychology program. The Advisors may approve the selection of additional courses if merited by the student's performance. All Honors Psychology and Honors Philosophy courses taken in any year will be considered principal courses.

SECOND AND THIRD YEAR

Principal Courses

Psychology 281; One of Psychology 201a-202b, 201a-203b, 211, 221a-222b, 239. One full-year or two half-year courses from the Honors Psychology courses numbered 240-279 or 340-379. One additional Honors Psychology course and Philosophy 254.

FOURTH YEAR

Principal Courses

Psychology 282, if not taken previously. Psychology 485. One additional Honors Psychology course, if needed to give a total of seven. One 400 level Philosophy course, if not taken previously.

HONORS COURSES

All Honors Courses are scheduled for three hours each week; however in some cases, at the discretion of the instructor, the third hour will not be used for a meeting of the class.

251. Introduction to Logic. The propositional calculus and first-order functional calculus, including identity

and description. Emphasis will be on the development of logical techniques for analyzing and evaluating arguments.
Antirequisite: 131 (Formerly 31).
3 hours.

254. Introduction to Problems in Theory of Knowledge. Intensive seminar and tutorial study of major problems in epistemology. For Honors students in any department.
3 hours.

256. Ancient Philosophy. A critical examination of the major philosophers and philosophical schools from the Presocratics to Plotinus.
Antirequisite: 136 (Formerly 36).
3 hours.

257. Early Modern Philosophy. A critical examination of the philosophical literature of the 17th and 18th centuries, with particular emphasis on such figures as Descartes, Leibniz, Locke, Berkeley, Hume, Kant.
Antirequisite: 147 (Formerly 47).
3 hours.

237 (Former 337). Social, Political and Legal Philosophy. A critical study of contemporary and traditional social and political thought as well as a critical analysis of current and classical legal philosophy.
Antirequisites: 137 or 140 (Formerly 37, 40).
3 hours.

238 (Former 338). Phenomenology and Existential Philosophy. A critical examination of representative literature in the fields of phenomenological research and existential philosophy from Husserl to the present day.
Antirequisite: 138 (Formerly 38).
3 hours.

244 (Former 344). Philosophy of the Social Sciences and the Philosophy of History. A philosophical examination of the structure and methodology of the Social Sciences, e.g. psychology and sociology. Functionalism, teleological explanation, and verification of theories will be discussed. The latter half of the year will be given to a critical examination of various theories of history and historical understanding.
Antirequisite: 157a or 158b (Formerly 57a, 58b).
3 hours.

250 (Former 350). Philosophical Texts. An examination of selected source materials in Ancient, Modern and Contemporary Philsophy; critical works will also be studied. The texts vary from year to year; more detailed information may be obtained from the department.
3 hours.

351. Introduction to Logical Theory. An introductory study of the theoretical properties of formal systems. Particular stress will be placed on the theoretical problems connected with the development of axiomatic systems and with their semantical interpretation.
Prerequisite: 131 or 251 or permission of Department.
3 hours.

253 (Former 353). Philosophy of Religion. Conceptual problems relating to personal and institutionalized religion. Specimen topics include: the nature of religious experience and knowledge, analysis of the concept of God, analysis and comparison of important types of religious philosophy.
Antirequisite: 143 (Formerly 43).
3 hours.

255 (Former 355). Aesthetics and Value Theory. Conceptual problems relating to the production and appreciation of the fine arts. Specimen topics include: the analysis of "work of art", "artistic expression", the logic of value judgments, the nature of artistic criticism, fiction, metaphor, appreciation.
Antirequisite: 135 (Formerly 35).
3 hours.

357. Modern Philosophy. Later modern philosophy with particular

emphasis on the philosophy of the 19th century.
Prerequisite: Philosophy 257 or permission of the Department.
3 hours.

262 (Former 362). Ethics. A critical study of moral problems and theories. The course will be based on readings selected from ethical literature from Aristotle to the present.
Antirequisite: 142 (Formerly 42).
3 hours.

395. Topics in Philosophy. This course is directed reading, and is normally restricted to honours and special students in philosophy. Exceptions for good reason can be made. Before any student may register he must personally establish an agreement about the topic with the member of the department who will direct his research through the year.
Prerequisite: Permission of the Department.

450. Epistemology/Metaphysics. Full year courses in basic problems of epistemology and of metaphysics offered in alternate years. Readings from contemporary writings will be stressed.
Prerequisite: Permission of Department.
2 hours.

451. Advanced Topics in Logical Theory. Intensive study of various advanced topics in logical theory. Specimen topics include: Set theory, model theory, proof theory, algebraic semantics, decision problems for formal theories etc.
Prerequisite: Permission of Department.
3 hours.

454. Philosophy of Science. Contemporary problems of scientific methodology, and of sciences as systems of knowledge. Can be taken by students in natural and social science programs with consent of instructor.
Prerequisite: Permission of Department.
3 hours.

455. Philosophy of Language. A study of the nature and functions of language. The syntactic, semantic and pragmatic aspects of language will be investigated, as well as major theories of language such as the behaviorist, transformational, and formal theories. Questions of meaning and reference, concept formation and ontology will be explored in detail.
Prerequisite: Permission of Department.
3 hours.

464. Contemporary Analytic Philosophy. A seminar devoted to the investigation of selected philosophical problems as they arise in the writings of such philosophers as Moore, Russell, Ayer, Carnap, Quine, Wittgenstein, Ryle, Wisdom, Austin, and others.
Prerequisite: Permission of Department.
3 hours.

474a or 475b. Problems in Philosophy. A study of selected philosophical problems. The problems vary from year to year; more detailed information concerning content and prerequisites may be obtained from the Department prior to registration.
half courses, first or second term; 3 hours.

478a. Seminar in Ancient Philosophy.
half course, 1st term.
Prerequisite: Permission of Department.
3 hours.

479b. Seminar in Ancient Philosophy.
half course, 2nd term.
Prerequisite: Permission of Department.
3 hours.

480a. Seminar in Mediaeval Philosophy.
half course, 1st term.
Prerequisite: Permission of Department.
3 hours.

481b. Seminar in Mediaeval Philosophy.
half course, 2nd term.
Prerequisite: Permission of Department.
3 hours.

482a. Seminar in Rationalism.
half course, 1st term.
Prerequisite: Permission of Department.
3 hours.

483b. Seminar in Rationalism.
half course, 2nd term.
Prerequisite: Permission of Department.
3 hours.

484a. Seminar in Empiricism.
half course, 1st term.
Prerequisite: Permission of Department.
3 hours.

485b. Seminar in Empiricism.
half course, 2nd term.
Prerequisite: Permission of Department.
3 hours.

486a. Seminar on Kant.
half course, 1st term.
Prerequisite: Permission of Department.
3 hours.

487b. Seminar on Kant.
half course, 2nd term.
Prerequisite: Permission of Department.
3 hours.

488a. Seminar in 19th Century Philosophy.
half course, 1st term.
Prerequisite: Permission of Department.
3 hours.

489b. Seminar in 19th Century Philosophy.
half course, 2nd term.
Prerequisite: Permission of Department.
3 hours.

492a. Seminar in 20th Century Philosophy.
half course, 1st term.
Prerequisite: Permission of Department.
3 hours.

493b. Seminar in 20th Century Philosophy.
half course, 2nd term.
Prerequisite: Permission of Department.
3 hours.

494. Advanced Topics in Philosophy. See Philosophy 395.. An advanced reading course on topics formulated by the individual student.
Prerequisite: permission of the Department.
3 hours.

DEPARTMENT OF RUSSIAN STUDIES

University College

CHAIRMAN: K. A. Papmehl, MA Ottawa, PhD London
ASSOCIATE PROFESSORS: Neuhauser, Papmehl; ASSISTANT PROFESSORS: Bernotas, Eramian, Wilson; LECTURER; McFadden.

FIFTEEN COURSE (GENERAL) PROGRAM AND COURSES

Students in the Three-year BA Program intending to concentrate in Russian Studies are required to take Russian 291 and Russian 139 in their Second Year and Russian 391 and Russian 149 in their Third Year.

Students who begin the study of Russian at the University will take Russian 002 in the First Year and Russian 020 in the Second Year concurrently with Russian 291. For grade points required for progression see General Requirements for the BA Degree in the General Information section of the Calendar.

COURSES

Students registered in the Three-year Program may take honors courses subject to prerequisites.

For instruction in SCIENTIFIC RUSSIAN refer to 496. Supervised Study.

RUSSIAN LANGUAGE

002. Intensive Russian for Beginners. An intensive course in written and spoken Russian for students with no previous knowledge of Russian. Students who wish to concentrate in Russian Studies or intend to do honors work in the Department, but have no previous knowledge of Russian, will take this course in their First Year.
Antirequisite: Grade 13 Russian.
4 lectures, 1 laboratory hour.

020. Advanced Russian. Review of grammar, special problems of morphology, elements of syntax. Readings of selected literary texts. Oral practice and composition.
Prerequisite: Grade 13 Russian or 002 or permission of the Department.
3 lectures, 1 laboratory hour.

POLISH LANGUAGE AND LITERATURE

002. Introductory Polish. A beginning course with concentration on conversational skill and reading of literary material.
4 lectures, 1 laboratory hour.

020. Polish Language and Literature. Review of grammar, reading of selected literary texts, oral practice and composition.
Prerequisite: Polish 002, or permission of the instructor.
3 lectures, 1 laboratory hour.
(Not offered 1974-75)

UKRAINIAN LANGUAGE AND LITERATURE

002. Introductory Ukrainian. An introductory language course with concentration on grammar and formation of correct speech habits.
Antirequisite: Grade 13 Ukranian. 4 lectures, 1 laboratory hour.
(Not offered 1974-75)

020. Ukrainian Language and Literature. Review of grammar, reading of selected literary texts, oral practice, and composition.
Prerequisite: 002 or permission of Department.

RUSSIAN LITERATURE IN TRANSLATION

130. Introduction to Russian Literature and Culture. A study of the historical and intellectual background of Russian Literature from the beginnings to 1800. Readings and lectures in English.
Antirequisite: Russian 250 (Formerly 290).
2 hours.

132. Literary Movements in Russia and the European Influence. A study of basic concepts in Russian literature from Classicism to Futurism in the context of the European literary scene. Readings and lectures in English.
Antirequisite: Russian 292 (Formerly 392).
2 hours.
(Not offered 1974-75)

134. The Russian Short Story. The development of the Russian Short Story from the 17th century secular tale to contemporary Soviet fiction. Readings and lectures in English.
Antirequisite: Russian 294 (Formerly 394).
2 hours.

136. Selected Topics in Russian Literature: Dostoevsky and Tolstoy. Topics in this course are subject to change in subsequent years to provide students of Russian and other European literatures with an opportunity to become well-acquainted with authors, genres, and trends which are of major importance in the history of literature. Readings and lectures in English.
Antirequisite: Russian 296 (Formerly 396).
2 hours.

139. Prose of the 19th Century. The Great Masters of the 19th Century from Pushkin to Chekhov. Readings and lectures in English.
Antirequisite: Russian 350 (Formerly 390).
2 hours.

149. Prose of the 20th Century. A study of Russian literature from Gorky to the present. Readings and lectures in English.
Antirequisite: Russian 450 (Formerly 490).
2 hours.

HONORS PROGRAM

Requirements for Admission. First Year Russian 002 or 020 and any two other courses as principal courses. Students intending to begin a Combined Honors Program must take a course numbered 20 (alternatives in German: 002, 010, 022; in Spanish: 002, 020, 021; in English: 024, 026) in the second Honors subject as one of their three principal courses during the First Year.

Students who begin the study of Russian at the University will take Russian 002 in the First Year and Russian 020 in the Second Year concurrently with Russian 291.

RUSSIAN STUDIES

After the First Year the Program consists of a total of at least fifteen courses, i.e. Russian 20 (unless taken in the First Year), a minimum of eight Russian Honors courses, and six options (or seven if Russian 020 was taken in the First Year). The Russian principal courses will be distributed as follows:

Second Year: Russian 291, 020 (unless taken in the First Year), Russian 250;

Third Year: Russian 391, Russian 350;

Fourth Year: Russian 491, Russian 450;

And two additional Russian Honors courses taken in any sequence during the third and fourth year of the Honors program. Students are advised to choose options in consultation with the Departments concerned.

The Department recommends that students take History 137 (Survey of Russian History) as one of their options. Students are also advised to spend one summer at a recognized intensive Russian Language School during their senior years.

COMBINED HONORS PROGRAMS

Russian studies may be combined with English, Visual Arts, French, German, Greek, Latin, Philosophy, or Spanish in a Combined Honors Program. For requirements for admission see under Honors Program (above).

Russian course requirements for all Combined Honors programs consist of Russian 20 and at least six honors courses in Russian as principal courses. They will be distributed as follows:

SECOND YEAR

Russian 020 (if not taken in the First Year), 291; Russian 130/250

THIRD YEAR

Russian 391; Russian 350

FOURTH YEAR

Russian 491; Russian 450

Students are advised to choose options in consultation with the Departments *concerned.*

HISTORY AND RUSSIAN

Requirements for Admission. First Year Russian 020 (or 002), and one other course as principal courses. After the First Year the Program consists of a total of fifteen courses; at least five Honors History courses, and at least six Honors Russian courses, and four options. History courses and required subsidiary courses will be taken as follows:

SECOND YEAR

Principal Courses

History 137, one honors course in History

Subsidiary Courses

2 options, or 1 option and Russian 020 as a principal course.

THIRD YEAR

Principal Courses

History 226, one other honors course in history.

Subsidiary Courses

One of: Politics 349, 434; Economics 132; or an honors course selected with permission of the Departments of History and Russian Studies.

FOURTH YEAR

Principal Courses

2 honors courses in history

Subsidiary Courses

One of: Politics 348, 434; Economics 32; or an honors course selected with permission of the Departments of History and Russian Studies.

HONORS COURSES

Students registered in one of the Honors Programs of the Department will choose from courses numbered 290-494 (these courses require Russian 020 or permission of the instructor as a prerequisite).

LANGUAGE AND LINGUISTICS

291. Composition and Oral Practice. Further study of syntax.
Prerequisite: Russian 20, or permission of the Department.
3 hours and 1 hour for oral practice.

391. Composition, Translation, and Oral Practice. Advanced syntax.
Prerequisite: Russian 291.
3 hours and 1 hour for oral practice.

491. Advanced Composition and Oral Practice. Stylistics: study of *various literary and non-literary styles.*
Prerequisite: Russian 391.
3 hours.

493. Introduction to Russian Linguistics.
Prerequisite: Russian 020.
2 hours.
Not offered 1974-75

RUSSIAN LITERATURE

250 (Former 290). Introduction to Russian Literature and Culture. A study of the historical and intellectual background of Russian Literature from the beginnings to 1800. The tutorials will provide an introduction to Russian literary terminology, basic literary theory and literary analysis.
Some readings in Russian.
Antirequisite: 130 (Formerly 30).
2 hours, 1 tutorial hour.

350 (Former 390). Prose of the 19th Century. The Great Masters of the 19th Century from Pushkin to Chekhov.
Some readings in Russian.
Antirequisite: 139 (Formerly 39).
Prerequisite: 290 or permission of Department.
2 hours, 1 tutorial hour.

292 (Former 392). Literary Movements in Russia and the European Influence. A study of basic concepts in Russian literature from Classicism to Futurism in the context of the European literary scene.
Some readings in Russian.
Antirequisite: 132 (Formerly 32).
2 lecture hours, 1 tutorial hour.

294 (Former 394). The Russian Short Story. The development of the Russian Short Story from the 17th century secular tale to contemporary Soviet fiction.
Some readings in Russian.
Antirequisite: 134 (Formerly 34).
2 lecture hours, 1 tutorial hour.

296 (Former 396). Selected Topics in Russian Literature: Dostoevsky and Tolstoy. Topics in this course are subject to change in subsequent years to provide students of Russian and other European literatures with an opportunity to become well-acquainted with authors, genres, and trends which are of major importance in the history of literature.
Some readings in Russian.
Antirequisite: 136 (Formerly 36).
2 lecture hours, 1 tutorial hour.

450 (Former 490). Prose of the 20th Century. A study of Russian Literature from Gorky to the present.
Some readings in Russian.
Antirequisite: 149 (Formerly 49).
Prerequisite: 390.
2 hours, 1 tutorial hour.

352 (Former 492). Seminar in Russian Drama and the History of the Russian Theatre. Selected authors and texts. Lectures and readings mainly in Russian.
Prerequisite: Russian 291, or permission of Department.
2 hours.

354 (Former 494). Poetry of the 19th and Early 20th Centuries. From Pushkin to Symbolism.
Readings in Russian.
Prerequisite: Russian 291, or permission of Department.
2 hours.

245 (Former 496). Supervised Study. Individual instruction for students qualified to proceed with intensive study of a specialized area of Russian and Slavic studies under the guidance of an instructor with special knowledge in this field.
Students who wish to gain proficiency in Scientific Russian may register in Russian 245.
Prerequisite: permission of the instructor.

DEPARTMENT OF SPANISH AND ITALIAN

University College

Department Chairman: Flint, W. BA Harvard; MA, PhD North Carolina
PROFESSORS: Flint, Marti, Shervill, Smieja; ASSOCIATE PROFESSORS: Asensio, Burghardt, Newman; ASSISTANT PROFESSORS: Belladonna, Brizio, López Pacheco, Munn; LECTURERS: Campana, Diehl, Lillico.

The Department offers several programs, some in combination with other departments:

a) an **Honors program** in Spanish Language and Literature

b) an **Honors program combining Spanish** with English, French, German, Greek, Latin, Music, Philosophy, Russian, Visual Arts, or with courses outside the Faculty of Arts.

c) an **area of concentration** in either Italian or Spanish which may serve as the **principal** area in a diversified three-year general program, or the **minor** area in an Honors program in another subject

e.g. Honors French, with minor in Spanish/

Honors Visual Arts, with minor in Italian/

Honors Spanish, with minor in Italian/

Honors English or Philosophy, with minor in Italian or Spanish/

Honors Russian, with minor in Italian or Spanish

Students interested in registering in combined programs should consult both Departments concerned before choosing their courses.

GENERAL COURSES

Four courses beyond the "020 level" constitute an **area of concentration** in any subject. (For General Program requirements, see appropriate section in this calendar.)

ITALIAN GENERAL COURSES

The four courses required for an area of concentration in Italian are Italian 131, 134, 144 and 146. (Italian 136, being a course in translation, does not count towards an area of concentration, but may be taken as an option).

002. Intensive Italian. Introduction to understanding, speaking, reading and writing Italian. Audio-lingual techniques are combined with required practice in the language laboratory. Prepares students directly for Italian 020.
Antirequisite: Grade 13 Italian.
5 hours.

020. Advanced Italian. Introduction to Italian literature with excerpts from the major works of Dante, Petrarch, Boccaccio, Leonardo da Vinci, Machiavelli, Leopardi, and Pirandello. Weekly compositions in Italian to improve mastery of the written language; reading and discussion of short stories by contemporary writer Italo Calvino to improve facility in spoken Italian.
Prerequisite: Italian 002, Grade 13 Italian, or permission of the Department.
3 or 4 hours.

131. Italian Language and Civilization. Grammar review, syntax, composition and advanced conversation, with study of significant aspects of Italian civilization and life.
Prerequisite: Italian 020 or permission of the Department.
3 hours.

134. Modern Italian Literature. Reading and discussion of fifteen novels by major contemporary writers such as Moravia, Barzini (**The Italians**), and Tomasi di Lampedusa (**The Leopard**). Study focuses on social and current problems.
Prerequisite: Italian 020 or permission of the Department.
3 hours.

136. Italian Civilization and Literature in English. Introduction to some major Italian writers, for instance, Dante, Boccaccio, Machiavelli, etc. whose works are studied in their historical and social context as they relate to Italian civilization. This course is given in English and **does not count** toward an area of concentration in Italian.
3 hours.

144. Italian Renaissance Literature. Study of selected works by representative authors of the humanistic and Renaissance period.
Prerequisite: Italian 020 or permission of the Department.
3 hours.

146. Dante, Petrarch, Boccaccio and their Period. Study of some major works, such as the Divine Comedy, the Decameron, etc., written in Italy in the late Middle Ages.
Prerequisite: Italian 020 or permission of the Department.
3 hours.

SPANISH GENERAL COURSES

The four courses required for an area of concentration in Spanish are Spanish 131, 134, 135 and 138. In order to meet the requirements, an Honors course may be substituted, however, after consultation with the Department.

Spanish 136 and 137, being courses in translation, do not count towards an area of concentration, but may be taken as options by any student.

Students who begin Spanish at the University and who wish to choose Spanish as their area of concentration should take Spanish 20 or 21 during the summer or consult the Chairman of the Department concerning an alternative.

002. Intensive Basic Spanish. Introduction to understanding, speaking, reading, and writing Spanish, with emphasis on oral fluency. Students need have no previous knowledge of Spanish. Prepares students directly for Spanish 020 or 021.
Antirequisite: Grade 13 Spanish.
5 hours.

020. Advanced Spanish. Introduction to modern literature of the Spanish-speaking world, oral and written practice, programmed grammar review.
First term: Spanish literature from 1898 to the Civil War
Second term: Contemporary Spanish American authors.
Especially recommended for students intending to honor or specialize in Spanish..
Antirequisite: 021.
Prerequisite: Spanish 002, Grade 13 Spanish, or permission of the Department.
3 hours literature and discussion, plus 1 hour oral practice..

021. Advanced Spanish. Readings in twentieth century Spanish literature with grammar review and oral practice (one hour per week in the language laboratory is required). Spanish 21 offers less extensive readings than Spanish 20, covers the grammar in 36 classes plus 18 laboratory hours.
Antirequisite: 020.
Prerequisite: Spanish 002, Grade 13 Spanish or permission of the Department.
4 hours.

131. Spanish Language and Civilization. For students who have completed Spanish 020 or 021 Concentration is on grammar review, oral and

written practice, and a survey of Spain's civilization.
Antirequisite: Spanish 231.
Prerequisite: Spanish 020, 021 or permission of the Department.
3 hours.

134. Modern Peninsular Literature. Selected works of the nineteenth and twentieth centuries, with particular emphasis on the latter. The fall semester deals mainly with the theatre, the spring semester, with the novel.
Prerequisite: Spanish 020, 021 or permission of the Department.
3 hours.

135. Love in Hispanic Literature. A study of the changing patterns of love in Hispanic literature from the Moslem period to the present day.
Prerequisite: Spanish 020, 021 or permission of the Department.
3 hours.

136. Spanish Civilization and Literature in English. This course is designed to introduce the student to selected highlights of Spanish Literature (e.g., Cervantes, Lope de Vega, Calderón, Unamuno, Garcia Lorca, Ortega y Gasset, etc.). This course is given in English and does not count towards an area of concentration in Spanish.
3 hours.

137. Latin American Civilization and Literature in English. An introduction to the culture and literature of Latin America—including Brazil—with particular reference to the development of cultural identity and its expression in contemporary literature. This course is given in English and does not count towards an area of concentration in Spanish.
3 hours.

138. Latin-American Literature. A study of selected works of prose and poetry after 1880, together with selected aspects of the civilization of Latin America.
Prerequisite: Spanish 020, 021 or permission of the Department.
3 hours.

145. Scientific Spanish. A course intended for graduate students in disciplines other than Spanish who require certification of their ability to read a foreign language in fulfilment of an advanced degree. The course's subject matter is tailored as much as possible to the interests of the registrants. This course should not be taken by students who have previously had other Spanish language courses at the university level.
Prerequisite: Some elementary knowledge of Spanish.
1 hour, 1/2 course.

HONORS PROGRAMS

SPANISH LANGUAGE AND LITERATURE

Requirements for Admission. First Year Program (Arts, Science or Social Science), with Spanish 002, 020 or 021, plus two others as principal courses. English 020 is highly recommended. Students who begin Spanish at the University and who desire to enter any Honors Program involving Spanish are urged to take Spanish 020 or 021 in Summer School, or consult the Chairman of the Department concerning an alternative. A student will be automatically accepted if he has an average of at least 70% with no grade of less than 60% in his principal courses. He must also have a passing grade in each of his first-year courses. Students who fail to qualify for automatic admission but who complete the first year with an average of at least 60% in their principal courses, may apply to the Department for consideration. After the First Year the program consists of a total of at least fifteen courses: a minimum of nine honors Spanish courses and six

options. The nine Spanish courses are to be chosen from the following: Spanish 231, 232, 240, 248, 260, 341, 348, 365, 460, and 465. Spanish 231, 232 and 341 are obligatory.

COMBINED HONORS PROGRAMS

Within the Faculty of Arts, Spanish may be combined with English, French German, Greek, Latin, Music, Philosophy, Russian or Visual Arts in a Combined Honors Program.

Requirements for admission. First Year Program (Arts, Science, or Social Science) with Spanish 002, 020 or 021, and two other courses as principal courses, one of which must satisfy the requirements for the second subject in the combined Honors Program, as listed by the Department concerned. After the First Year, the program consists of a total of at least fifteen courses: a minimum of seven honors Spanish courses, six or seven courses in the other principal subject, and one or two options. In their selection of courses students must elect Spanish 231, 232, 341 and include at least one course in each of the following areas: Golden Age Literature, Modern Spanish Literature, Latin American Literature.

OTHER COMBINATIONS

Spanish may be taken in combination with other subjects to allow the student to take an Honors Degree in one subject and the equivalent of a General Degree Area of Concentration in the other.

Spanish may be combined with such subjects as English, French, German, History, Journalism, Latin, Music, Philosophy, Political Science, Russian, Visual Arts or with subjects outside the Faculty of Arts, subject to confirmation by both Departments concerned.

Should the student opt for Honors Spanish with an Area of Concentration in the other subject, he will select the Spanish courses outlined in the Spanish Language and Literature Program. Should the student choose to take Honors in the other subject and an Area of Concentration in Spanish, the required Spanish courses will be selected from the department's General Course offerings.

Students interested in registering in combinations should consult their Departmental Advisors in both Departments before choosing their courses.

SPANISH HONORS COURSES

231. Spanish Language. A course in guided free composition, translation and practical conversation.
Antirequisite: 131.
Prerequisite: Spanish 020, 021 or permission of Department.
3 hours.

232. Cultural Dynamics of Spain. An introduction to the historical evolution of Spain and Latin America accompanied by selected political, philosophical, artistic and other materials.
Prerequisite: Spanish 020, 021 or permission of the Department.
3 hours.

240. Spanish Prose of the Nineteenth and Twentieth Centuries. A study of selected prose works from Galdós to the present with special attention paid to methods of literary criticism. Emphasis will be placed on Galdós, Unamuno, Baroja, Valle-Inclán and Cela.
Prerequisite: Spanish 020, 021 or permission of the Department.
2 or 3 hours.

248. Latin American Poetry of the Nineteenth and Twentieth Centuries. A critical study of the works of selected poets from Romanticism to the present day. Special emphasis on

"modernismo", Vallejo, Neruda.
Prerequisite: Spanish 020, 021 or permission of the Department.
2 or 3 hours.

260. Spanish Poetry of the Nineteenth and Twentieth Centuries. A critical study of the works of selected poets from Romanticism to the present, including Espronceda, Bécquer, *Darío, Machado, Jiménez, Lorca,* other representatives of the Generation of 1927 and José Hierro.
Prerequisite: Spanish 020, 021 or permission of the Department.
2 or 3 hours.

341. Spanish Language. An advanced course in guided free composition, translation, syntax and oral practice.
Prerequisite: Spanish 231 or permission of the Department.
3 hours.

348. Latin-American Literature. A study of representative prose fiction of the past 150 years, with special reference to the "social" novel of this century. The main part of the course will consider the works of Azuela, Guiraldes, Asturias, Rivera, Carpentier and Borges.
Prerequisite: A 200 level course or permission of the Department.
2 or 3 hours.

365. Hispanic Poetry from its origins to 1700. A study of Spanish poetry from its medieval origins through the Renaissance (Garcilaso) and mysticism (San Juan de la Cruz) to the Baroque period (Góngora and *Quevedo). Special emphasis on individual critical analysis.*
Prerequisite: A 200 level course or permission of the Department.
2 or 3 hours.

460. Spanish Drama from the "Celestina" to the Present. A study of Spanish drama from its origins to the present day, including plays by Lope *de Vega, Calderón, Zorrilla,* Valle-Inclán, Lorca and Buero.
Prerequisite: A 300 level course or permission of the Department.
3 hours.

465. *Spanish Prose of the Golden* Age. A study of major prose works of this period including the picaresque novel and the Quijote.
Prerequisite: A 300 level course or permission of the Department.
3 hours.

DEPARTMENT OF VISUAL ARTS

Visual Arts Buildings

Head: W. S. A. Dale, BA, MA Toronto; PhD Harvard
PROFESSOR: Dale; ASSOCIATE PROFESSOR: Hart; ASSISTANT PROFESSORS: Becker, Bonario, Cameron, de Kergommeaux, Fenwick, Handy; LECTURER: Ewen; LECTURER (PART TIME): Stubbs.

NOTE: All studio courses require materials, the majority of which must be provided by the student. Information on approximate expenses for each course can be obtained by consulting the Department.

FIFTEEN COURSE (GENERAL) PROGRAM

FIRST YEAR

Five courses from 001 to 029, including Visual Arts 020 and at least one from the Faculties of Science or Social Science, with no more than one course from each subject.

SECOND AND THIRD YEARS

Ten courses, including at least seven seniors. A minimum of four, and a maximum *of seven may be from the Visual Arts Senior course series. At least two must be from art history, and at least two from studio.*

GENERAL COURSES

020. Foundations of Visual Arts. Introduction to the formal analysis of the visual arts, with particular emphasis on the contemporary. Lectures illustrated with slides of works in various media from all periods. Studios in basic problems relating to the visual experience aimed at developing a knowledge of techniques as well as individual awareness. Limited registration.
Antirequisite: 021.
Prerequisite: Departmental interview.
2 hours lecture, 4 hours studio.
NOTE: This course is a prerequisite for all studio courses and for entry into the general and honors Visual Arts programs..

021. Introduction to Visual Arts. An exploration of art as visual language, emphasizing communication and expression of human experience in the modern world. Lectures illustrated with slides of works in various media from all periods.
3 hours lecture.

147. Canadian Art. Painting, sculpture, and architecture in Canada from the Primitives of New France through the Group of Seven to the present, as related to developments in Europe, the United States, and Mexico.
3 hours lecture.

HONORS PROGRAM

Requirements for Admission

First Year Program (Arts, Science or Social Science) with Visual Arts 020 and two other courses as principal courses.

SECOND YEAR

Principal Courses

Four courses from the Visual Arts 200 series with at least one from art history and one from studio.

Subsidiary Course

One option selected in consultation with the Visual Arts Department.

THIRD YEAR

Principal Courses

Four courses from the Visual Arts 300 series chosen in consultation with the Department. Students should at this point concentrate their studies in either art history or studio if they wish to qualify for entry into graduate programs, or arrange the appropriate combination of both if they wish to qualify for entry into a College of Education.

NOTE: Students concentrating in studio are required to take one art history course, preferably 310, 336, or 337, as one of their principal courses.

Subsidiary Course

One option selected in consultation with the Visual Arts Department.

FOURTH YEAR

Principal Courses

At least three full courses from the Visual Arts 400 series and one course from the Visual Arts 300 or 400 series.

Subsidiary Course

One option selected in consultation with the Visual Arts Department.

COMBINED HONORS PROGRAMS

Visual Arts may be combined with English, French, German, Greek, Latin, Philosophy, Russian or Spanish in a Combined Honors Program.

Requirements for Admission. First Year Program (Arts, Science or Social Science) with Visual Arts 020 and two other courses as principal courses, one of which must satisfy the requirements for the second subject in the Combined Honors Program, as detailed under the listing of the department concerned.

After the First Year the program consists of a total of at least fifteen courses: a minimum of seven Visual Arts courses including at least two from art history and two from studio, the required courses in the second subject, as listed by the department concerned, and enough options to complete the total.

VISUAL ARTS PORTION OF COMBINED HONORS PROGRAM

SECOND YEAR

Principal Courses

Visual Arts 230 and 232, and either 220 or 225.

THIRD YEAR

Principal Courses

Two courses from the Visual Arts 300 series

FOURTH YEAR

Principal Courses

One course from the Visual Arts 400 series. One course from either the Visual Arts 300 or the Visual Arts 400 series.

HONORS COURSES

NOTE: Students in other Honors programs may take Senior courses in art history with the permission of the Department.

220. Contemporary Expression I. An introduction to painting and sculpture.
Prerequisite: Visual Arts 020 and permission of Department.
6 hours studio.

225. Contemporary Expression II. An introduction to drawing and photography.
Prerequisite: Visual Arts 020 and permission of Department.
6 hours studio.

230. Ancient through Mediaeval Art. Architecture, sculpture, painting and minor arts from prehistoric times to the end of the 14th century.
Prerequisite: Visual Arts 020 or 021, and permission of Department.
3 hours lecture.

232. Renaissance Through Modern Art. Architecture, painting and sculpture in Europe and North America from the 15th century to the present day.
Prerequisite: Visual Arts 020 or 021, and permission of Department.
3 hours lecture.

310. Contemporary Art. An introduction to art theory and criticism, with particular reference to present-day art.
Prerequisite: Visual Arts 232 and 220 and 225 or permission of Department.
3 hours lecture.

320. Sculpture. A continuation of the three-dimensional aspects of 220.
Prerequisite: Visual Arts 220 and permission of Department.
6 hours studio.

321. Painting. A continuation of related aspects of 220.

Prerequisite: Visual Arts 220 and permission of Department.
6 hours studio.

323. Graphics. The expressive use of various printing media.
Prerequisite: Visual Arts 225 and permission of Department.
6 hours studio.

324. Drawing. A continuation of related aspects of 225.
Prerequisite: Visual Arts 225 and permission of Department.
6 hours studio.

326. Photography. A continuation of related aspects of 225.
Prerequisite: Visual Arts 225 and permission of Department.
6 hours studio.

330. Classical Art and Archaeology. Architecture, painting, sculpture, and minor arts of Greece and Rome to the reign of Constantine.
Prerequisite: Visual Arts 230 or permission of Instructor.
3 hours lecture.

331. Gothic Art. Architecture, sculpture, painting and minor arts in Europe from the early 12th century.

Prerequisite: Visual Arts 230 or permission of the Instructor.
3 hours lecture.

332. Italian Renaissance Art. Architecture, painting and sculpture in Italy from fourteenth-century Tuscany to late sixteenth-century Venice.
Prerequisite: Visual Arts 230 and 232, or permission of Instructor.
3 hours lecture.

333. Baroque Art. Painting, architecture, and sculpture in Europe in the 17th century.
Prerequisite: Visual Arts 230 and 232, or permission of Instructor.
3 hours lecture.
(Not offered 1974-75)

336. Modern Art. Architecture, painting, sculpture and graphic arts in Europe and North America since 1850.
Prerequisite: Visual Arts 230 and 232, or permission of Instructor.
3 hours lecture.

337. Twentieth-Century Canadian Art. Painting, graphic arts, architecture, sculpture and cinematography in Canada from 1900 to the present.
Prerequisite: Visual Arts 230 and 232, or permission of Instructor.
3 hours lecture.
(Not offered 1974-75)

410. Museology. Seminar on the history and function of Art Museums with practical exercises in curatorial duties.
Prerequisite: Limited to fourth-year honors Visual Arts students with permission of the Department.
3 hours lectures.

420. Sculpture. Individual projects.
Prerequisite: Visual Arts 320 and permission of Department.
6 hours studio.

421. Painting. Individual projects.
Prerequisite: Visual Arts 321 and permission of Department.
6 hours studio.

423. Graphics. Individual projects.
Prerequisite: Visual Arts 323 and permission of Department.
6 hours studio.

424. Drawing.. Individual projects.
Prerequisite: Visual Arts 324 and permission of Department.
6 hours studio.

426. Photography. Individual projects.
Prerequisite: Visual Arts 326 and permission of Department.
6 hours studio.
(Not offered 1974-75)

430a. or b. (Fall or Spring term). Selected topic in Ancient Art. Subject to be announced.
Prerequisite: Visual Arts 330 or permission of Instructor.
3 hours lecture, half course.

431a. or b. (Fall or Spring term). Selected topic in Mediaeval Art. Subject to be announced.

Prereqquisite: Visual Arts 331 or permission of Instructor.
3 hours lecture, half course.

432a. or b. (Fall or Spring term). Selected topic in Renaissance Art. Subject to be announced.
Prerequisite: Visual Arts 332 or permission of Instructor.
3 hours lecture, half course.

433a. or b. (Fall or Spring term). Selected topic in Baroque Art. Subject to be announced.
Prerequisite: Visual Arts 333 or permission of Instructor.
3 hours lecture, half course.

436a. or b. (Fall or Spring term). Selected topic in Modern Art. Subject to be announced.
Prerequisite: Visual Arts 336 or permission of Instructor.
3 hours lecture, half course.

440a. or b. (Fall or Spring term). Selected topic in Ancient Art. Subject to be announced.
Prerequisite: Visual Arts 330 or permission of Instructor.
3 hours lecture, half course.

441a. or b. (Fall or Spring term). Selected topic in Mediaeval Art. Subject to be announced.
Prerequisite: Visual Arts 331 or permission of Instructor.
3 hours lecture, half course.

442a. or b. (Fall or Spring term). Selected topic in Renaissance Art. Subject to be announced.
Prerequisite: Visual Arts 332 or permission of Instructor.
3 hours lecture, half course.

443a. or b. (Fall or Spring term). Selected topic in Baroque Art. Subject to be announced.
Prerequisite: Visual Arts 333 or permission of Instructor.
3 hours lecture, half course.

446a. or b. (Fall or Spring term). Selected topic in Modern Art. Subject to be announced.
Prerequisite: Visual Arts 336 or permission of Instructor.
3 hours lecture, half course.

Faculty of Music



Dean of the Faculty and Professor:
Hugh J. McLean, MA, MusB, FRCO, ARCM, LRSM
Room 237FM; Telephone 679-2480

Faculty of Music

Chairman, Department of Applied Music:
John S. McIntosh, MusBac, MM, DMA, ARCT, AAGO
Room 236FM; Telephone 679-2831

Chairman, Department of Music Education:
J. Paul Green, MusBac, MM, PhD, ARCT
Room 236FM; Telephone 679-6035

Chairman, Department of Music History:
Gordon K. Greene, BA, BEd, MA, PhD, AMus
Room 221TC; Telephone 679-3279

Chairman, Department of Music Theory and Composition:
Gerhard Wuensch, PhD, DipMus
Room 211TC; Telephone 679-2465

Music Librarian:
Larry C. Lewis, BA, BLS, AMus
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Administrative Officer:
Marjorie Thomas, BA
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Administrative Assistant, Admissions and Records:
Eric A. Cosgrove
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Administrative Assistant, Ensembles and Programs:
Alec Cave
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Secretary to the Dean, Graduate Admissions:
Erlene Prevett
Room 237FM; Telephone 679-2480

General Secretary
Ann Higgs, BA
Room 236FM; Telephone 679-2481



TEACHING STAFF

PROFESSOR EMERITUS: Rosé (Vocal literature). PROFESSORS: Green (Music education; conducting), Greene (Musicology: Medieval and Renaissance studies, methodology, bibliography; Collegium Musicum), Haenselman (Theory and composition: pedagogy of theory), von Kuster (Piano: piano pedagogy), McKellar (Music education: conducting), McLean (Organ; musicology: Baroque studies), Tsutsumi (Violoncello; chamber music). ASSOCIATE PROFESSORS: Aldrich (Viola; music education; theory; chamber music), Bray (Music education; orchestration; bassoon; chamber music), Clements (Electronic studio; theory and composition: analytical techniques), Downs (Musicology: 18th- and 19th-century studies, bibliography), Giron (Theory and composition), Hughes (Music education: percussion), Johnson (Music education; co-ordinator of choral activities; conducting; voice; Faculty of Music Singers), McIntosh (Organ: organ literature and pedagogy), Riseling (Clarinet; theory; woodwind ensembles; chamber music), Stark (Musicology; 17th-century studies; voice), VanOstrand (Music education; clarinet and saxophone; chamber music), Wuensch (Theory and composition; musicology: 19th- and 20th-century studies). ASSISTANT PROFESSORS: Bratuz (Piano: piano literature; music appreciation), Crowson (Piano: piano pedagogy, accompaniment and chamber music), Dalkert (Trombone, euphonium, tuba; class brass; Wind Ensemble), Dilmore (Music education; class strings; London Suzuki Project), Pendle (Musicology: 19th-century studies, history of opera; voice, vocal pedagogy), Seiffert (French horn; chamber music), Skelton (Violin; class strings; chamber music). LECTURERS: Anderson (Theory; orchestration; composition), Baker (Theory; keyboard classes; piano; organ), Bracey (Piano: piano pedagogy), Cortner (Organ: organ literature; church music; theory), Ford (Trumpet; class brass; Symphonic Band), Gustafson (Music history and literature, bibliography), Longton (Theory and composition), MacLennan (Piano), Stokes (Double bass; class strings; music history and literature, bibliography; theory), Thompson (Violin; chamber music). INSTRUCTORS: Aldrich (Piano), Beamish (Piano), Clarke (Trumpet), Engli (Tuba), C. Evens (Symphony Orchestra), M. Evens (Violoncello), Giron (Piano), Gustafson (Voice; class voice), Jaeger (Oboe; chamber music), Johnson (Piano), Lorcini (Harp), MacDowell (Voice; choral music), Mazan (Piano), Meyer (Flute), Milnes (Clarinet), Munn (Piano), Murphy (Clarinet), Newland (Voice), Novak (Piano), Reimer (Voice; vocal literature), Ryerse (Piano), Scott (Voice), Smith (Theory; keyboard harmony; Piano), Stark (Violin), Taussig (Piano; chamber music), Terry (Women's Chorus), Vanderburgh (Music education: elementary), Weaver (Piano), Wilkins (Flute).

The Faculty of Music Library

The Library, a divisional/professional unit of the University Library system, moved to its present new quarters in Talbot College in September 1972. Four full-time professional librarians, seven full-time library assistants and many part-time student assistants work with a collection which has grown from 3000 items in 1963 to over 103,000 books, bound periodicals, scores and/or parts, recordings, tapes and microforms. The acquisition in September 1971 of the MacNutt collection of opera manuscripts, scores and rare books provides a potential for musicological research. There are study, listening, microform and photocopying facilities for 114 persons.

Faculty and University Facilities

The new Faculty of Music Building incorporates the most modern features of educational design. There are large rehearsal rooms for orchestra, band and chorus; studios for percussion, class strings, organ and electronics; 45 teaching

studios; 100 practice rooms; three practice organs; two harpsichords; large numbers of string, woodwind and brass instruments for class use and an important collection of historical instruments.

Besides the Faculty Recital Hall, there are three other theatres on campus which seat from 450 to 2300 persons.

Performance Groups

The following ensembles provide valuable performing experience for all the students in the Faculty of Music and are open by audition to other members of the University:

Faculty of Music Chorale	Faculty of Music Concert Choir
Faculty of Music Singers	Faculty of Music Women's Choir
University of Western Ontario Orchestra	Collegium Musicum
Faculty of Music Concert Band	Faculty of Music Wind Ensemble
University of Western Ontario Symphonic Band	Chamber Ensembles

GENERAL INFORMATION

Undergraduate Programs

The Faculty of Music offers several four-year programs leading to honors degrees:

Bachelor of Music (BMus) with Honors in

Music Education

Music History

Performance *(Piano, Organ,* Voice or Orchestral Instrument)

Theory and Composition

Bachelor of Arts with Honors Music (BA)

As well as two three-year programs:

Bachelor of Musical Arts (BMusA)

Bachelor of Arts with Music Options (BA)

REQUIREMENTS FOR ADMISSION TO ALL PROGRAMS

I. Academic Requirements

Six approved credits, one of which may be Grade 13 Music or an equivalent conservatory certificate, Grade 8 vocal or instrumental with Grade 2 Theory or Grade 4 Theory alone.

II. Music Requirements

Applicants should apply in writing to the Admissions Office, Faculty of Music, by March 3, 1975, for an audition in performance as well as a General Musicianship test.

In 1975 the Faculty of Music will hold auditions and General Musicianship tests during the following periods:

February 24 - February 28

April 21 - April 25

April 28 - May 2

May 5 - May 9

June 16 - June 20

(a) Principal Instrument

The conservatory grading above is a minimal requirement. Candidates for Honors in Performance should have attained at least a conservatory Grade 10 level and should also show evidence of exceptional performing ability. The audition includes the performance of two or three contrasting pieces which need not be memorized, some scales and other technical exercises as well as sight reading.

(b) Piano Proficiency

Applicants whose principal instrument is other than the piano must also take a Piano Proficiency test of an approximate Grade 6 conservatory level in pieces, scales, chords and arpeggios in major and minor keys, simple chord progressions, harmonization of a melody, simple transposition and sight reading. Deficiencies must be made up in Class Piano at the student's expense within two years.

(c) General Musicianship

The General Musicianship Test measures the applicant's aural aptitudes in intervals, simple tertian chord forms, elementary melodic dictation, simple rhythmic cells, etc., and elementary written skills such as key signatures, traditional scale forms and transposition.

HONORS IN MUSIC EDUCATION

Students who intend to teach music in the school with a Type A certificate of the Ontario Department of Education should enrol in the Honors in Music Education program.

From a wide range of electives students may choose a comprehensive program or may specialize in elementary or secondary school vocal or instrumental music.

HONORS IN MUSIC HISTORY, PERFORMANCE AND THEORY AND COMPOSITION

These programs provide thorough training for students who wish to become professional musicians or private teachers, or intend to take up university careers.

BACHELOR OF ARTS WITH HONORS MUSIC

This program gives slightly less emphasis to performance and permits more work in other faculties. It is not recommended for students who intend to take post-graduate music.

PROGRESSION IN HONORS PROGRAMS

Admission to Second and Subsequent Years

A student will be accepted in an Honors program if he has an average of at least 70 percent with no grade of less than 60 percent in the courses listed as principal courses by the Department(s) of the subject(s) in which he is specializing. (In the Faculty of Music all music courses in which the student is enrolled are designated

principal courses). He must also have a passing grade in each of the courses listed as subsidiary courses by the Department(s) concerned. (Courses in the Faculties of Arts, Science, or Social Science). A failure in one of the principal courses or more than one of the subsidiary courses will automatically disqualify a student from continuing in the Honors program. A failure in one of the subsidiary courses can be made up by successfully completing the same or another subsidiary course.

A student with an average of 60 - 69 percent in the principal courses of his Honors program, and a passing grade in each of the subsidiary courses, may be permitted to progress by special permission of the Department(s) concerned.

HONORS GRADUATION REQUIREMENTS

Before graduation, all students who elect a four-year Honors program must reach a minimum of the Associate level in performance in their applied area. Honors in Performance candidates must be well above this level and, in addition, must present a public recital in their final year.

For further information concerning Honors Graduation Requirements consult the General section of this calendar.

BACHELOR OF MUSICAL ARTS

This is a flexible program which can lead either to a basic secondary school certificate or an Elementary Certificate (Standard 4). It does not lead to graduate study. In performance, students must attain Grade 10 level in an Orchestral Instrument or Voice with Grade 8 level in Piano; or Grade 10 level in Piano with Grade 8 level Voice; or Associate level in any instrument with Grade 6 level Piano.

BACHELOR OF ARTS WITH MUSIC OPTIONS

The Faculty of Music offers this program for students who wish to take a general program in music. It does not lead to graduate study. In performance, students must reach a minimum level of Grade 10.

PROGRESSION IN THE THREE-YEAR BACHELOR OF ARTS AND BACHELOR OF MUSICAL ARTS *PROGRAMS*

Grade Points and Attempts are used to determine eligibility for progression.

A Grade Point Total of at least fourteen must be accumulated in the first ten full (or equivalent) courses attempted.

A Grade Point Total of at least fourteen must be accumulated in the first ten full (or equivalent) courses attempted.

In any event, a student must complete the requirements for graduation in the General Bachelor of Arts or Bachelor of Musical Arts program within the first 20 full or equivalent courses attempted (including repeated courses).

When a student has attempted four courses, and the Grade Point Total is five or less, registration in an ensuing session for more than three courses (on a full-time intramural basis) must be authorized by the Dean of the Faculty of Music.

When the number of courses attempted in the current academic session, plus the total number of prior attempts, exceeds five, but does not reach ten, the Grade Point Total for determining eligibility for further registration shall be calculated on the basis of the courses previously attempted, plus the course(s) of the current session, in a manner most advantageous to the student to reach five attempts with a minimum of six grade points.

When the number of courses attempted in the current academic session, plus the total number of prior attempts, exceeds ten, the Grade Point Total for determining eligibility for further registration shall be calculated on the basis of the courses previously attempted plus the course(s) of the current session, in a manner most advantageous to the student to reach a total of 10 attempts with a minimum of 14 grade points.

No student may register for more than a total of 20 course attempts prior to fulfilling the basic requirements for graduation (15 passes with an average of 60%). In exceptional circumstances, further attempts may be authorized by the Dean of the Faculty of Music but only if the cumulative average on successful attempts is at least 60 percent.

EXTRA COURSES

Permission to take an extra full or half course must be obtained, in writing, from the Dean of the Faculty of Music.

A student must maintain an A average in music subjects in order to be considered eligible for the study of more than one principal instrument.

ALTHOUSE COLLEGE OF EDUCATION

Students who wish to become school teachers will go to Althouse College of Education for a further professional year. Students who may eventually seek admission into the Intermediate Program there, but who have not specialized in Music Education in the Faculty of Music, should elect Music 213 and 303 or Music 233 and 333.

COMMON FIRST YEAR

Few music students have a wide grasp of their subject when they enter university. For this reason the Faculty of Music requires them to take a common first-year program. During this time students will receive a grounding in many areas which will help them to assess their strengths and interests before choosing a more specialized course of study.

Music 014 Class Piano (if required)
023 Vocal and Instrumental Music
024 Applied Principal Instrument
025 Theoretical Studies I
026 Music History I

Ensemble - One, or more, of: 028, 038, 048, 058, 068, 078, 088, 098
One course from the Faculties of Arts, Science or Social Science

BACHELOR OF MUSIC WITH HONORS IN MUSIC EDUCATION

SECOND YEAR

Music 014 Class Piano (if required)
213 Instrumental Music I (Prerequisite 023)
OR
233 Practicum in Choral Techniques (Prerequisite 023)
224 Applied Principal Instrument
225 Theoretical Studies II
226 Music History II

Ensemble - One, or more, of: 228, 238, 248, 258, 268, 278, 288, 298
Two courses from the Faculties of Arts, Science or Social Science

THIRD YEAR

Music 303 Instrumental Ensemble Techniques (Prerequisite 213)
OR
333 Choral Literature and Techniques (Prerequisite 233)
324 Applied Principal Instrument

Ensemble - One, or more, of: 328, 338, 348, 358, 368, 378, 388, 398
One of: Music 213, 233, 313, 323
One music elective from Music History or Theory area
Physics 33
One course from the Faculties of Arts, Science or Social Science

FOURTH YEAR

Music 345 Orchestration
353 Comparative Studies in Music Education
OR
393 Music Education Seminar
424 Applied Principal Instrument
484 Comprehensive applied examination

Ensemble - One, or more, of: 428, 438, 448, 458, 468, 478, 488, 498
One music elective
One course from the Faculties of Arts, Science or Social Science

BACHELOR OF MUSIC WITH HONORS IN PERFORMANCE (ORCHESTRAL INSTRUMENT)

For admission to this Program, applicants must demonstrate a performance level of at least a Conservatory Grade X standard in the orchestral instrument, as well as evidence of exceptional performing ability.

SECOND YEAR

Music 014 Class Piano (if required)
224 Applied Principal Instrument
225 Theoretical Studies II
226 Music History II

Ensemble - One, or more, of: 228, 238, 248, 258, 268, 278, 288, 298
Two courses from the Faculties of Arts, Science or Social Science

THIRD YEAR

Music 324 Applied Principal Instrument

Ensemble - One, or more, of: 328, 338, 348, 358, 368, 378, 388, 398
Four electives:
Two courses from the Faculty of Music
One course from the Faculties of Arts, Science or Social Science
One course from the Faculties of Music, Arts, Science or Social Science

FOURTH YEAR

Music 434 Applied Principal Instrument (1 hour individual lesson; 1 hour class lesson)
474 Pedagogy
484 Comprehensive Applied Examination.
494 Recital

Ensemble - One, or more, of: 428, 438, 448, 458, 468, 478, 488, 498
One music elective
One course from the Faculties of Arts, Science or Social Science

BACHELOR OF MUSIC WITH HONORS IN PERFORMANCE (ORGAN)

For admission to this Program, applicants must demonstrate a performance level of at least a Conservatory Grade X standard in organ, as well as evidence of exceptional performing ability.

SECOND YEAR

Music 224 Organ
225 Theoretical Studies II
226 Music History II

Ensemble - One, or more, of: 228, 238, 248, 258, 268, 278, 288, 298
Two courses from the Faculties of Arts, Science or Social Science

THIRD YEAR

Music 307 Organ Literature
324 Organ

Ensemble - One, or more, of: 328, 338, 348, 358, 368, 378, 388, 398
Three electives:
One course from the Faculty of Music
One course from the Faculties of Arts, Science or Social Science
One course from the Faculties of Music, Arts, Science or Social Science

FOURTH YEAR

Music 434 Organ (1 hour individual lesson; 1 hour class lesson)
474 Organ Pedagogy
484 Comprehensive Applied Examination
494 Recital

Ensemble - One, or more, of: 428, 438, 448, 458, 468, 478, 488, 498
One music elective
One course from the Faculties of Arts, Science or Social Science
NOTE: Selection of Music 233, Music 333 and Music 334 as Music electives in years three and four will give the program a concentration in Church Music.

BACHELOR OF MUSIC WITH HONORS IN PERFORMANCE (PIANO)

For admission to this Program, applicants must demonstrate a performance level of at least a Conservatory Grade X standard in piano, as well as evidence of exceptional performing ability.

SECOND YEAR

Music 224 Piano
225 Theoretical Studies II
226 Music History II

Ensemble - One, or more, of: 228, 238, 248, 258, 268, 278, 288, 298
Two courses from the Faculties of Arts, Science or Social Science

THIRD YEAR

Music 317 Piano Literature
324 Piano

Ensemble - One, or more, of: 328, 338, 348, 358, 368, 378, 388, 398
Three electives:
One course from the Faculty of Music
One course from the Faculties of Arts, Science or Social Science
One course from the Faculties of Music, Arts, Science or Social Science

FOURTH YEAR

Music 434 Piano (1 hour individual lesson; 1 hour class lesson)
474 Piano Pedagogy
484 Comprehensive Applied Examination
494 Recital

Ensemble - One, or more, of: 428, 438, 448, 458, 468, 478, 488, 498
One music elective
One course from the Faculties of Arts, Science or Social Science

BACHELOR OF MUSIC WITH HONORS IN PERFORMANCE (VOICE)

For admission to this Program, applicants must demonstrate a performance level of at least a Conservatory Grade X standard in voice, as well as evidence of exceptional performing ability.

SECOND YEAR

Music 014 Class Piano (if required)
224 Voice
225 Theoretical Studies II
226 Music History II

Ensemble - One, or more, of: 228, 238, 248, 258, 268, 278, 288, 298
Two courses from the Faculties of Arts, Science or Social Science

THIRD YEAR

Music 324 Voice
327 Vocal Literature

Ensemble - One, or more, of: 328, 338, 348, 358, 368, 378, 388, 398
Three electives:
One course from the Faculty of Music
One course from the Faculties of Arts, Science or Social Science
One course from the Faculties of Music, Arts, Science or Social Science

FOURTH YEAR

Music 434 Voice (1 hour individual lesson; 1 hour class lesson)
474 Vocal Pedagogy
484 Comprehensive Applied Examination
494 Recital

Ensemble - One, or more, of: 428, 438, 448, 458, 468, 478, 488, 498
One music elective
One course from the Faculties of Arts, Science or Social Science
NOTE: Of the Arts, Science or Social Science electives, a minimum of TWO must be courses in languages other than English

BACHELOR OF MUSIC WITH HONORS IN MUSIC HISTORY

Students who have demonstrated proficiency in Music History courses may elect this Honors program. It is recommended that students participate in Collegium Musicum either as performers or as research assistants for at least two years.
Each student is required to write a comprehensive examination in the fourth year. Students must pass the examination before being granted the Honors degree in Music History. Those who fail it may repeat it once only. The examination will be held prior to final examinations in April, and prior to the first week of lectures in the Fall term (mid-September). A list of suggested readings for review in preparation for the examination may be obtained from the Department of Music History.

SECOND YEAR

Music 014 Class Piano (if required)
224 Applied Principal Instrument
225 Theoretical Studies II
226 Music History II

Ensemble - One, or more, of: 228, 238, 248, 258, 268, 278, 288, 298
Two courses from the Faculties of Arts, Science or Social Science
(One should be a language other than English)

THIRD YEAR

Music 324 Applied Principal Instrument
352 Music History Seminar I

Ensemble - One, or more, of: 328, 338, 348, 358, 368, 378, 388, 398
One Music History elective
One music elective
One course from the Faculties of Arts, Science or Social Science

FOURTH YEAR

Music 424 Applied Principal Instrument
452 Music History Seminar II (Prerequisite 352)
484 Comprehensive Applied Examination

Ensemble - One, or more, of: 428, 438, 448, 458, 468, 478, 488, 498
One Music History elective
One music elective
One senior level course from the Faculties of Arts, Science or Social Science

BACHELOR OF MUSIC WITH HONORS IN THEORY AND COMPOSITION

SECOND YEAR

Music 014 Class Piano (if required)
224 Applied Principal Instrument
225 Theoretical Studies II
226 Music History II
229 Composition I

Ensemble - One, or more, of: 228, 238, 248, 258, 268, 278, 288, 298
One course from the Faculties of Arts, Science or Social Science

THIRD YEAR

Music 324 Applied Principal Instrument

Ensemble - One, or more, of: 328, 338, 348, 358, 368, 378, 388, 398
Two Theory electives**
One music elective
Physics 33

FOURTH YEAR

Music 424 Applied Principal Instrument
484 Comprehensive Applied Examination

Ensemble - One, or more, of: 428, 438, 448, 458, 468, 478, 488, 498
Two Theory electives**
Two courses from the Faculties of Music, Arts, Science or Social Science, only one of which may be a Music course

** The Theory electives will be chosen from the following:
Music 325, 329, 335, 345, 395, and 429

BACHELOR OF ARTS WITH HONORS MUSIC

SECOND YEAR

Music 014 Class Piano (if required)
224 Applied Principal Instrument
225 Theoretical Studies II
226 Music History II

Ensemble - One, or more, of: 228, 238, 248, 258 268, 278, 288, 298
Three courses from the Faculties of Arts, Science or Social Science

THIRD YEAR

Music 324 Applied Principal Instrument

Ensemble - One, or more, of: 328, 338, 348, 358, 368, 378, 388, 398
Two music electives
Two courses from the Faculties of Arts, Science, or Social Science

FOURTH YEAR

Music 424 Applied Principal Instrument
484 Comprehensive Applied Examination

Ensemble - One, or more, of: 428, 438, 448, 458, 468, 478, 488, 498
Two music electives
Two courses from the Faculties of Arts, Science or Social Science

BACHELOR OF ARTS WITH MUSIC OPTIONS

SECOND YEAR

Music 014 Class Piano (if required)
224 Applied Principal Instrument
225 Theoretical Studies II
226 Music History II

Ensemble - One, or more, of: 228, 238, 248, 258, 268, 278, 288, 298
Three courses from the Faculties of Arts, Science or Social Science

THIRD YEAR

Music 324 Applied Principal Instrument
384 Comprehensive Applied Examination

Ensemble - One, or more, of: 328, 338, 348, 358, 368, 378, 388, 398
Two music electives
Two courses from the Faculties of Arts, Science or Social Science

BACHELOR OF MUSICAL ARTS

SECOND YEAR

Music 014 Class Piano (if required)
213 Instrumental Music I (Prerequisite 023)
OR
233 Practicum in Choral Techniques (Prerequisite 023)
224 Applied Principal Instrument
225 Theoretical Studies II
226 Music History II

Ensemble - One, or more, of: 228, 238, 248, 258, 268, 278, 288, 298
Two courses from the Faculties of Arts, Science or Social Science

THIRD YEAR

Music 303 Instrumental Ensemble Techniques (Prerequisite 213)
OR
333 Choral Literature and Techniques (Prerequisite 233)
324 Applied Principal Instrument (If graduation requirements have not been completed)
384 Comprehensive Applied Examination

Ensemble - One, or more, of: 328, 338, 348, 358, 368, 378, 388, 398
One of: Music 213, 233, 323, 353, 393
Three electives: At least one from Music History or Theory and at least one from the Faculties of Arts, Science or Social Science.

DESCRIPTION OF UNDERGRADUATE COURSES

APPLIED MUSIC AND PEDAGOGY

014. Class Piano. This is a deficiency course for students whose principal instrument is other than piano and who are unable to pass the Piano Proficiency examination. Students will be assigned to appropriate sections of the course until the deficiency is removed.

One hour per week in each of the first two years, No credit.

024, 224, 324, 424. Applied Principal Instrument. Individual lessons in the student's principal instrument.

One hour.

Juries. At the end of each academic year, the student must successfully pass an examination in his or her principal applied music subject conducted by a jury of the faculty. Before graduation each student must have reached the required examination level in the principal applied subject. Honors in Performance candidates must be well above this level and, in addition, must present a public recital. All other majors are encouraged to perform on student recital programs.

334. Church Music. The history of church music. Materials, methods and techniques of service playing. For organ majors in the third and fourth years.

Two hours.

344. Piano Accompaniment and Chamber Music. A course intended to teach the piano student the principles of ensemble playing as well as the literature of Song, Solo Instrumental Works, and Chamber Music, and to provide performing experience. Designed for students majoring in Piano Performance, in the third or fourth year. Available to other students, who have the requisite piano performance ability, by permission of the instructor.

Prerequisite: 224 (piano)
Corequisite: 324 (piano)
Three hours.

434. Individual lessons in the student's principal instrument. For performance majors in the fourth year.

Two hours (one hour individual lesson one hour class lesson.)

444, 454. Continuation of Applied Music Study. For special undergraduate students.

Prerequisite: 424, or 434. 444 is prerequisite for 454

One hour.

474. Pedagogy of the principal instrument or voice. Required of all students *registered in an Honors in* Performance program in the fourth year.

Corequisite: Music 434

Two hours.

384, 484. Comprehensive Examination in Applied Music. Each student is required to perform, for a jury of faculty members, a comprehensive examination in applied music at the conclusion of the final year. Students majoring in performance must prepare a one-hour program. All others must prepare a half-hour program. In every case the jury will hear approximately one half of the prepared material. For students majoring in performance the recital will normally replace the comprehensive examination. All other students are encouraged to perform the comprehensive examination as a part of a public recital.

Music 384: For students in three-year programs.

Music 484: For students in four-year programs.

494. Recital. A public recital of approximately one hour's duration. The program must be performed for a preview committee of faculty members not less than three weeks prior to the date of public presentation. For performance majors in the fourth year.

MUSIC

ENSEMBLES

028, Orchestra; 038, Band; 048, Chorus; 058, Chamber Ensembles; 068, Collegium Musicum; 078, Accompanying; 088, Opera Workshop and 098, Special Project. (In second and succeeding years: 228 to 298; 328 to 398; 428 to 498).. Because the Faculty of Music believes that ensemble participation is of prime importance in the development of young musicians, a great variety of organizations has been established to provide the necessary experience. Under the direction and coaching of Faculty members, major works for the respective media are prepared for public performance.

Each student registered in an Undergraduate program in the Faculty of Music is required to participate in a Large Ensemble each year of his Undergraduate program, performing on his principal instrument. However, a student in a program other than performance may, with the approval of his Applied Music teacher, perform for one year (Year I or II) in a large ensemble wherein he is not participating on his principal instrument. Keyboard players may substitute a secondary instrument for their principal instrument in fulfilling large ensemble requirements. As an alternative, such credit may also be earned by accompanying soloists (1 hour credit for each 2 students accompanied), or choral ensembles (same credit as the ensemble being accompanied).

Performance majors are required to accumulate a minimum of 12 hours large ensemble credit and a minimum of 3 hours in small ensembles. All other students in Honors programs are required to accumulate 12 hours credit in large ensembles and are required to participate in a small ensemble or special project for at least two of their Undergraduate years.

Each student in a three-year program is required to accumulate a minimum of 9 hours credit in large ensembles and to participate in a small ensemble or special project for at least one year.

Special Undergraduate Students registered for Applied Music are required to participate in a large and/or small ensemble on their principal instrument.

Any student may receive individual consideration of his ensemble requirements by writing to the Ensembles Committee.

MUSIC EDUCATION

023. Vocal and Instrumental Music. This course is in two parts including one term of Vocal Music and one term of Instrumental Music as follows:

(a) Group instruction and practice in the fundamentals of singing, such as tone production and breath control. Individual song assignments as indicated by the student's own problems, background and ability.

(b) Group instruction in a wind or string class. Each student will acquire playing proficiency on one instrument and will also be introduced to basic conducting techniques. The course will employ materials and procedures suitable for group instruction and ensemble activities.

Three hours.

213. Instrumental Music I. Instruction in instruments of the woodwind, string, brass and percussion sections. This course will include practical work leading to a playing proficiency on at least one instrument, and a comparative study of other related instruments. Materials and procedures will be appropriate for the study of individual instruments as well as group instruction.

Prerequisite: Music 023

Three hours.

233. Practicum in Choral Techniques. Study of conducting techniques for choral ensembles. Training and experience in the distinctive features of choral conducting, interpretation and score reading.
Prerequisite: Music 023
Three hours.

303. Instrumental Ensemble Techniques. Organization and instrumentation of standard instrumental ensembles, conducting techniques and rehearsal procedures suitable for various ensembles. The use of ensemble literature and materials including bibliographic sources.
Prerequisite: Music 213
Two hours.

313. Instrumental Music II. The study of additional instruments not covered in Music 023 or Music 213.
Prerequisite: Music 213
Three hours.

323. Communication in Music. Music materials and procedures which may be employed in the development of the child and adolescent voice. Rhythmic movement, instrumental activities and listening techniques related to the musical development of the child.
Three hours.

333. Choral Literature and Techniques. Organization and development of choral ensembles. Problems of rehearsal and performance. Intensive examination of choral compositions, editions, arrangements, and collections. Practical experience in programming and conducting.
Prerequisite: Music 233
Two hours.

343. Instrumental Music III. Instruction in instruments useful to the teacher of music in the elementary schools. The emphasis will be on developing playing proficiency on guitar and recorder. Music 323 is a prerequisite or corequisite in Music Education Programs.
Three hours.

353. Comparative Studies in Music Education. Research techniques and source materials used in music education at the elementary school level. A comparative study of materials and procedures in music education with special attention given to the work of Orff, Kodaly, and Suzuki.
Prerequisite: Music 213 or 233
Three hours.

393. Music Education Seminar. Research techniques and source materials used in music education at the secondary school level. Special studies of the history and philosophy of music education and current problems.
Prerequisite: Music 213 or 233
Three hours.

413. Practicum in Suzuki String Teaching. Designed primarily for students with a string principal. The course is also open to students with playing proficiency on string instruments with permission of the instructor.
A thorough investigation of the history and philosophy inherent in the Suzuki movement and its particular application in the Canadian community; a study of the twelve volumes of material and its presentation with particular attention to the type of conceptual learning taught by means of this literature; and practical assignments in the application of this approach.
Three hours.

HISTORY AND LITERATURE OF MUSIC

026. Music History I. The history and literature of Medieval, Renaissance and Baroque music.
Three hours.

226. Music History II. The history and literature of Classic, Romantic and Contemporary music.
Prerequisite: Music 026
Three hours.

306. History of Medieval and Renaissance Music. A seminar on music from Gregorian chant and the beginnings of polyphony to circa 1600.
Prerequisite: Music 226 or equivalent
Three hours.

307. Organ Literature. A study of musical literature for the organ.
Prerequisite: Music 226
Three hours.

316. History of Music in the Baroque Era. A seminar on music from 1600 to 1750.
Prerequisite: Music 226
Three hours.

317. Piano Literature. A study of the musical literature for solo piano.
Prerequisite: Music 226
Three hours.

326. History of the Symphony. A seminar on music composed for orchestra.
Prerequisite: Music 226
Three hours.

327. Vocal Literature. Study and performance of standard vocal repertoire (German, French, Italian and English), from the 18th century to the present.
Prerequisite: Music 226
Three hours.

336. History of Chamber Music. A seminar on music composed for chamber ensembles from the sixteenth century to the present time.
Prerequisite: Music 226
Three hours.

346. History of Music in the Romantic Era. A seminar on music of the nineteenth century.
Prerequisite: Music 226
Three hours.

356. History of Opera. A seminar on the development of opera from the time of the Florentine Camerata to the present day.
Prerequisite: Music 226
Three hours.

366. History of pre-Classic and Classic Music. A seminar on music from the early symphonists to circa 1830.
Prerequisite: Music 226
Three hours.

376. Contemporary Music. A seminar on music of the twentieth century.
Prerequisite: Music 226
Three hours.

386. History of Art Song. A seminar on music for solo voice from the Middle Ages to the present.
Prerequisite: Music 226
Three hours.

396. Special Studies I. A seminar on special topics to be arranged.
Prerequisite: Music 226
Three hours.

397. Special Studies II. A seminar on special topics to be arranged.
Prerequisite: Music 226
Three hours.

352. Music History Seminar I. Introduction to musicology; bibliography and research techniques.
Prerequisite: Music 226
Three hours.

452. Music History Seminar II. Performance practices, notation.
Prerequisite: Music 352
Three hours.

THEORY AND COMPOSITION

025. Theoretical Studies I. Basic theoretical concepts from various style periods. Introduction to functional harmony. Analysis of appropriate literature. Sight singing and dictation, rhythmic reading and dictation. Corresponding keyboard skills.

225. Theoretical Studies II. The completed major-minor system. Contrapuntal textures. Chromatic harmony, post-Romantic developments and introduction to 20th-century styles. Corresponding aural and keyboard skills.
Prerequisite: Music 025
Five hours.

325. Theoretical Studies III. Twentieth-century techniques. Compositional techniques in National Schools, neo-Baroque, neo-Classicism, dodecaphonic composers, and recent developments.
Prerequisite: Music 225
Three hours.

229. Composition I. An introductory course in composition including analysis of widely divergent works in the established and contemporary literature. Students will write compositions for voices and instruments.
Two hours.

329, 429. Composition II and III. Works in the larger forms for solo instruments and chamber ensembles. Continuation of analysis with an emphasis on twentieth-century literature. Third and fourth year students will be expected to have several works completed during the year.
Prerequisite: Music 229 (329 is prerequisite to 429)
Three hours.

335. Counterpoint. First term - The contrapuntal style of the sixteenth century, including analysis of works of Palestrina and Lassus. Writing in two, three and four parts. Second term - The contrapuntal techniques of the eighteenth century, including analysis of works of Bach and his contemporaries. Writing in two, three and four parts.
Prerequisite: Music 225
Three hours.

345. Orchestration. Instruments of the orchestra - tone-colors, transpositions. Practical scoring for individual choirs, chamber orchestra and full orchestra, choir, and symphonic band.
Prerequisite: Music 225
Two hours.

395. Electronic Music. Basic terminology and technology of electronic music. Historical development, musique concrète, the "classical" studio, the synthesizer, and computer applications. Survey of the literature with some analysis. Compositional techniques and notation peculiar to electronic music.
Prerequisite: Music 229, or permission of the instructor
Three hours.

MUSIC COURSES FOR STUDENTS FROM THE FACULTIES OF ARTS, SOCIAL SCIENCES, NATURAL SCIENCES AND THE PROFESSIONAL SCHOOLS. The following music courses are specifically designed as electives for students from Faculties other than Music.

A student may, however, enrol in any Faculty of Music course, with the permission of the Dean of his Faculty and the approval of the chairman of the Music Department concerned.

Music 040. Performance and Survey of Music Literature I. This course is divided into two parts. To obtain credit, both parts must be taken.

Performance: Individual lessons arranged by the Faculty of Music. Credit for this course will be determined by the student's progress during the year and by a final performance examination.
Prerequisite: A minimum of the Grade VI level in the instrument (The student must pay for individual lessons).
One hour, half course.

Survey of Music Literature I: Baroque, Classic and Romantic repertoire. Students will be expected to prepare works for class performance.
Two hours, half course.

Music 060. Introduction to Music Literature I. A course designed to acquaint students with the landmarks of the orchestral, choral and chamber repertoire through guided listening to recordings and live performance.
No prerequisite
Three hours.

Music 140. Performance and Survey of Music Literature II. This course is divided into two parts. To obtain credit, both parts must be taken.

Performance: Individual lessons arranged by the Faculty of Music. Credit for this course will be determined by the student's progress during the year and by a final performance examination.
Prerequisite: A minimum of the Grade VIII level in the instrument. (The student must pay for individual lessons).
One hour, half course.

Survey of Music Literature II. Music repertoire and performance practices with special emphasis on contemporary trends. Students will be expected to prepare works for class performance.
Two hours, half course.

Music 160. Introduction to Music Literature II. A continuation of Music 060, including a detailed study of several large-scale compositions.
Prerequisite: Music 060 or equivalent.
Three hours.

Music 161. Music in Popular Culture. The nature and the means of contemporary popular music. The interrelationship of contemporary arts. An examination of the people's music at certain points in history. The course will attempt to define the function that music serves in popular culture, and, by observing common qualities in music of the present day and other eras, will formulate a definition of "popular" music. Listening laboratories to be arranged.
No prerequisites: Not available for credit for music majors
Three hours.

MASTERS' DEGREES IN MUSIC

MASTER OF MUSIC (M.MUS)

MASTER OF ARTS IN MUSICOLOGY (M.A.)

AREAS OF CONCENTRATION

The Master of Music degree is offered in the field of Music Theory, Music Education, Composition, and in Music Literature and Performance. The Master of Arts degree is offered in Musicology.

Admission

A candidate must be a graduate of an accredited university or hold equivalent qualifications, including an Honors degree (Bachelor of Music) or its equivalent with at least a B average. Students who have taken a Pass degree (three year) program may register in the undergraduate faculty.

Entrance Examinations

The Faculty of Music requires all prospective graduate students to take placement tests on either December 17-18, 1973, February 25-26, 1974 (the last date for those wishing financial assistance) or April 29-30, 1974. These examinations include papers in the theory and history of music, performance in the student's own applied area: voice, violin, etc., as well as general proficiency on the piano. Music Education majors will also take a separate examination. The content of these entrance examinations may be obtained by writing to the Dean of the Faculty of Music.

Deficiences must be removed at the earliest opportunity through approved courses or re-examination. A student will be presumed to be deficient in any area in which he does not take the entrance examination.

Students should achieve an A on the entrance examination in their chosen area of specialty, and not less than B in the other areas. Deficiency courses may not be used as a means of improving the academic average to meet the minimum level for admission to candidacy.

Special Prerequisites

A course in Acoustics and undergraduate training in Orchestration is required of candidates pursuing the degree in Music Theory.

Students concentrating in Music Education must have completed two years of classroom teaching. This prerequisite does not apply to all courses but it does apply to the Music Education Seminar and Thesis.

Candidates in Composition must submit scores of their recent compositions and have them accepted by the Graduate Music Faculty.

Candidates in the areas of Literature and Performance must demonstrate in their audition a level of performing ability comparable to an A standard of the final undergraduate year before being admitted to candidacy.

Language Requirements

All candidates for admission must be competent in English. Musicology majors must have a reading knowledge of German and any other languages necessary for their research. Voice majors must be able to read one language other than English and pronounce German, French and Italian. Music Education and Theory majors require only a reading knowledge of languages demanded by their research projects. If a student is not able to meet the foreign language requirement at the time of his admission, he may be allowed to pursue some graduate courses while he is gaining language competence.

Period of Study

Candidates shall be required to spend at least two terms of each academic year in residence, and to complete the program within five years. Students must register for each session during which they plan to use any university facilities, and must register in the session during which they plan to complete their degree program.

The minimum time in which the requirements can be completed is one full year (three terms), but the actual duration will depend upon the proposed course of study. Candidates who undertake remunerative employment must be prepared to spend additional time. When a deficiency in any area is indicated by the entrance examinations, the student must plan to devote more than one academic year to complete the program.

Course of Study

The course of study shall be initially proposed by the student's adviser and the chairman of the department in which the candidate is working and shall be approved by the Graduate Music Committee. For each candidate, the Graduate Music Committee shall appoint at least one adviser.

The program of study normally involves five courses (fifteen hours) and a thesis. The suggested content of the study program in each of the areas of concentration may be obtained from the Dean of the Faculty of Music.

Students who register in M509 (Applied Music) will participate in a large and/or small ensemble on their principal instrument.

Thesis and Document

A thesis incorporating the results of an investigation in the field of the student's major area is required of all candidates in Music Theory, Musicology, Music Education, and Composition. Students working toward a Master of Music in Literature and Performance will present a document following the procedure laid down for theses. The regulations of the Faculty of Graduate Studies will be followed concerning the preparation and presentation of the thesis and document and the make-up of the examining board that conducts the oral examination of the thesis or document.

Examinations

Oral or written examinations on course work, as well as a comprehensive examination, may be required. Notice of the type of any examination required shall be given by the chairman of the department to the candidate at least two months before the date on which the examination is to be held.

A final oral examination on the thesis or document will be conducted under the supervision of the Professional Degree Committee in Music which will appoint a chairman and an examining board. The board will consist of a chairman and at least three examiners, at least one of whom will be from another department, school or faculty.

The chairman of the department, in consultation with the chairman of the appropriate Committee on Graduate Studies, may request that a thesis be read by an external examiner.

The candidate's chief adviser will attend the examination but may not question the candidate except with the permission of the chairman. Any other members of the Faculty of Graduate Studies may attend and participate in the examination, but only members of the examining board shall vote on the approval of the candidate. To be successful, a candidate must be approved by a majority of the examining board.

GRADUATE COURSES

530a/b. Music Bibliography and Research Techniques.

582a/b. Research Tutorial.

Theory and Composition

501. Theory Review I for Graduates (no credit).

502. Theory Review II for Graduates (no credit).

510. History and Pedagogy of Theory.

512a/b. Advanced Orchestration.

514. Analytic Techniques.

515a. 16th-Century Stylistic Counterpoint.

516b. 18th Century Stylistic Counterpoint.

517a/b. 20th Century Counterpoint.

518. Composition.

590. M.Mus. Thesis.

591. M.Mus. Composition Thesis.

Musicology and Literature

503. Survey of Music History I for Graduates (no credit).

504. Survey of Music History II for Graduates (no credit).

534. Music Notation.

536. Seminar in Medieval and Renaissance Music.

538. Seminar in Baroque Music.

540. Seminar in Pre-Classic and Classic Music.

542. Seminar in Twentieth Century Music.

544. Performance Practices in Early Music.

545. Seminar in the Interpretation of Musical Styles.

546. Beethoven.

548a/b/c. History in Music Criticism.

550. Verdi and Wagner.

552. Studies in Gregorian Chant.

554. From Symphony to Symphonic Poem.

555. Art Song.

556. Schoenberg and His School.

557a. Keyboard Literature to 1700.

558b. Keyboard Literature from Bach to Beethoven.

559a/b. Piano Literature of the 19th Century.

560a/b. Seminar I in Choral Literature.

561a/b. Seminar II in Choral Literature.

562. Bach and Handel.

564a/b. History of Vocal Art.

590. M. A. Thesis.

591. First Foreign Language Requirement (No Credit).

592. Second Foreign Language Requirement (No Credit).

Music Education

570. Advanced Conducting.

572. Advanced Brass Techniques.

574. Advanced Woodwind Techniques.

576. Advanced Choral Techniques.

578. Advanced String Techniques.

580. Music Education Seminar.

590. M.Mus. Thesis.

Performance

509. Applied Music.

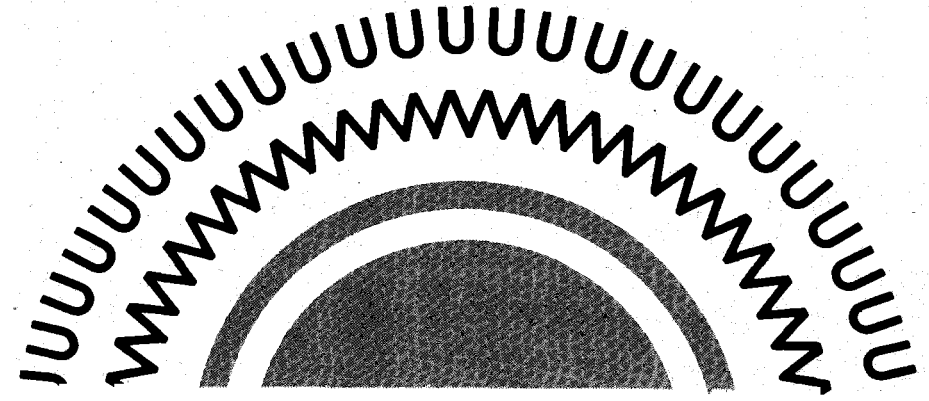
513. Phonetics for Singers (no credit).

545. Seminar in the Interpretation of Musical Styles.

590. Document for M.Mus. in Performance.

591. M.Mus. Recital.

Faculty of Science



Dean
A. E. Scott, BSc, PhD St. Andrews, Professor of Chemistry
Assistant Dean
W. C. Howell, BSc, MSc, PhD UWO, Professor of Chemistry

Faculty of Science

Assistant To The Dean
A. E. M. Bode, BA, MA Saskatchewan, Associate Professor of Mathematics

Administrative Offices: Room 108, 679-3781 Natural Sciences Centre
Room 230, 679-2925, Natural Sciences Centre

Academic Counsellor
C. A. MacDonald, BSc, PhD

Academic Counselling Office: Room 230, 679-3095 Natural Sciences Centre
A description of the programs and courses offered in the Faculty of Science and a listing of its members of Faculty will be found on the following pages, organized under Departments (or Program). For further information, reference should be made to the first section of this Calendar and to the booklet, "General Information".

A student in the Faculty of Science is governed by the academic regulations contained in this section and also in the general section of the Calendar. Requirements applicable to particular programs of study are cited by the Department offering the program. In addition, certain courses are subject to individual prerequisites.

The student is advised to read and consider carefully all regulations and, in cases of doubt as to the precise meaning of any statement or regulation, to consult the Office of the Dean or the Department concerned.

ACADEMIC COUNSELLING

The Faculty of Science has established a full-time Academic Counselling Office for all students registered or intending to register in the Faculty. This service is provided independently of the special Summer Academic Counselling Program for First Year students; nevertheless, incoming Freshmen making use of the Summer Program are invited to supplement that program by consulting directly with individual Departments through the Faculty Counselling Office. More complete details may be obtained by application to the Office of the Dean in person or in writing. While counselling is available on a year-round basis, it is important that students seeking either general guidance or solutions to particular problems do so prior to Registration in September. Only in this way can maximum benefit be achieved for all concerned and the confusion and frustration frequently encountered at Registration be held to a minimum. To this end, students are urged to communicate in person or in writing with the Office of the Dean immediately after receipt of the Spring Examination Reports.

PROGRAMS OF STUDY

The Faculty of Science offers:

Three Year Programs leading to the degree, BA, General Program, with or without an approved area of concentration (major subject), in accordance with the regulations set forth below. Approved areas of concentration are available only in:

Computer Science

Geology

*Home Economics

Mathematics

***NOTE:** This program is offered jointly by the University and Brescia College. For details see the Brescia College section.

Three Year Programs leading to the BSc degree, and which require concentration in a major subject, in accordance with the regulations described below. Approved programs are now available in the subject areas:

Applied Mathematics

Biology

Biology and Chemistry

Chemistry

Chemistry and Geology

Computer Science

Geology

Geophysics

Mathematics

Physics

Four Year Honors Programs leading to an Honors BSc degree. These are available in the following disciplines:

Anatomy

Applied Mathematics

Astronomy

Bacteriology and Immunology

Biochemistry

SCIENCE

Biology
Biophysics
Chemistry
Computer Science
Genetics
Geology
Geophysics
History of Science (Proposed for 1974-75)
Mathematics (Hons. BA and BSc)
Physics
Physiology
Physiology and Pharmacology
Plant Sciences
Zoology

NOTE: A student intending to enter Dentistry, Medicine, Physical Therapy, or Communicative Disorders is advised to register initially in the Faculty of Science (Natural Sciences) and to consult the Calendar entries of the Faculty of Dentistry and the Faculty of Medicine for further guidance. A student registered in a Science program is also eligible to apply for admission to programs in Business and Law.

Availability of Options

The student's choice of course options within any academic program is subject to the constraints both of the lecture time-table and enrolment limitation.

Accuracy of Registration

It is the responsibility of the student to ensure the completeness and accuracy of his registration. Students are advised to consult the Academic Counselling Office should any problem arise in course selection or registration.

ADMISSION REQUIREMENTS

Full details of the academic requirements for admission (1974-75) to the First Year General Program, Natural Sciences, are provided in the "General Information" book. While there are no specific course prerequisites for initial admission to the Faculty of Science, students intending to enter Science programs are advised to include in their High School preparation Grade XIII mathematics ("Calculus" AND either "Algebra" or "Relations and Functions") and at least one other Grade XIII science subject. Every program in the Faculty of Science, with the exception of the unstructured General BA program, must include a "first year" course in Mathematics (Mathematics 020, 021, 024, or 027, or Applied Mathematics 020). In most instances this course must be taken before commencing Second Year Programs; in a few cases it may be included in the second year of study. Grade XIII mathematics, as specified above is a prerequisite to the first year mathematics courses (and also Physics 020 and 022) and therefore a student admitted to the Faculty of Science lacking standing in Grade XIII Mathematics must complete its equivalent, Mathematics 010, before proceeding to register in one of Mathematics 020, 021, 024, 027, or Applied Mathematics 020 or Physics 020 or 022. In this event, any of these courses required for progression to Second Year would have to be completed at Summer School.

First Year

The purpose of the First Year General Program is to offer one year of unspecialized education and to defer the selection of a specific degree program until the second year. Thus the student can make a decision as to his future program on the basis of university work which may include subjects not available in the secondary school. On the successful completion of the First Year General Program the student is eligible to register in the second year of one of the Three Year Science Programs or one of the Honors Science Programs or the second year of programs in other Faculties (Arts, Engineering Science, and Social Science) provided that course prerequisites are fulfilled. Similarly, admission to senior programs in the Faculty of Science from First Year Programs in other Faculties is subject only to the fulfilment of specific course requirements.

ELECTION OF FIRST YEAR COURSES

The courses open to a student in the First Year General Program are grouped into four divisions: Faculty of Arts, Faculty of Science, Faculty of Social Science and Electives.

The student registering in the First Year General Program must elect courses in accordance with the following regulations:

(a) **Five** full (or equivalent) courses numbered 001 to 029 selected from the Faculties of Arts, Science, Social Science and certain other courses listed in the General section of this calendar.

(b) Inclusion of courses from at least two of the Faculties of Arts, Science and Social Science.

(c) Inclusion of the equivalent of one full course in each of five different subjects.

To be eligible for registration in the Faculty of Science the student must elect a number of Science courses greater or equal to the number of courses elected in either of the Faculties of Arts or Social Science. A sixth course may be added to the normal five first year courses with the permission of the Dean of Science. More complete details and a listing of the courses open to Freshmen are given in the General Information Book.

It is the student's responsibility to choose courses which fulfill the prerequisites for the senior program and courses in which he may wish to continue his studies in second year.

Special prerequisites are stated in the listing of the individual Departments of the Faculty. If in doubt, students should seek appropriate counselling and consult directly with the Department concerned.

THREE YEAR PROGRAMS

Following successful completion of the First Year General Program, a student may continue his studies for a further two years in a program leading to either a BA degree or a BSc degree.

The General BA Program is relatively unstructured and is designed to permit a student wide latitude in determining a program of study to satisfy his personal interests. At the same time, the opportunity exists in a few instances to select an area of concentration within the program. For many purposes a major subject or area of concentration is desirable and the student is urged to consider this possiblity and to seek counselling in establishing a suitable program.

SCIENCE

The Three Year BSc Program is a more structured program requiring the student to establish a major subject or area of concentration in his studies and is intended for those students who have a committed interest in Science and a firm idea of the particular discipline in which they wish to proceed. It is designed to permit a modest degree of specialization in one or two subjects to meet the requirements for further study or employment in certain fields while allowing considerable freedom of choice in selecting ancillary areas of interest.

GENERAL REGULATIONS FOR THE BA DEGREE

The requirement for graduation in the General BA Program is completion of a program of **fifteen** courses subject to the following conditions:

(a) Satisfactory completion of the first year general program in accordance with the three regulations stated under the entry "Election of First Year Courses".

(b) Satisfactory completion of at least **ten** courses in subjects offered by the Faculties of Arts, Science and Social Science (excluding Secretarial Science) and by the Affiliated Colleges (excluding Social Welfare and Home Economics)

(c) No more than **eight** courses in one subject may be counted among the fifteen courses of the program.

(d) Satisfactory completion of at least **seven** senior courses (numbered 100 or above).

(e) Achievement of a "D" grade or higher in each of the fifteen courses counted for Graduation.

(f) Achievement of an overall numerical average of 60% in the fifteen courses counted for Graduation.

NOTE:

Optional areas of concentration are offered, at the discretion of each of the Departments of the Faculties concerned, subject to the following provisions:

(i) an area of concentration is defined as four senior courses specified by the Department concerned as meeting its requirements; additional courses offered by the Department may be taken subject to the General BA program *regulations (see section (c) above);*

(ii) declaration of an area of concentration in the General Program should be made by the student at the beginning of Year II;

(iii) the area of concentration will be designated on the official transcript upon graduation; if more than one Area of Concentration has been declared by the student and completed with the requirements for graduation in the General B.A. Program, each shall be so designated.

GENERAL REGULATIONS FOR THE BSc DEGREE

The student shall select on entering the Second Year a major subject or approved area of concentration in the Faculty of Science and include in this program at least FOUR senior courses in this particular subject in accordance with any Departmental specifications. The major Department or the advisor for the approved area of concentration should be consulted in the choice of the Faculty of Science courses. The student's choice of program and any changes in that program must be approved by the Dean of the Faculty of Science.

The requirement for graduation in a Three Year BSc Program is completion of a program of **fifteen** courses subject to the following conditions:

(a) *Satisfactory completion of the first year general program in accordance with* the three regulations stated in the entry "Election of First Year Courses."

(b) Inclusion of at least **ten** courses from the offerings of the Faculty of Science.

(c) Inclusion of at least **two** courses offered outside the Faculty of Science.*

(d) Inclusion of at least **eight** senior courses.

(e) Achievement of a D grade or higher in each course counted for graduation.

(f) Achievement of an overall average of at least 60% in the courses counted for graduation and an average of at least 60% in the minimum number of senior courses required in the major subject or approved area of concentration.

*This rule is waived for the joint programs in Biology and Chemistry and in Chemistry and Geology.

MAINTENANCE OF ACADEMIC STATUS

The minimum level of academic achievement acceptable for graduation from a Three Year Program is 60% over the fifteen courses counted for graduation. While a student is not required to pass all courses taken in any given academic session, he is expected to make reasonable progress in accumulation of the course credits required for graduation. For details see the Grade Point Scale (outlined in the General Section of this calendar) employed to determine the minimum level of satisfactory performance for progression in the program.

.IONORS PROGRAMS

Subsequent to the First Year General Program, a student may continue his studies for a further three years in one of the Honors Programs offered by the Departments of the Faculty. These programs, which lead to the Honors BSc Degree (and Honors BA in Mathematics), are intended for those students who wish to concentrate in depth in one or two subjects for the longer period. They are designed primarily as preparation for direct entry to graduate studies or to meet the requirements for certification or employment as specialists in these disciplines. As a consequence, the Honors Programs are usually more highly structured and heavier in load than the corresponding Three Year BSc Programs.

In the case of the Biological Sciences, Chemistry and Geology, formal admission to the Honors Program commences with the Fourth Year after successful completion of the Three Year BSc Program. For more complete details see the individual Department listings.

While students are not registered in specific Honors Programs during their first year at this University, there are specific requirements for admission to the Second Year of all Honors Programs which are based upon the courses selected and the standing obtained in First Year. In each of the four years of study, those courses considered to be core subjects and essential to the development of the specialization are designated as *Principal* Courses; peripheral or optional subjects are designated as *Subsidiary* Courses.

A student expecting to enter an Honors Program should review the requirements of the particular program(s) before selecting his options in First Year.

Admission to Second and Subsequent Years

A student qualifies for admission *automatically* if, for the previous year, he has obtained a grade average of at least 70%, with no grade less than 60%, *in the principal courses* and a passing grade in every subsidiary course.

A student who fails to qualify for automatic admission but who has a grade average of at least 60% in the Principal courses and a passing grade in every course, may be admitted at the discretion of the Department(s) concerned; students in this position are urged to consult with the Department(s) for consideration.

If, at the end of the Second or Third Year, a student fails to meet the requirements for continuance in the Honors Program, or decides not to continue in Honors, he may revert to one of the Three Year Programs but he must meet all the requirements of that program prior to graduation.

Honors Graduation Requirements

A student who has a grade average of at least 60% in the Principal courses of the Fourth Year and a passing grade in every course will automatically graduate with an Honors degree.

A student who has a grade average below 60% in the Principal courses of the Fourth Year but has a grade average of at least 60% in all the Principal courses of the Third and Fourth Years, and a passing grade in every course, may graduate with an Honors degree only on the recommendation of the Department(s) concerned.

A student who passes all courses in the Fourth Year of an Honors Program for the degree of Bachelor of Arts or Bachelor of Science and satisfies all other requirements for graduation, but fails to qualify for an Honors degree, shall be awarded a BA or BSc degree without designation.

FACULTY OF SCIENCE COURSES

The Faculty of Science offers two courses of a general nature which are not associated with any individual Department of the Faculty.

Contemporary Science 021*

This is a general course in the physical sciences for non-science students who are assumed to have no previous education in science or mathematics. The objective of the course is to provide the student with a non-mathematical but meaningful understanding of the nature and goals of some areas of contemporary science. Boundaries between the traditional disciplines of Chemistry, Geology, Mathematics and Physics will be ignored in an attempt to recognize the interdisciplinary nature of modern scientific research.

This course has no prerequisites and will not be accepted as a prerequisite for other science courses. No student may count for credit both this course and a 020-level course in another physical science.

Enrolment may be limited.

3/lecture/demonstration hours.

(Not offered 1974-75)

Contemporary Science 023*

This is a course in the general Life Sciences which is designed for non-science students. It deals with topics related to the pollution of the natural environment and is intended to prepare the registrant to play a constructive and intelligent role in the programs which must be promoted to preserve the environment as the life supporting medium. Major biological principles, an understanding of which is essential, will be dealt with using visiting lecturers as required to present all facets of this interdisciplinary subject. Essays and seminars will provide for personal participation. No student may count for credit both this course and a 020-level course in the biological sciences. (This course has no prerequisites and will not be accepted as a prerequisite for other science courses).

Enrolment may be limited.

3/lectures/demonstration, laboratory hours - 4.

*NOTE: Contemporary Science 021 and Contemporary Science 023 cannot be used to fulfil the requirements for graduation for a BSc degree or any honors degree program in the Faculty of Science.

DEPARTMENT OF ANATOMY

Departmental Office: MS 472

Chairman of the Department: D. G. Montemurro, BA, MSc, PhD UWO

PROFESSORS: Barr, Buck, Montemurro; ASSOCIATE PROFESSORS: Altmann, Donisch, Gammal, Gwyn, Hidayet, Leyshon, Sergovich, Shaver, Singh, Soltan, Wilson; ASSISTANT PROFESSORS: Clattenburg, Flumerfelt, Galil, Kiernan; LECTURER: Cline; INSTRUCTORS: Wise, Warma; HONORARY LECTURES: Robinow, Walden.

PROGRAMS

FOURTH YEAR HONORS BSc in Anatomy

Admission to the Fourth Year will be by completion of a Three Year Biology BSc. including Biology 309, with the required academic standing.

With the permission of the Department of Anatomy a student may be admitted to the Fourth Year of the Anatomy Program from the Third Year of another Honors Program, with the required academic standing, provided Biology 309 or equivalent has been taken.

Principal Courses

Anatomy 441, 460, 461b, 462a, 463a, 464b, 480; Science 440.

One full course or equivalent selected with the advice of the Department of Anatomy. One of Mathematics 155b, Biology 215b or Biology 344a is required if a course in statistics has not previously been taken.

COURSES

020a. Introduction to Anatomy. *Systemic anatomy designed primarily* for students in the Allied Health Professions. The embryology, gross and microscopic anatomy of the major organ systems of the body will be studied.
Prerequisite: Grade 13 Biology or equivalent.
2 lecture/laboratory hours, (half course).

021b (Formerly 20b). Anatomy for Nursing Program. Major concepts of functional and topographic anatomy are stressed. Special emphasis is given to the "living" state rather than to cadaveric anatomy.
Prerequisite: Anatomy 020a.
3 hours/week, (half course).

023. Anatomy for Occupational Therapy Program. The musculo-skeletal anatomy of the human shoulder region and upper limbs are covered in detail by lecture and laboratory dissection. Other areas of the human body are studied from prosected specimens and surface anatomy sessions.
Corequisite: 020a.
4 lecture/laboratory hours, firt term 4 lecture/laboratory hours, second term.

025a (Formerly 202a). Anatomy for Communication Disorders Program. A detailed consideration of the head and neck regions of the human body. Special emphasis is placed on the anatomy of the speech and hearing mechanisms.
Corequisite: Anatomy 020a.
2 hours/week, (half course).

201. Anatomy for Physical Therapy Program. A series of lectures in regional anatomy supplemented by dissection, demonstration of prosected material and audio-visual aids.
Corequisite: 020a.
8 hours/week, (full course).

264. Functional Human Anatomy. For students in the Physical and Health Education Program.
Prerequisite: Grade 13 biology.
1 lecture, 2 laboratory hours, (full course).

278b. Neuroanatomy. Lectures and demonstrations on the gross and functional anatomy of the brain and spinal cord of Man primarily for students in the Allied Health Sciences. The last 10 hours are devoted to more detailed lectures on the subjects of particular interest to the various professional groups of students. Two hours of TV demonstration and two hours of film are provided in lieu of laboratory sessions.
Prerequisite: Grade 13 Biology or Biology 20.
2 hours/week, (half course).

Biology 309. Histology. A survey of mammalian cytology and microscopic anatomy with emphasis on man and on animals used in medical research.
Antirequisite: Biology 322a.
Prerequisite: A two hundred level Biology course.
2 lectures, 3 laboratory hours, (full course).

414 (Formerly 214). Applied Gross Anatomy. An advanced course in applied gross anatomy including seminars and lectures in various aspects of anatomy with special application to physical and occupational therapy.
Prerequisite: Anatomy 023 or 201.
2 1/2 hours/week, (full course).

441y. Seminar. Presentation of assigned topics and discussion of current anatomic research by faculty and students.
Prerequisite: Biology 309 or equivalent.
1 hour all year, (half course).

460. Gross Anatomy. A survey of human anatomy, given only to Honors Anatomy students.
Prerequisite: Biology 309 or equivalent.
A minimum of 2 lectures and 8 hours of laboratory work per week., (full course).

461b. Cell Structure. Advanced cytology and histology with emphasis on recent developments, especially in electron microscopy.
Prerequisite: Biology 309 or equivalent.
2 hours/week, (half course).

462a. Cytogenetics. An examination of chromosome morphology and behavior, including chromosomal abnormalities in man as causes of diseases.
Prerequisite: Biology 309 or equivalent.
2 lectures/week, (half course).

463a. Embryology. The principles of human development *in utero* with a consideration of the mechanisms involved in the formation of congenital malformations.
Prerequisite: Biology 309 or equivalent.
2 lectures/week, (half course).

464b. Neuroanatomy. A course in the functional anatomy of the mammalian central nervous system, especially the brain of man. Includes T.V. demonstrations and films on the structure of the brain. The last 10 hours are devoted to a laboratory dissection of brain specimens and the opportunity to make plaster models from available moulds.
Prerequisite: Biology 309 or equivalent.
2 lectures/week, (half course).

480. Laboratory. The major laboratory course in various aspects of anatomy for students in the fourth year of the Honors Anatomy program.
Prerequisite: Biology 309 or equivalent.
Corequisites: Anatomy 461b, Anatomy 460.
A minimum of 10 hours, (full course).

Genetics 433. Cytogenetics. (For students in the Honors Genetics program)
Prerequisites: Biology 209 and permission of the department.

APPLIED MATHEMATICS

Department Office: EMS 3002

Chairman of the Department: Blackwell J. H.,ED; BSc, Melbourne; MSc, PhD UWO

Assistant Chairman: Dennis, S. C. R., BSc, ARCS, DIC, PhD London.

PROFESSORS: Blackwell, Dennis, Ehrman, Fraser, Naylor, Sakmar, Talman. ASSOCIATE PROFESSORS: Deakin, Luke, MacNeill, Manuel, Nerenberg, Zamir. ASSISTANT PROFESSORS: Migneron, Sullivan. VISITING ASSISTANT PROFESSORS: Collins, Scott.

PROGRAMS

The Department of Applied Mathematics offers both an Honors Program leading to an Honors BSc degree after four years of study, and a three year program leading to a BSc degree. Students enter both programs at the Second Year level after the successful completion of a First Year in a General Program.

THREE YEAR BSc PROGRAM — APPLIED MATHEMATICS MAJOR

Requirements for Admission

A First Year General Program with Applied Mathematics 020 or Mathematics 024 or Mathematics 027 and Physics 020 or Physics 026 as principal courses. See general regulations for the Three Year BSc degree program.

The following are two approved options. Other options may be set up in consultation with the Department. Students are required to consult the Department of Applied Mathematics before selecting their courses.

OPTION I

Second Year

Applied Mathematics 200, 202

Physics 252, 256

One option

Third Year

Applied Mathematics 300, 343a, 361b

Three options

OPTION II

Second Year

Applied Mathematics 202 and either 200 or 270 or 280

Mathematics 136

Two options

Third Year

Applied Mathematics 301a, 343a, 344b, 361b, 380

Two options

BSc HONORS PROGRAM

Four options are open to students in the Honors Applied Mathematics Program.

Courses may be chosen so that the second year is common for the first three of these options.

With an appropriate selection of courses, students may qualify for a Type A teaching certificate in mathematics and physics or in mathematics and chemistry. Consult the Department for further information.

Students may enter third year Applied Mathematics from second year Physics or from second year Computer Science if they have, or can make up, the required prerequisites. Interested students should consult the Department for further information.

Requirements for Admission

A First Year General Program with Applied Mathematics 020 or Mathematics 024 or Mathematics 027 and Physics 020 or Physics 026 as principal courses. For the Chemistry Option, Chemistry 020 or 023 is an additional prerequisite.

(1) Continuum Mechanics Option

SECOND YEAR*

Principal Courses

Applied Mathematics 200, 202, 343a, 361b.

Physics 250, 265

Subsidiary Course

One option

THIRD YEAR*

Principal Courses

Applied Mathematics 300, 350, 351a, 352b

Mathematics 257a

Physics 365b

One full course equivalent from: Applied Mathematics 303b, 344b;

Physics 353, 357 or an approved principal course option.

Subsidiary Course

One option

FOURTH YEAR*

Principal Courses

Applied Mathematics 400, 420a, 421b, 452

Two and one-half full course equivalents from: Applied Mathematics 303b, 344b, 402a, 443, 453, 454, 460; Physics 353, 468

(2) Theoretical Physics Option

SECOND YEAR*

Principal Courses

Applied Mathematics 200, 202, 343a, 361b

Physics 250, 264, 265

THIRD YEAR*

Principal Courses

Applied Mathematics 300, 350, 351a,

Mathematics 257a

Physics 357, 365b

One-half course from Applied Mathematics 303b, 344b, 352b

Subsidiary Course

One option

FOURTH YEAR*

Principal Courses

Applied Mathematics 400, 402a, 420a, 421b, 454

Two full course equivalents from: Applied Mathematics 303b, 344b, 352b, 443, 452, 453, 460; Physics 353, 462, 464, 467, 468.

(3) Applied Analysis Option

SECOND YEAR*

Principal Courses

Applied Mathematics 200, 202, 343a, 361b

Physics 250

One approved principal course option

Subsidiary Course

One option

THIRD YEAR*

Principal Courses

Applied Mathematics 300, 303b, 344b, 350, 351a

Mathematics 257a

One approved principal course option.

Subsidiary Course

One option

FOURTH YEAR*

Principal Courses

Applied Mathematics 400, 443, 460

Mathematics 453

One and one-half approved principal course options.

(4) Chemistry Option

SECOND YEAR*

Principal Courses

Applied Mathematics 200, 202

Chemistry 250, 254

Physics 250, 256

THIRD YEAR*

Principal Courses

Applied Mathematics 300, 350

Chemistry 252, 354b, 374a

Physics 365b

Subsidiary Course

One option

FOURTH YEAR*

Principal Courses

Applied Mathematics 351a, 361b, 400, 454

Chemistry 350

One full course equivalent from: Chemistry 454a, 464b, 477a, 484b

Subsidiary Course

One option

*Students should consult the Department before choosing their principal or subsidiary course options. This is particularly important since there may be prerequisites to satisfy in later courses in their programs. Finally, with the approval of the Department, other principal course options may be substituted.

COURSES

NOTE:

(1) More detailed outlines of these courses can be found in the Department of Applied Mathematics Course Book, a copy of which may be consulted in the Department Office.

(2) In certain cases, the prerequisites and corequisites stated below may be modified but only with the approval of the Department.

020. Introduction to Calculus and its Applications. An extensive treatment of the calculus of functions of one variable is given with emphasis on applications in the Physical and Life Sciences, in Engineering Science, and in the Social Sciences. One of the four hours is devoted to a problems period during which time students receive individual attention.
Antirequisites: Mathematics 020, 021, 024, 027.
Prerequisite: Two Grade 13 mathematics credits including a credit in Calculus; or Mathematics 010.
3 lectures, 1 tutorial hour.

022. Introductory Mathematics for Social Sciences. This course is designed primarily to provide beginning students in the Social Sciences with a sound background in the basic mathematics applicable to the Social Sciences; no prior knowledge is assumed. Enquiries are also invited from interested students in other Faculties. Subjects covered include Boolean Algebra, Logic, Break-Even Analysis, Linear Programming, Calculus, Probability and Linear Algebra. Emphasis throughout is on motivation through practical applications. There is a weekly problems class in which students receive individual attention. This course is designed to be a suitable preparation for the quantitative methods courses in the Social Sciences. Subsequent "Mathematics" courses available for Social Science students are: Applied Mathematics 233; Mathematics 137a, 138b, 254. Any other "Mathematics" courses require the consent of the Department concerned.
Applied Mathematics 022 may not be taken for credit by students who are eligible to take Mathematics 021.
Antirequisites: Mathematics 020, 021, 024, 027; Applied Mathematics 020.
Prerequisites: Less Mathematics background than Mathematics 021.
3 lecture, 1 tutorial hour.

200. Advanced Calculus and Vector Analysis. Applications of vectors to three-dimensional analytic geometry, functions of several variables, partial derivatives, Taylor's formula, implicit functions, Jacobians, maxima and minima of functions of several variables including the method of La-

grange Multipliers, multiple integrals and their applications, vector fields, the theorems of Green, Gauss and Stokes and their applications, infinite sequences and series. Emphasis is placed on the mastery of technique and subject matter through the working of problems. An informal tutorial is usually scheduled in addition to the 3 lecture hours.
Antirequisite: Mathematics 278.
Prerequisite: A minimum grade of C in Applied Mathematics 020 or Mathematics 024 or Mathematics 027.
3 hours.

202. Matrix Algebra and Linear Systems. This course is to develop both technical proficiency in handling matrices and determinants, and an understanding of the relations of matrices to linear vector spaces. Applications to linear equations, geometry, eigenvalue problems and vibrations of mechanical and electrical systems is emphasized. An introduction to ordinary differential equations with applications is included. An informal tutorial is usually scheduled in addition to the three lecture hours.
Antirequisites: Mathematics 250, 132.
Prerequisite: A minimum grade of C in Applied Mathematics 020 or Mathematics 024 or Mathematics 027.
3 hours.

233. Statistics for Social Science. This basic course in statistics emphasizes applications in the social and management sciences. Topics include descriptive statistics, probability, distributions, estimation, hypothesis testing, sampling, correlation and regression, goodness-of-fit tests, and contingency tables. According to the interests of the students, additional topics are chosen from experimental design, time series, nonparametric methods, Bayesian decision-making, and queuing models. This course cannot be taken for credit by students in "Mathematics" programs.
Antirequisite: see Statistics pages in Academic Programs and Policy section of Calendar.
Prerequisite: Applied Mathematics 022 or Mathematics 020 or Mathematics 021 or the consent of the Department.
3 hours.

270. Engineering Mathematics II. Elementary differential equations and complex numbers, vectors and an introduction to vector calculus, partial differentiation, multiple integrals, Taylor's theorem and an introduction to infinite series and power series. This course and Applied Mathematics 280 cannot both be taken for credit.
Antirequisites: Applied Mathematics 200, 280; Mathematics 278, 254, 134.
Prerequisite: Applied Mathematics 020 or Mathematics 024 or Mathematics 027.
3 hours.

280. Calculus II. Functions of many variables, partial differentiation, introduction to vector calculus, divergence, curl, line integrals, multiple integrals, infinite series and power series, introduction to ordinary differential equations. This course and Applied Mathematics 270 cannot both be taken for credit.
Antirequisites: Applied Mathematics 200, 270; Mathematics 134, 254, 278.
Prerequisite: Applied Mathematics 020 or Mathematics 024 or Mathematics 027.
3 hours.

300. Methods of Applied Mathematics I. Ordinary and partial differential equations, special functions of mathematical physics including the Gamma Function, Bessel functions, Legendre functions and Spherical Harmonics, boundary value problems, Sturm-Liouville theory, Fourier series and orthogonal function expansions, the partial differential equations of mathematical physics including Laplace's equation, the diffusion and wave equations. Functions of a com-

plex variable, analytic functions, integration in the complex plane, Taylor and Laurent series, analytic continuation, Cauchy's and Morera's theorems, evaluation of integrals by residue theory, applications to the Physical Sciences. Two hours per week in the first term are devoted to complex variables. The other topics are covered in three lecture hours per week throughout the year.
Prerequisites: Applied Mathematics 200 and 202 or Mathematics 250 and 278
5 hours during first term and 3 hours during second term.

301a. Complex Variables with Applications. Functions of a complex variable, analytic functions, integration in the complex plane, Taylor and Laurent series, analytic continuation, Cauchy's and Morera's theorems, evaluation of integrals using residue theory, conformal mapping and its applications.
Antirequisites: Mathematics 144, 488.
Prerequisite: A senior course in calculus.
3 hours first term only, half course.

303b. Nonlinear Differential Equations. An introduction to the nonlinear differential equations of physical science and their methods of solution.
Prerequisite: Applied Mathematics 202 or 270 or 280 or Mathematics 278
3 hours second term only, half course.

343a. Applied Statistics. An introduction to statistics for application. Discrete and continuous probability distributions; sampling theory; principles of estimation; confidence intervals, F, t, X^2 tests, regression analysis.
Antirequisite: see AM233.
Prerequisite: A full course in calculus.
3 hours first term only, half course.

344b. Experimental Design. A discussion of many of the various statistical methods that can be employed to evaluate scientific experiments. Topics covered include the general linear model and multiple regression; analysis of variance and covariance including a discussion of basic complete and incomplete experimental designs. Other topics are selected from Sampling and Quality control; Monte Carlo methods; nonparametric methods and decision theory. The specific selection is dependent on the interests of the students enrolled.
Antirequisites: see AM233
Prerequisite: a full or half course in statistics.
3 hours second term only, half course.

350. Advanced Classical Mechanics. A logically connected development of classical mechanics including a thorough treatment of Lagrangian and Hamiltonian methods. Special Relativity may be included.
Antirequisite: Physics 360.
Prerequisites: Physics 250, Applied Mathematics 200 and 202, or equivalent
3 hours.

351a. Introduction to Continuum Mechanics. The concept of a continuum. Derivation of the fundamental equations describing a continuum. Application to fluids and solids.
Prerequisite: Applied Mathematics 200 or 270 or 280
3 hours first term only, half course.

352b. Introductory Fluid Dynamics. An introduction to Fluid Dynamics, with principal emphasis on ideal fluid flow theory.
Prerequisite: Applied Mathematics 351a
Corequisite: Applied Mathematics 300 or 301a.
3 hours second term only, half course.

360. Numerical Analysis. Numerical solution of algebraic and transcendental equations; numerical solution of simultaneous linear equations; matrix inversion; eigenvalues and eigenvectors of matrices; interpolation; numerical differentiation and integra-

tion, including Gaussian integration; numerical integration of ordinary differential equations; summation of series; approximation of functions and tabulated data. Students are encouraged to use the digital computer.
Antirequisite: Mathematics 363.
Prerequisites: Applied Mathematics 200 and 202 or Mathematics 250 and 278
3 hours.
This course carries a half credit if Applied Mathematics 361b has been completed successfully.

361b. Numerical Analysis. Introduction to numerical analysis; solution of nonlinear equations; systems of linear equations; matrix inversion; interpolation; numerical differentiation; numerical integration; introduction to methods of integration of ordinary differential equations.
Antirequisites: Applied Mathematics 360; Mathematics 363
Prerequisites or corequisites: Applied Mathematics 202 and 200 or 270 or 280; or Mathematics 250 and 278.
3 hours second term only, half course.

370. Engineering Mathematics III. This is a general course in Applied Mathematics for Third Year Engineering Science students covering the following topics; an introduction to numerical methods including finite differences, difference tables, interpolation, numerical differentiation and integration, numerical solutions of differential equations, direct and iterative methods for solving linear algebraic equations; linear algebra; Fourier series and transform methods.
Antirequisite: Applied Mathematics 361b.
Prerequisite: Applied Mathematics 200 or 270 or 280
3 hours.

380. Applied Mathematics for Chemists. Vector calculus, infinite series and power series, solutions of ordinary differential equations with variable coefficients including Bessel's and Legendre's equations, Fourier series and orthogonal function expansions, partial differential equations, linear algebra, and elementary probability theory. Emphasis will be on applications to Chemistry.
Antirequisites: AM 300, 470a.
Prerequisite: Applied Mathematics 200 or 270 or 280
3 hours.

FOR EACH OF THE FOLLOWING COURSES, UNLESS THE PREREQUISITES ARE STATED EXPLICITLY, THE CONSENT OF THE INSTRUCTOR IS REQUIRED.

400. Methods of Applied Mathematics II. This course is concerned with techniques of problem solution in Applied Mathematics, especially with boundary value problems of partial differential equations. Topics discussed vary from year to year but usually include the following: Green's functions, wave propagation and diffraction, integral transforms, special topics in complex variable theory, an introduction to asymptotic expansions, tensor analysis.
3 hours.

402a. Linear Operators for Physical Science. Introduction to infinite dimensional linear spaces and their occurrence in applications; metric and Banach spaces; bounded operators; Volterra integral equation; introduction to the Lebesgue integral; Hilbert space, self-adjoint, unitary, compact and projection operators, spectral decomposition of self-adjoint operators; Fredholm integral equations; mathematical foundations of Quantum Mechanics.
Antirequisite: Mathematics 478.
Prerequisites: Mathematics 256 or Mathematics 257a; Applied Mathematics 300, or consent of Department.
3 hours first term only, half course.

420a. Electromagnetic Theory II. Review of Maxwell's equations; conservation laws; plane waves in a conducting medium; reflection, trans-

mission, dispersion of plane waves; wave guides and cavities; radiating systems; diffraction.
Prerequisite: Physics 365b.
3 hours first term only, half course.

421b. Electromagnetic Theory III. Fields of moving charges; covariant and Hamiltonian formulations of Maxwell's equations; introduction to Plasma Physics and M.H.D.; advanced methods for electromagnetic field problems.
Prerequisite: Applied Mathematics 420a
3 hours second term only, half course.

443. Applied Probability and Stochastic Processes. Summary of basic concepts of probability and stochastic processes. Correlation and spectral analysis of weakly stationary time series. Fitting time series models to observed data. Analysis of point processes with application to reliability theory, life testing, particle counting and spatial patterns of ecology. Markov chains.
Prerequisite: A first course in probability and statistics.
3 hours.

452. Fluid Dynamics. An advanced course in Fluid Dynamics divided approximately equally between viscous fluid flow and gas dynamics.
3 hours.

453. Solid Mechanics. A first course in the theory of the mechanics of the solid continuum, including elasticity and plasticity.
3 hours.

454. Quantum Mechanics. Wave mechanics, axioms of quantum mechanics, harmonic oscillator, angular momentum, hydrogen atom, perturbation theory, elementary atomic and molecular structure, elementary scattering theory.
Antirequisites: Physics 451a, 461b.
3 hours.

460. Advanced Numerical Analysis. A sequel to Applied Mathematics 361b, with particular attention given to the techniques required for numerical solutions of ordinary and partial differential equations.
Prerequisite: Applied Mathematics 360 or 361b
3 hours.

470a. Engineering Mathematics IV. Vector calculus including the integral theorems, ordinary differential equations with variable coefficients, orthogonal function expansions, an introduction to partial differential equations.
Antirequisites: AM300, 380.
Prerequisite: Applied Mathematics 200 or 270 or 280.
3 hours first term only, half course.

DEPARTMENT OF ASTRONOMY

Departmental Office
Astronomy Building, G-15

Head of the Department: Wehlau, W. H., AB, PhD California.
PROFESSOR: Wehlau.
ASSOCIATE PROFESSORS: Gray, Landstreet, Marlborough, Mitalas ASSISTANT PROFESSORS: Moorhead, A. Wehlau.

Programs

The Department of Astronomy offers an Honors Program leading to the Honors BSc degree. This program in astronomy prepares the student for work in astronomy and related physical sciences; it provides a suitable background for the teaching of the physical sciences at the high school level. Requirements for

Admission: First Year General Program (Natural Sciences) with Astronomy 020, Applied Mathematics 020 or Mathematics 024 or 027 and Physics 026 or 020, as principal courses.

Students entering or continuing in the Honors Astronomy Program are required to consult with the Department for approval of their programs.

Students planning to enter a graduate school are advised to select courses which will satisfy the foreign language credit required by many graduate schools.

SECOND YEAR

Principal Courses

Astronomy 220

Applied Mathematics 202 or Mathematics 250

Applied Mathematics 200 or Mathematics 278

Physics 250, 264, 265

THIRD YEAR

Principal Courses

Astronomy 320 (or 330)

Applied Mathematics 300

Applied Mathematics 350 or Physics 360

Physics 353, 357

Physics 365b

Subsidiary Course

One option

FOURTH YEAR

Principal Courses

Astronomy 330 (or 320)

Four additional courses at the 300 or 400 level from Applied Mathematics, Geophysics, Mathematics or Physics or Science 210. Applied Mathematics 420a and Applied Mathematics 454 or Physics 451 must be included in these courses. In addition the inclusion of Applied Mathematics 421b is strongly recommended.

Subsidiary Course

One course from Arts or Social Sciences

COURSES

020. Astronomy I. An introduction to astronomy for students who are taking or have completed first year courses in Physics and Mathematics. The various fields of astronomy will be covered, as in Astronomy 021 but with an emphasis on the quantitative and physical aspects rather than the purely descriptive. Selected topics of current interest will be treated in some detail.

Corequisites: Applied Mathematics 020 or Mathematics 024 or 027 and Physics 020 or 022

3 lecture hours, full course.

021. General Astronomy. A general survey of astronomy as a science. Items considered are the solar system; earth, moon, planets, sun, comets, and meteors; the stars: their nature, distances, motions, size, composition, and evolution; systems of stars: open and globular star clusters, the milky way, stellar populations, interstellar material, and galaxies; the universe: its structure, past and origin; astronomical theories, proof, pseudo-science and semiconventional hypotheses; history of astronomy; astronomical equipment: telescopes and

observatories; selected topics of current interest such as quasars, pulsars, X-ray objects, neutron stars, black holes, cosmology. Observations with the six-inch refractor.
Two lecture, one tutorial hour, full course.

Honors Courses

220. Astronomy II. Astrometry; elementary celestial mechanics; binary stars; the solar system: physics of planets and satellites, comets, meteors and the interplanetary medium.
Prerequisite: Astronomy 020 or permission of the instructor.
2 lecture hours, full course.

320. Astrophysics I. Radio Astronomy and Interstellar Material - Electromagnetic theory, plasmas and MHD; antennas and receivers, optical instruments and detectors, calibration; emission and absorption mechanisms; sun, solar wind, planets; interstellar gas, gaseous nebulae, H II regions; gamma ray and neutrino astrophysics; cosmic rays; interstellar dust; galaxies, quasars, cosmology.
Prerequisites: Applied Mathematics 200 and Physics 250 or equivalents.
3 lecture hours, full course.
Not offered 1974-75

330 (Former 420). Astrophysics II. Atomic and stellar spectra, gaseous state of matter and radiation; introduction to the internal structure of stars, to stellar evolution and to stellar atmospheres; stellar motions, galactic structure and stellar populations.
Prerequisites: Applied Mathematics 200 and Physics 250 or equivalents.
3 lecture hours, full course.

DEPARTMENT OF BACTERIOLOGY AND IMMUNOLOGY

Medical Sciences Building 352

Head of Department

Murray, R. G. E., BA, MA Cantab; MD, CM McGill; FRSC.

PROFESSORS: Fitz-James, Murray, Robinow, Robinson, Whitby. CLINICAL PROFESSOR: Hatch. ASSOCIATE PROFESSORS: Chodirker, Ebisuzaki, Medzon, Rozanis, Sinclair, Strejan, Zajic. CLINICAL ASSOCIATE PROFESSOR: Bakerspigel. ASSISTANT PROFESSORS: Behme, Black, Cheevers, Percy, Singhal, Wilkins. CLINICAL ASSISTANT PROFESSOR: Campsall. HONORARY LECTURERS: Abrahams, Bell, Hannay, Howson, Naylor, Roslycky, Toogood. LECTURER: Galsworthy.

PROGRAMS

This department participates in the Three Year BSc Biology Program. Students intending to study towards an Honors degree in Bacteriology and Immunology would register in the Biology program until the fourth year (see Biology section).

FOURTH YEAR

Please refer to the Biology section for specific admission requirements. Students in the Fourth Year Honors Program will be required to take the equivalent of six full courses.

Principal Courses

Bacteriology and Immunology 480 plus the equivalent of at least three full courses from the following: Bacteriology and Immunology 460, 461a, 462b, 465a, 470a, 471b, 472b, Genetics 467

Subsidiary Courses

Two full courses (or equivalent) selected with the approval of the Department. Science 440 and Math 155b (or equivalent) are recommended for those who have not taken equivalent courses.

Special Department Advice

a. Students beginning in this program should carefully determine the prerequisites or corequisites necessary for courses in subsequent years.

b. Students who plan to continue into graduate studies are advised to select courses which will satisfy the foreign language credit required by many graduate schools.

COURSES

Biology 202. Microbiology (Given by the Departments of Bacteriology and Immunology and Plant Sciences). A comparative study of the morphology, biology and relationships of algae, bacteria, fungi, protozoa and viruses.

Corequisite or prerequisite - Biology 200

2 lectures, 3 laboratory hours.

Biology 306 (Formerly 206). Bacteriology, Virology and Immunology. This course will consider the distinguishing features, the importance to man and the interrelationships among the major groups of bacteria and viruses. It will also consider the basic concepts of immunology and its application to the biological sciences.

Prerequisites: Biology 200 or Biochemistry 206b (for nurses) or equivalent

Corequisite: Biology 300 or 301 or equivalent.

2 lectures, 3 laboratory hours.

Biology 307. Applied Microbiology. (Given by the Departments of Bacteriology and Immunology and Plant Sciences).

A survey of selected topics in agricultural and industrial microbiology with reference to food microbiology, fermentation reactions, single cell protein synthesis, and the principles of plant disease control.

Prerequisites or Corequisites: Biology 202 or 306 and Biology 300 or 301

2 lectures, 3 laboratory, tutorial or demonstration hours.

460. Advanced Microbiology. An advanced treatment of the biology and physiology of microbes with particular emphasis on the bacteria.

In 1974-75 this course will contain a virology component.

Prerequisite Biology 202 or 306; Biology 300 or 301

2 lectures, 3 laboratory hours.

461a. Microbial Anatomy. A survey of cytological methods and applications to the understanding of the structure of procaryotic organisms, protozoa and fungi.

Prerequisites Biology 202 or Biology 306

1 lecture, 3 laboratory hours, one term only half course.

462b. Advanced Virology. Current topics on the biochemistry of virus-cell interactions.

Prerequisite Biology 300 or Biology 301; Biochemistry 461 strongly recommended

2 lectures, one term only Half course.

465a. Microbial Biochemistry. Topics involving the biochemical activities and processes of microbes.

Prerequisites: Biology 300 or 301

2 lectures, one term only Half course.

470a. Immunology. A course concerned with immunological theory and interpretation of basic and medically applied immune phenomena. (Given in collaboration with the Department of Medicine).

Prerequisite Biology 200 or equivalent

2 lectures, one term only Half course.

471b. Immunobiology. An advanced course dealing with cellular mechanisms involved in the immune response, the ontogeny and phylogeny of the immune response, general concepts in immunopathology and immunological diseases, and other topics of current interest.
Prerequisite - Bacteriology and Immunology 470a or its equivalent
2 lectures, 3 laboratory hours, one term only Half course.

472b. Immunochemistry. An advanced course on the properties of antigens and antibodies, on their chemical structure and on their interactions in vitro and in vivo.
Prerequisite - Bacteriology and Immunology 470a or equivalent
2 lectures, 3 laboratory hours, one term only Half course.

480. Research Project and Seminar. To give training in the techniques employed in modern microbiology with emphasis upon individual effort and resourcefulness. Designed expressly for fourth year honors students in the Department of Bacteriology and Immunology and to allow further elaboration of the technical content of the courses offered in the department. Other students require the permission of the department to take this course. Tutorials would include a critical review of scientific papers, laboratory data and the preisentation of scientific reports.
5 hours, Laboratory, Tutorial.

Genetics 467. Microbial Genetics. Aspects of genetics applying to micro-organisms. (Given in collaboration with the Department of Plant Sciences).
Prerequisites or corequisites Biology 308, Biology 300 or Biology 301
2 lectures, 3 laboratory hours.

DEPARTMENT OF BIOCHEMISTRY

Department Office: MS 316

CHAIRMAN: Sanwal, B. D., B.Sc., M.Sc., Ph.D. India; Dr. Nat. Sci. Zurich
PROFESSORS: Carroll, Fitz-James, McCarter, McMurray, Rossiter, Sanwal, Smith, Stewart, Strickland. **CLINICAL PROFESSORS:** Brownstone*, Hobkirk*. **ASSOCIATE PROFESSORS:** Ball, Donisch, Heagy, Henderson*, Magee, Trevithick, Tustanoff*, Walker. **CLINICAL ASSOCIATE PROFESSORS:** Binns Smith*, Griffiths* (Chairman of Division of Clinical Biochemistry, BS Wales; MB BCh Welsh National; FCSCC.), Haines*, Haust*. **ASSISTANT PROFESSORS:** Cook, Galsworthy, Gatfield, Gordon, Guthrie, Mackie, McDonald, Possmayer. **CLINICAL ASSISTANT PROFESSOR:** Leung*. **INSTRUCTOR:** Lin. **HONORARY LECTURERS:** Cheevers, Chefurka, Hudson, Krupka, MacPherson, Schincariol, Spencer, Vardanis, Wolfe.

*Member of Division of Clinical Biochemistry

The Department of Biochemistry offers undergraduate programs in the Faculties of Medicine, Dentistry and Nursing as well as those outlined below.

The Department participates in the Biology BSc Three Year Program. An Honors Program leading to the BSc degree is also offered.

REQUIREMENT FOR ADMISSION TO HONORS PROGRAM

Students who plan to continue into graduate studies are advised to select options which will satisfy the foreign language credit required by many graduate schools.

Fulfilment of the requirements for a BSc Biology Three Year Program with the standings and conditions described admits a student to Fourth Year Biochemistry *Honors.*

Fulfilment of requirements for a BSc Chemistry Three Year Program with standings essentially the same as for the BSc Biology Three Year Program and with inclusion of Biology (Biochemistry) 300 admits a student to Fourth Year Biochemistry Honors. The Department of Biochemistry should be consulted.

ALTERNATIVE ENTRY INTO THIRD YEAR BIOCHEMISTRY HONORS

One of:

(a) Second Year Program in Honors Chemistry.

(b) Other Honors Programs. With permission of the Department of Biochemistry and the Dean of Science, the Second Year of such other Honors Programs as permit inclusion of a course in Organic Chemistry.

(c) Second Year of Chemistry BSc program. The Department of Biochemistry should be consulted regarding acceptable standards.

THIRD YEAR PRINCIPAL COURSES

Biology 300

Three full courses or equivalent from:

Biology 202

Biology 209

Biology 250 (Formerly 302)

Biology 309

Biology 310

Biology 311

Chemistry 353a

Chemistry 354b

Other Chemistry courses equivalent to one full course with permission of the Department.

SUBSIDIARY COURSES

Two options (two full courses or equivalent)

Mathematics 020, 021, 024, 027 or Applied Mathematics 020 is required for students who have not had a University course in Mathematics; Chemistry 204 or 254 is required for students who have not had a University course in Physical Chemistry.

FOURTH YEAR PRINCIPAL COURSES

Biochemistry 460

Biochemistry 461

Biochemistry 464b

Biochemistry 486a

Biochemistry 480

Any two half courses or one full course from Biochemistry, Biology, Chemistry or the Health Sciences at the 300 or 400 level with the approval of the Department of Biochemistry.

SUBSIDIARY COURSES

History of Science 440

Mathematics 155b or equivalent (if not already taken).

One additional option (full course or equivalent) may be elected with the permission of the Department of Biochemistry.

COURSES

In any one program, credit towards a degree can be obtained for only one of Biochemistry 136, 400, Biology 300, 301.

136 (Formerly 36). Biochemistry and Nutrition. A survey course for Home Economics and General Program students.
Antirequisites: Biology 300 or 301.
Prerequisites: Chemistry 133a or 203.
3 lectures.

206b. Biochemistry for Nurses.
Prerequisite: Chemistry 133a.

Biology 300. Biochemistry. A survey for Honors students.
Antirequisites: Biology 301, Biochemistry 136 (formerly 36).
Prerequisite: Chemistry 203 or 250 plus 252.
Prerequisite or Co-requisite: Chemistry 204, 254 or 214
3 lectures, 2 laboratory hours.

Biology 301. General Biochemistry.. A survey for students in Biology programs.
Antirequisites: Biology 300, Biochemistry 136 (formerly 36).
Prerequisite: Chemistry 133a or 203 or 250.
2 lectures, 3 laboratory hours.

460. Metabolism. An advanced treatment of intermediary metabolism.
Prerequisite: Biology 300 or 301
2 lectures.

461. Structure and Metabolism of Nucleic Acids. A discussion of the role of the nucleic acids in protein synthesis.
Prerequisite: Biology 300 or 301
2 lectures.

463b. Current Topics. A discussion of contemporary topics in the field of biochemistry.
Prerequisite: Biology 300 or 301
2 lectures, one term only half course.

464b. Enzymology. A survey of the principles of mechanism and function of enzymes.
Prerequisites: Biology 300 or 301
2 lectures, one term only half course.

468a. Physical Biochemistry. A discussion of the physicochemical properties of macromolecules of biological interest.
Prerequisite: Biology 300 or 301 plus Chemistry 204 or 254
2 lectures, one term only half course.

480. Laboratory and Seminar. Designed to give training in techniques and methods at the advanced level; emphasis is laid upon individuality of work and resourcefulness. Included in the sessions is a review and evaluation of current literature in a series of seminars involving student participation.
Prerequisite: Biology 300.
10 hours.

BIOLOGY

PROGRAMS

The eight Biological Science Departments within the Faculty of Science jointly offer a BSc degree with an area of concentration in Biology after three years of study. Three Year BSc Biology students who have fulfilled the necessary requirements may progress to a Fourth Year Honors Program in one of the following disciplines:

Anatomy

Bacteriology and Immunology

Biochemistry

Biology

Biophysics

Genetics

Physiology

Physiology and Pharmacology

Plant Sciences

Zoology

A Three Year BSc degree program in Biology and Chemistry is offered jointly by the Biological Science Departments and the Department of Chemistry. For further information please refer to the entry of the Department of Chemistry.

The Biology BSc Three Year Program is designed to provide the student with a basic background in Biology. In addition, the Program offers considerable flexibility in the choice of optional Biology courses, so that a student may sample many of the disciplines of biology or may begin to specialize. Further opportunities for specialization are available in the Fourth Year Honors Programs.

The Three Year BSc Biology Program offers the students several possible career alternatives. The basic program would be adequate training for certain careers (high school teaching*, public school teaching*, technical work in industry, and in public health, etc.) or for entry into professional Health Programs (Medicine and Dentistry) Alternatively, it could lead to Honors Programs or to a qualifying year in graduate school.

The Honors Programs provide a basis for professional work in academic, government or industrial fields. From an Honors Program a student could progress to an Interim High School Assistants' Certificate Type - A*

*Anyone intending to apply to a College of Education should consult with the Assistant Registrar, Althouse College of Education, before registration in Second Year in order to plan an undergraduate program which will be suitable.

BSc BIOLOGY

Three Year Program

Requirements for Admission If a student proposes to register in the Three Year Biology BSc. his program in First Year must include Biology 020 and Chemistry 020 or 023. In most circumstances it is to a student's advantage to also include the Mathematics requirement (one of Mathematics 020, 021, 024 or 027 or Applied Mathematics 020) in first year. Training in other sciences is essential for an appreciation of modern biology; therefore, it is recommended that students consider including at least one Physics (Physics 020 or 022) course. At least one course from the Faculties of Arts or Social Science must be included.

Note: Mathematics 020 and 021 will not fulfill the mathematics requirements for all Fourth Year Honors Programs and will not fulfill the requirements for the combined Biology/Chemistry program.

CAUTION: ALL STUDENTS SHOULD EXAMINE THE PREREQUISITES FOR COURSES THEY EXPECT TO TAKE IN SUBSEQUENT YEARS. A COUNSELLING SERVICE IS PROVIDED IN THE FACULTY OF SCIENCE TO ASSIST STUDENTS IN SELECTING A PROGRAM.

SECOND YEAR

Biology 200

Biology 201

A mathematics course (one of Mathematics 020, 021, 024, 027 or Applied Mathematics 020), if not already taken.

Options: a number elected to attain a total of five full courses. It is recommended that students consider including Chemistry 203, or 250 and 252, and at least one Biology option equivalent to a full course.

THIRD YEAR

Chemistry 203, or 250 and 252, if not already taken.

Biology optional courses (202-346b); a number elected to attain at least a total of five full Biology courses in Years Two and Three.

Options: a number elected to attain a total of five full course equivalents in Third Year. Other Biology optional courses may be included, if desired.

The Requirement for Graduation is completion of a program of fifteen courses subject to the following conditions:

i) of the fifteen courses, at least 10 courses must be from the Faculty of Science and include the following:

Biology 020

Chemistry 020 or 023

A mathematics course at the 020 level (one of Mathematics 020, 021, 024, 027, or Applied Mathematics 020).

Five senior courses in Biology, including Biology 200 and 201.

Chemistry 203, or, 250 and 252;

ii) of the fifteen courses, at least two must be from outside the Faculty of Science. The first year Arts/Social Science option counts as one of these.*

iii) of the fifteen courses, eight must be senior courses;

iv) achievement of a minimum average of 60% in the fifteen courses counted for graduation and a minimum average of 60% in five senior courses in Biology including Biology 200 and 201.

*This rule is waived for the joint program in Biology/Chemistry.

BSc HONORS PROGRAMS

(FOURTH YEAR)

(Requirements for Admission to Honors Programs in the Biological Sciences)

A student who has fulfilled the requirements for a BSc Biology Three Year Program and has an overall average of 70% in the last two years and at least 70% average in five senior biology courses with no mark less than 60% in those five, can proceed to one of the Honors Programs in the Biological Sciences provided the necessary prerequisites for that program have been completed at a B level.

A student who has fulfilled the requirements for a three-year BSc Biology Program and has an overall average of 60% and an average of at least 60% in five senior

Biology courses, and who does not fulfill the requirements specified for automatic admission, may be allowed to proceed to an Honors degree in one of the disciplines of Biology only with the special permission of the Department. In the case of a student progressing to the fourth year Honors Biology program or Honors Genetics program, permission of the Dean of Faculty of Science, is required.

Prerequisites for Honors Programs in the Biological Sciences.

The courses listed below should be included in the student's choice of optional courses in the Three Year BSc program. For complete information on the Fourth Year Honors Programs please refer to the pertinent departmental entry. Details of the fourth year Honors Biology and fourth year Honors Genetics programs can be found at the end of the Biology Section.

Honors Biology

None

Honors Anatomy

Biology 309

Honors Bacteriology and Immunology

Biology 202 or Biology 306

Biology 300 or 301

Honors Biochemistry

Chemistry 203 or 250 plus 252

Chemistry 204 or 254

Biology 300

One of Mathematics 024, 027, Applied Mathematics 020 is recommended.

The program of the fourth year student should be prepared in consultation with the Department Head.

Honors Biophysics

Mathematics 024, or 027, Applied Mathematics 020.

Applied Mathematics 270 or Mathematics 278.

Physics 020

Biology 250 (Formerly 302)

(It is advantageous to the student if he can also take Biology 251 (Formerly 303) and a Second Year Physics course (256 or 253) before entering the Fourth Year.)

Honors Genetics

Biology 209

Biology 308. Recommended but may be taken in the Fourth Year.

Honors Plant Sciences

None

Honors Physiology and Honors Physiology and Pharmacology

Physics 020 or 022

Biology 310

Biology 311

Two of Biology 202, 250 (Formerly 302) 300 or 301, 309.

Honors Zoology

Biology 344a

COURSES

020. Biology of Organisms. (Given cooperatively by Biological Science departments).
Growth, development, integration, organization, reproduction, and heredity of unicellular, colonial and multicellular organisms.
Antirequisites: Biology 021 and Contemporary Science 023.
2 lectures, 3 laboratory hours.

021. Biology (given by the Departments of Zoology and Plant Sciences). Biology 021 is not an acceptable prerequisite for any further courses in Biology or for admission to the Biology B.Sc. Program — SEE BIOLOGY 020.
It is an acceptable prerequisite for the courses Plant Sciences 135 and 137y and will fulfill the biology requirement for admission to Dentistry or Medicine.

This course is an introductory course aimed at the elucidation of the fundamental biological principles governing the life processes and interactions of both plants and animals. The cellular basis of life, the principles of heredity and of growth and development are approached with a view to providing some understanding of ecology, evolution and the applications of Biology to man and human affairs.
Since the individual sections of this course are presented by Faculty from either the Departments of Plant Sciences or Zoology the content, approach, and points of emphasis may vary somewhat between sections.
The principal areas discussed will include:

- The cell as the basic unit of structure and function
- Energy Cycles and Nutrient Cycles
- Structure and Function of Organ Systems
- Genetics and Reproduction
- Evolution and Natural Selection
- Ecology, Ecosystems and Population Biology.

Students registered for Biology 021 may choose their section in the first three weeks of classes. Please refer to the entries of the Department of Zoology and Department of Plant Sciences for further information.
Antirequisites: Biology 020 and Contemporary Science 023.
2 lectures - 2 hours, laboratory/demonstration/tutorial - 2 hours.

200. Biology of Cells. (given cooperatively by Biological Science departments).
The organization and the physiological, genetical and biochemical processes occuring in cells.
Prerequisites: Biology 020 and Chemistry 020 or 023
Mandatory core course in year two of BSc. Biology
2 lectures, 3 laboratory hours.

201. Biology of Populations. (given cooperatively by Biological Science departments).
The distribution, genetics and evolution of populations and their growth, regulation and interactions with other populations and their environment.
Prerequisite: Biology 020.
Corequisite: Math. 020, 021, 024 or 027 or Applied Math. 020. Mandatory core course in year two of BSc. Biology
2 lectures, 3 laboratory hours.

202. Microbiology (given by the Departments of Bacteriology and Immunology and Plant Sciences). A comparative study of the morphology, biology and relationships of algae, bacteria, fungi, protozoa and viruses.
Corequisite or prerequisite: Biology 200
2 lectures, 3 laboratory hours.

203a. Plant Ecology (given by the Department of Plant Sciences). An experimental approach to interrelations between an individual plant and various factors in its environment.
Prerequisite: Biology 020
2 lectures, 3 laboratory hours, Half Course.

204a. Plants and the changing Environment of Ontario (given by the Department of Plant Sciences). A study of the natural flora of Ontario, with emphasis on southwest Ontario. The course will deal with plants and their distribution pattern as affected by past and modern climates and technological change. Some field work included.
Prerequisite: Biology 020
5 lecture, laboratory hours, Half Course.

205a. Growth and Development in Plants (given by the Department of Plant Sciences). An experimental approach to tissue differentiation and organogenesis in vascular plants. Growth patterns and their regulation in sporophytic and gametophytic phases. Morphogenesis. Patterns and symmetry.
Prerequisite: Biology 020
2 lectures, 3 laboratory hours, Half Course.

209. Genetics (given by the Department of Plant Sciences). Principles of heredity discussed at various levels of cellular organization, from the chromosome within the cell nucleus to populations of multicellular organisms.
Prerequisite: Biology 020
2 lectures, 3 laboratory hours.

213b (Formerly 313b). Productivity and Pollution in Aquatic Ecosystems (given by the Department of Plant Sciences). A study of the ecosystem with emphasis on primary production, the degrading influences of pollution and the necessity of conservation practice.
Prerequisite: Biology 020.
2 lectures, 3 tutorial/laboratory hours, Half course.

215b. Biostatistics (given by the Department of Plant Sciences). A course in applied statistics directed to the beginner with an interest in a survey of the elementary concepts and methods of probabilities and statistics as applied to Biology.
Antirequisites: see Statistics page in Academic Programs and Policy section of Calendar.
Prerequisites: Mathematics 020, 021, 024, 027 or Applied Mathematics 020 or equivalent standing in Mathematics.
2 lectures, 3 laboratory hours, Half Course.

216b (Formerly 216a). Survey of the Plant Kingdom (given by the Department of Plant Sciences). A comparative study of the main groups of plants. Emphasis will be on their characteristic features, including morphology, life cycles, physiology and general biology and on major adaptive-evolutionary strategies.
Prerequisite: Biology 020
5 lectures, laboratory hours, Half Course.

217b. Plants in the Service of Man (given by the Department of Plant Sciences). An introduction to economically important plants and their products, especially as sources of food, fuel, drugs and industrial raw materials. National and international programs relating to food and other plant resources.
Prerequisite: Biology 020
2 lectures, 3 laboratory hours, Half Course.

220a. Vertebrate Biology I (given by the Department of Zoology). The principles of design of vertebrates. Emphasis will be placed on structural adaptations to aquatic and terrestrial environments.
Prerequisite: Biology 020
2 lectures, 3 laboratory hours, one term Half course.

221b. Vertebrate Biology II (given by the Department of Zoology). The physiological basis for environmental adaptation in selected vertebrate types.
Prerequisite: Biology 020
2 lectures, 3 laboratory hours, one term Half course.

224a. Invertebrate Biology (given by the Department of Zoology). An introduction to the invertebrates. A survey of the invertebrate phyla, their radiation and evolutionary relationships.
Prerequisite: Biology 020
2 lectures, 3 laboratory hours, one term Half course.

225b. Arthropod Biology (given by the Department of Zoology). The characteristic structure, function and adaptations of the arthropods. The mechanisms of support and movement. Economic and medical importance.
Prerequisite: Biology 224a
2 lectures, 3 laboratory hours, one term Half course.

250 (Formerly 302). General Biophysics (given by the Department of Biophysics). Biomechanics, bioenergetics and the steady state, transport mechanisms (diffusion, bulk flow), physical properties of cells and tissues, the physical environment of life, bioelectricity, biophysics of vision and hearing, elementary radiobiology.
Prerequisites: Physics 020 or 022, or 026. Usually taken in 3rd year, but open to 2nd year students with sufficiently good 1st year marks.
2 lectures, 4 laboratory hours.

251 (Formerly 303). Biophysical Analysis (given by the Department of Biophysics). The application of mathematics to the functional behaviour of living things. A knowledge of first year calculus is assumed.
Prerequisite: Physics 020 or 022, or 026. Usually taken in 3rd year, but open to 2nd year students with sufficiently good 1st year marks.
2 lectures.

300. Biochemistry (given by the Department of Biochemistry). A survey for Honors students
Antirequisites: Biology 301; Biochemistry 136 (formerly 36).
Prerequisites: one of Chemistry 203 or 250 plus 252.
Corequisite or prerequisite: one of Chemistry 204; 214; 254.
3 lectures, 2 laboratory hours.

301. General Biochemistry (given by the Department of Biochemistry). A survey for students in Biology programs
Antirequisites: Biology 300; Biochemistry 136 (formerly 36)
Prerequisites: One of Chemistry 203, or 133a or 250.
2 lectures, 3 laboratory hours.

304a. Evolution of Plants (given by the Department of Plant Sciences). This course will concentrate on aspects of evolution relatively little dealt with in Biology 201—origin of life, geological background, biosystematics of plant populations, biochemical and physiological evolution, the logical problems of deducing evolutionary pathways.
Prerequisite: Biology 201
2 lectures, 3 laboratory hours, Half Course.

305b. Plant Physiology (given by the Department of Plant Sciences). Principles of "plant function", including nutrition, water relations, adaptation to environmental stress, mechanisms of dormancy and hormonal action, and the physiology of growth and reproduction.
Prerequisite or Corequisite: Biology 200
2 lectures, 3 laboratory hours, Half Course.

306. Bacteriology, Virology and Immunology (given by the Department of Bacteriology and Immunology). This course will consider the distinguishing features, the importance to man, and the inter-relationships between the major groups of bacteria and viruses. It will also consider the basic concepts of immunology and its application to the biological sciences.
Prerequisite: Biology 200 or Biochemistry 206b (for nurses).
Corequisite: Biology 300 or 301.
2 lectures, 3 laboratory hours.

307. Applied Microbiology (given by the Departments of Bacteriology and Immunology, and Plant Sciences). A survey of selected topics in agricultural and industrial microbiology with reference to food microbiology, fermentation reactions, single cell protein synthesis, and the principles of plant disease control.
Prerequisites or Corequisites: Biology 202 or 306 and Biology 300 or 301
2 lectures, 3 laboratory, tutorial or demonstration hours.

308. Advanced Genetics (given by the Departments of Plant Sciences and Zoology). Critical analyses of recent concepts of the gene and chromosomes.
Prerequisite: Biology 209
2 lectures, 3 laboratory hours.

309. Histology (given by the Department of Anatomy). A survey of mammalian cytology, microscopic anatomy and neuroanatomy.
Antirequisite: Biology 322a.
Prerequisite: A two hundred level Biology course
2 lectures, 3 laboratory hours.

310. Mammalian Physiology (given by the Department of Physiology). A survey of the physiology of various systems (e.g. cardiovascular, digestive, respiratory, etc.) of the mammal.
Prerequisites: Chemistry 203 or equivalent; Physics 020 or 022; one of Mathematics 020, 021, 024, 027 or Applied Mathematics 020, Biology 020, or by permission of the Department.
2 lectures, 3 laboratory hours.

311. General Physiology (given by the Department of Physiology). A survey of cellular and general physiology.
Prerequisites: Chemistry 203; Physics 020 or 022; one of Mathematics 020, 021, 024, 027 or Applied Mathematics 020; Biology 020; or by permission of the Department.
2 lectures.

315a. Advanced Plant Cell Biology (given by the Department of Plant Sciences). Plant cell ultrastructure in relation to basic metabolism of plant cells. Biochemical pathways which are unique in plants including detailed study of photosynthesis.
Prerequisite: Biology 200
2 lectures, 3 laboratory hours, Half Course.

317. Micro-organisms and Plant Pathology (given by the Department of Plant Sciences). Morphology, classification, physiology and general biology of micro-organisms with emphasis on plant pathogens. Plant diseases parasitic and non-parasitic. Relationships between host and pathogen, epidemiology. Methods of control.
Prerequisite: Biology 202
2 lectures, 3 laboratory hours.

322a. Vertebrate Histology (given by the Department of Zoology). An introduction to comparative aspects of the microscopic structure and development of tissues and organs in the various vertebrate classes.
Antirequisite: Biology 309.
Prerequisite: Biology 200
2 lectures, 3 laboratory hours, one term Half course.

323b. Vertebrate Physiology (given by the Department of Zoology). The principles of homeostasis with emphasis placed on functional relationships in diverse vertebrate types.
Prerequisite: Biology 221b
2 lectures, 3 laboratory hours, one term Half course.

329b. Comparative Physiology of Growth and Nutrition in Animals (given by the Department of Zoology). Analysis of growth processes. Principles of nutrition.
Prerequisite: Biology 200
2 lectures, 3 laboratory hours, one term Half course.

332b. Parasitology (given by the Department of Zoology). Parasitism as a way of life. Structures, life histories and host-parasite relationships of some representative animal parasites.
Prerequisite: Biology 224a or permission of department.
2 lectures, 3 laboratory hours, one term Half course.

335b. Physiological Ecology of Animals (given by the Department of Zoology). Physiological mechanisms and life history strategies in different environments. Ecological aspects of reproduction, growth and metabolism. The use of physiological indices in ecological studies.
Prerequisite: Biology 201
2 lectures, 3 laboratory hours, one term Half course.

336a. Animal Behaviour (given by the Department of Zoology). Introduction to animal behaviour with emphasis on social organization and the adaptive nature of behaviour.
Prerequisite: Biology 201
2 lectures, 3 laboratory hours, one term Half course.

338b. Animal Development (given by the Department of Zoology). Principles of development and cell specialization. The embryology of selected vertebrates and invertebrates.
Prerequisite: Biology 200
2 lectures, 3 laboratory hours, one term Half course.

342a. Cell Biology of Animals (given by the Department of Zoology). Molecules to biological structures. Ultrastructure and life history of cells and organelles. Intercellular communication.
Prerequisite: Biology 200
2 lectures, 3 laboratory hours, one term Half course.

344a. Biometry (given by the Department of Zoology). Methods of measurement and sampling and the application of statistical methods to biological data.
Antirequisites: see Statistics pages in Academic Programs and Policy section of Calendar.
Prerequisites: Biology 200 or 201; a Mathematics course at the 020 level.
2 lectures, 3 laboratory hours, one term Half course.

345a. Principles of Synecology (given by the Department of Zoology). An integrative approach to ecology, stressing the structure and function of ecosystems, their diversity, stability and productivity.
Prerequisite: Biology 201 or permission of Department.
2 lectures, 3 laboratory/tutorial hours, one term, Half course.

346b. Topics in Applied Ecology (given by the Department of Zoology). The application of ecological principles, with emphasis on the capacity of the earth to provide energy, materials and food, and to absorb the impact of human activity.
Prerequisite: Biology 345a
2 lectures, 3 laboratory/tutorial hours, one term, Half course.

362. General Pharmacology (given by the Department of Pharmacology. The principles of general pharmacology and a survey of the major classes of drugs.
Prerequisites: Chemistry 203 or 250 or a 200 level course in Biology or Psychology with permission of the Department.
2 hours lecture.

BIOLOGY — BSc HONORS

Structure

For automatic admission to the Honors Biology program a student must fulfill the requirements for a 3 year BSc degree in Biology with an overall average of 70% in the last two years and at least a 70% average in five senior biology courses.

Principal Courses

Five full courses from offerings of the Biological Science Departments at the two hundred level or higher. At least one of these courses must include laboratory work. No more than two courses to be taken in one Department.

Subsidiary Courses

One option. (full course or equivalent)

Courses

See foregoing Biology option listings and the Fourth Year Honors course listings of the individual departments.

GENETICS — BSc HONORS

Structure

For automatic admission to the Honors Genetics program a student must fulfill the requirements for a 3 year BSc degree in Biology with an overall average of 70% in the last two years and at least a 70% average in five senior biology courses which must include Biology 209. Biology 308 is also recommended.

Principal Courses

Genetics 491 plus three full courses (or equivalent) chosen from Genetics 433, 467, 477, 480; Biochemistry 461; Zoology 440a, 444b.

Options

One full course offered in the Faculty of Science (If Biology 308 was not selected previously, it must be taken in Fourth Year).

Courses

433. Cytogenetics (given by the Departments of Anatomy and Plant Sciences). The study of chromosomes and chromosomes behavior with emphasis on the genetic principles involved. Examples are drawn from plants and animals including man.
Prerequisites: Biology 209 and permission of faculty in Genetics Program.
2 lectures, 2 laboratory hours.

467. Microbial Genetics (given by the Departments of Bacteriology and Immunology and Plant Sciences). The genetics of microorganisms particularly fungi, bacteria and bacteriophage. Current research using these microorganisms to elucidate fundamental principles of recombination, regulation, gene action, and replication.
Prerequisites: Biology 209 and permission of faculty in Genetics Program.
Corequisite: Biology 300 or 301 strongly recommended.
2 lectures, 3 laboratory hours.

477. Human Genetics (offered by faculty in Genetics Program). A study of the aspects of genetics which apply directly to man.
Prerequisites: Biology 209 and permission of faculty in Genetics Program.
2 lectures, 2 laboratory/tutorial hours.

480. Laboratory (offered by faculty in Genetics Program). Designed to give training in the techniques and methods employed in modern genetical research, with emphasis on individual effort and resourcefulness. The registrant will select an advisor from amongst the members of the faculty involved in the Genetics Program.
Prerequisite: Biology 209 and permission of faculty in Genetics Program.
5 hours/week.

491. Seminar in Genetics (offered by faculty in the Genetics Program). Topics to be chosen each year such that they integrate and augment the study of genetics as presented in the genetics courses. All faculty in genetics program will participate. Required of all registants in the honors genetics program.
Prerequisites: Biology 209 and permission of faculty in Genetics Program.
Corequisites: two 400 level genetics courses
3 hours/week.

INFORMATION ON HONORS PROGRAMS IN ANATOMY, BACTERIOLOGY AND IMMUNOLOGY, BIOCHEMISTRY, BIOPHYSICS, PHYSIOLOGY, PHYSIOLOGY AND PHARMACOLOGY, PLANT SCIENCES AND ZOOLOGY MAY BE FOUND BY CONSULTING THE CALENDAR ENTRY OF THE INDIVIDUAL DEPARTMENTS.

DEPARTMENT OF BIOPHYSICS

Room 122
Medical Sciences Building

Chairman of Department
Roach, Margot R. BSc New Brunswick; MD CM McGill; PhD UWO; FRCP(C)
PROFESSOR: Burton (Part-time); Groom, Roach. **ASSOCIATE PROFESSORS**: Canham, Inch, Sherebrin, Sutherland, Taylor. **ASSISTANT PROFESSORS**: Boughner, Duncan, Ferguson, Song. **LECTURER**: Gerson. **HONORARY LECTURERS**: Finlay, Johnson, Miller, Nagai.

PROGRAMS

The Department of Biophysics offers an Honors Program leading to an Honors BSc degree after four years of study. Students who might wish to take Honors Biophysics are advised to consult the Department as soon as possible, preferably during first year. They can thus receive maximum benefit from counselling.

Admission

There are two routes to the BSc in Honors Biophysics:

(a) Admission into the Honors Program (fourth year) of students who have completed the 3-year BSc Program in Biology with an adequate standing (see regulations of the Biology Program) and who have the appropriate prerequisites (see below);

(b) Admission into the Honors Program (third year) from the second-year Program in Honors Physics of students with a satisfactorily high standing. With permission of the Department of Biophysics, students may petition the Dean of the Faculty of Science for recognition of other second year Honors Programs.

Prerequisites

(a) Entry into Honors Biophysics (fourth year) from the Biology Program:

Mathematics 024 or 027, or Applied Mathematics 020

Applied Mathematics 270 or Mathematics 278

Physics 020, 022, or 026

Biology 250 (Formerly 302)

(It is advantageous to the student if he can also take Biology 251 (Formerly 303) and a second-year Physics course (256 or 253) before entering fourth year).

(b) Entry into Honors Biophysics (third year): The second-year Honors Program in Physics or other second year Honors programs as may be approved by the Dean of Science upon petition.

Biology 020

Chemistry 020, or 023

(Students are advised to include a physical chemistry course and as much mathematics and physics as possible among their options).

HONORS BIOPHYSICS

All course selections must be made with the approval of the Chairman of the Department.

THIRD YEAR

Principal Courses

Biology 250 (Formerly 302)

Biology 251 (Formerly 303)

One course from list A, and two from the combined lists A & B.

A. *Biology 200 - Biology of cells*

Biology 202 - Microbiology

Biology 300 - Biochemistry

Biology 309 - Histology

Biology 310 - Mammalian Physiology

B. Applied Mathematics 270 or Mathematics 278

Physics 256 or 253

Chemistry 254 or 204

Other Honors Science courses at the 200 or higher level if approved by the Department.

Subsidiary Course - One option (full course or equivalent)

Students may be permitted, in special cases, to defer this course until 4th year and to substitute another course from Lists A and B.

In connection with choosing an option, students who plan to continue into graduate study are reminded that many graduate schools require some knowledge of a language other than English.

FOURTH YEAR

Principal Courses (2 full and 5 half courses)

Biophysics 460, 461a, 462b, 463y, 464b, 480, Science 440

Subsidiary Courses (normally 1 full and 1 half course)

One full course or equivalent in Physics, Applied Mathematics, Mathematics, Physical Chemistry or Engineering at the 200 level or above, except that if Biology 251 (formerly 303) has not already been taken it must be taken instead.

Mathematics 155b (not required if an approved course in statistics has already been taken).

Courses

Biology 250 (formerly 302). General Biophysics. Biomechanics, bioenergetics and the steady state, transport mechanisms (diffusion, bulk flow), physical properties of cells and tissues, the physical environment of life, bioelectricity, biophysics of vision and hearing, elementary radiobiology.
Prerequisites: Physics 020, 022, or 026 Usually taken in the 3rd year, but open to 2nd year students with sufficiently good 1st year marks.
2 lectures, 4 laboratory hours, full course.

Biology 251 (Formerly 303). Biophysical Analysis. The application of mathematics to the functional behavior of living things. A knowledge of first year calculus is assumed.
Prerequisites: Physics 020, 022, or 026 Usually taken in the 3rd year, but open to 2nd year students with sufficiently good 1st year marks.
2 lectures, full course.

***460. Cellular Biophysics.** The physics of cell shape and size, membrane structure and function, the role of cell water. Cells as chemical and mechanical machines and as control systems. Investigate tools and techniques.
2 lectures, full course.

***461a. Bioelectrical Phenomena.** Bioelectric potentials, excitability and conduction in nerve and muscle, mechanism of biological transducers, and cybernetics.
2 lectures, Half course.

***462b. Radiobiology and Molecular Biophysics (Given in collaboration with the Department of Plant Sciences).** Nature and effects of electromagnetic radiations on biomolecular structure and on living cells. Applied radiobiology and radioecology.
2 lectures, 1 laboratory hour (optional), half course.

***463y. Environmental Biophysics.** The physical environment of life: the effects, on living things, of environmental factors such as temperature, solar radiation, pressure, gaseous atmosphere, water and solutes, gravity, sound and vibration, electric and magnetic fields.
1 lecture, 2 terms, half course.

***464b. Biothermodynamics.** The first and second laws of thermodynamics and their application in biology. Topics include open systems - properties of solutions, chemical and membrane equilibria, whole cells - radiation and photosynthesis, information and entropy, irreversible thermodynamics.
2 lectures, half course.

480. Projects in Biophysics. This is the major laboratory course in experimental Biophysics for the 4th year students. Students are expected to spend as much time as possible in laboratory work.
Minimum 10 hours weekly, full course.

*Courses that would be particularly suitable as options for students in other Honors Programs.

DEPARTMENT OF CHEMISTRY

Departmental Office: CB 119

Head of Department

Clark, H. C., BSc, MSc, PhD Auckland; PhD, ScD Cantab

PROFESSORS: Allnatt, Arnold, Bolton, Brand, Clark, Jacobs, Howell, King, de Mayo, Meath, Scott, Stothers, Ware, E. W. Warnhoff ASSOCIATE PROFESSORS: Baird, Baldwin, Bancroft, Bidinosti, Chan, Graham, Haines, Hunter, Kidd, Lorimer, Sukava, Willis ASSISTANT PROFESSORS: Dean, Demas, Guthrie, Martin, Payne, Sherman P. R. Warnhoff

PROGRAMS

BSc DEGREE

The Department of Chemistry provides a Program leading to a BSc degree after three years of study, and an Honors Program leading to an Honors BSc degree after an optional fourth-year of study. The concentration in chemistry begins in the Second Year on successful completion of a First Year in a General Program.

The student should consult the general section of this Calendar for details of academic regulations, grades required for admission and progression, and the requirements for graduation which pertain to these programs of study in the Faculty of Science.

The Departmental requirements are outlined below.

Requirements for Admission. A First Year General Program which includes Chemistry 020 or 023, Physics 020 or 026, and one of Applied Mathematics 020, Mathematics 024, or Mathematics 027. In some instances admission may be granted to a student lacking either Physics or Mathematics; however, in such instances the missing prerequisite must be included in the Second Year of study.

All students must consult with the Chemistry Department prior to admission to this program.

Courses offered by the department usually follow a sequential form and often require some background in Mathematics and Physics. For these reasons, many senior courses have definite prerequisites and corequisites. Students are advised to study these carefully. To fulfill, in part, the requirements for a BSc in this Program, a student must complete five senior courses in chemistry, but may include additional ones. In any event, the program must include Chemistry 250, 252 and 254, and Applied Mathematics 280 or its equivalent, all to be taken in the Second Year, and Chemistry 350.

For those students intending to proceed into the Fourth Year of the Honors Chemistry Program, the inclusion of Physics 253 or Physics 250 and 256 is strongly recommended.

Second Year

Chemistry 250, 252 and 254

Applied Mathematics 280 or its equivalent

Option

Third Year

Chemistry 350

Two of Chemistry 351b, 353a, 354b, 374a.

Options: a number elected to attain a total of five full courses. Other Third Year Chemistry courses may be included if desired.

BSc HONORS (FOURTH YEAR OPTION)

Requirements for Admission: Completion of the Three Year BSc Program in Chemistry with an overall average of at least 70% in the five senior Chemistry courses, with no mark less than 60% in those five, qualifies a student for automatic admission to the Fourth Year Honors Option. Students who do not qualify for automatic admission may be allowed to proceed to the Fourth Year only with the special permission of the department.

Fourth Year

Chemistry 490

Equivalent of FIVE full courses selected from Groups A and B. These must include all courses from Group A which were not taken previously and the equivalent of at least two full courses in chemistry at the 400 level.

Group A. Chemistry 351b, 353a, 354b, 374a, Physics 253, or its equivalent, if not taken previously. (By special permission of the Department, this requirement may be met by another Honors course).

(All courses of Group A not taken in Third Year must be taken in Fourth Year).

Group B. Chemistry 451a, 461b, 453a, 454a, 463b, 464b, 474a, 484a, 456b, 484b, 477a, 494a.

Chemistry 307a, 352a, 356b, (if not previously taken)

Applied Mathematics 380

Other senior courses (numbered 300-400) from other departments in the Faculty of Science chosen in consultation with both departments concerned.

BSc DEGREE (THREE YEAR PROGRAM) IN CHEMISTRY AND GEOLOGY

The BSc three year program in Chemistry and Geology is designed to provide the student with a basic background in both these areas. Students with a sufficient standing in this program may proceed to a fourth year honors program in either Chemistry or Geology.

Admission to the fourth year of the honors chemistry program requires completion of this program with a 70% average in five senior Chemistry courses with no mark less than 60% in those courses.

Students may also qualify for admission to the fourth year honors program in Geology provided that a 70% average has been obtained in five senior Geology courses, with no mark less than 60% in those courses.

Requirements for Admission: A complete first year program which includes: Chemistry 020 or 023, Geology 020, Applied Mathematics 020, or Mathematics 024 or 027, Physics 020 or 026.

Second Year

Chemistry 250, 252, 254

Geology 219, 260

Third Year

Chemistry 350

Applied Mathematics 280

Geology 320 and 340

The equivalent* of 1.0 additional course from Geology 310, Chemistry 351b, Chemistry 354b and Physics 253.

*Note: Students must consult with the Departments of Chemistry and/or Geology before entering third year in making this course selection, since it may determine eligibility for entrance into the fourth year of the honors Chemistry or Geology program.

BSc DEGREE (THREE YEAR PROGRAM) IN BIOLOGY AND CHEMISTRY

The BSc three year program in Biology and Chemistry is designed to provide the student with a basic background in both these areas. Students with a sufficient standing in this program may proceed to a fourth year honors program in either Chemistry or in one of the Biological Sciences.

Admission to the fourth year of the honors Chemistry program requires completion of this program with a 70% average in the senior Chemistry courses taken with no mark less than 60% in those courses.

Students may also qualify for admission to a fourth year of an honors program in one of the Biological Sciences provided that a 70% average has been obtained in the senior Biology courses taken with no mark less than 60% in those courses. Students must also meet the specific requirements of the individual departments.

Requirements for Admission: A complete first year program which includes: Biology 020, Chemistry 020 or 023, Applied Mathematics 020, or Mathematics 024 or 027, Physics 020 or 022 or 026.

Second Year

Chemistry 250, 252, 254

Biology 200, 201

Third Year

Chemistry 353a

Applied Mathematics 280

Biology 300 or 301*

The equivalent of 1.0 additional Chemistry courses from Chemistry 350, 351b, 352a, 354b (and 374a by permission of the Department of Chemistry).

The equivalent of 1.5 additional senior Biology courses**.

***Note**: Biology 300 rather than 301 must be taken by students who wish subsequently to enter Year IV of the Honors Biochemistry Program.

****Note**: Subsequent entrance into Year IV of some Biology programs requires that more than 1.5 additional Biology courses be taken in Year III. See prerequisites and recommended courses for individual departments as listed in this calendar.

NOTE: For many courses involving laboratory work there is an additional fee to cover the cost of instructional materials and apparatus.

COURSES

020. General Chemistry. Primarily for students in First Year General Program (Natural Sciences).
Antirequisites: 021, 023, 025.
Prerequisite: Grade XIII Chemistry
2 lectures, 3 laboratory hours.

021. General Chemistry. A terminal course for students not intending to specialize in Science.
Antirequisites: 020, 023, 025.
2 lectures, laboratory demonstration hours, 1 1/2 tutorial.

023. General Chemistry. Similar to Chemistry 020, but intended for students who do **not** have Grade XIII Chemistry.
Antirequisites: 020, 021, 025.
3 lectures, 3 laboratory hours.

024a. General Chemistry For students in Engineering Science programs only.
Prerequisite: Grade XIII Chemistry. (This course is a suitable prerequisite only for Chemistry 203 and 212.)
3 lectures, 3 laboratory hours first term, half course.

133a. *Organic* Chemistry. For students in Nursing Program only.
Antirequisite: 203.
Prerequisite: 025.
2 lectures, 3 laboratory hours, first term half course.

203. Organic Chemistry. Intended primarily for students in Honors Biology and students interested in programs in the Health Sciences.
Antirequisites: 133a, 250.
Prerequisite: 020 or 023.
2 lectures, 3 laboratory, tutorial hours.

204. Physical Chemistry. For students in Honors Biology (Familiarity with calculus is desirable for this course).
Antirequisites: 214, 254.
Prerequisite: 020 or 023.
2 lectures, 1 1/2 laboratory hours.

212. Fundamentals of Analytical Chemistry. An introduction to methods of quantitative chemical analysis, including instrumental techniques.
Prerequisite: 020 or 023.
2 lectures, 3 laboratory hours.

214. Elementary Physical Chemistry. An introduction to the laws of thermodynamics and their applications to chemical systems. For students in Engineering Science, Geology and Geophysics.
Antirequisite: 254.
Prerequisite: Chemistry 020 or 023 and a full course in calculus.
3 lecture hours.

250. Structure and Mechanism. For students primarily in Chemistry Programs. A study of atomic and molecular properties in terms of the principles of bonding. Reactions and an introduction to mechanisms of the compounds of the main group elements with emphasis on carbon. This course also fulfils the organic chemistry requirements for professional programs.
Antirequisite: 203.
Prerequisite: 020 or 023.
Corequisite: 252.
4 lecture hours, 1 tutorial hour.

252. Experimental Chemistry. For students primarily in Chemistry Programs.
Prerequisite: 020 or 023.
Corequisite: 250.
8 laboratory hours.

254. Elementary Physical Chemistry. An introduction to Physical Chemistry. For students in Chemistry Programs.
Antirequisite: 214.
Prerequisite: Chemistry 020 or, 023 and a full course in calculus.
3 lecture hours.

304. Physical Chemistry. For students in Engineering programs. Students in programs other than Chemistry may take the course with permission of the Department. Chemical thermodynamics, kinetics, and electrochemistry.
Antirequisite: 354b
Prerequisite: Engineering Science 204 (or Chemistry 204 with permission of instructor)
3 lectures, 1-1/2 laboratory hours.

307a. The Evolution of Chemical Thought. An introduction to the history of chemical concepts, with emphasis on the formulation of specific concepts and their evolution through to the modern era.
Prerequisite: Chemistry 250 and 252 or equivalent
2 lectures, first term half course.

350. Perspectives in Chemistry. Chemical principles related to the modern world including analysis, synthetic and natural processes, geochemistry and industrial methods.
Prerequisites: Chemistry 250, 252, and 254.
2 lectures, 4 laboratory hours.

351b. Intermediate Inorganic Chemistry. Chemistry of the transition metals and their complexes; ligand field theory and molecular orbital theory.
Prerequisites: Chemistry 250 and 252
2 lectures, 4 laboratory hours, second term half course.

352a. Physical Methods of Structure Determination. The principles and applications of various methods of structure determination, with special emphasis on spectroscopic techniques.
Prerequisites: Chemistry 250 and 252.
2 lectures, first term half course.

353a. Intermediate Organic Chemistry. Radical reactions, acidity and basicity, steric and solvent effects. Simple synthesis.
Prerequisites: Chemistry 250 and 252
2 lectures, 4 laboratory hours, first term half course.

354b. Intermediate Physical Chemistry. Electrochemistry; irreversible processes; chemical kinetics; surface chemistry.
Antirequisite: 304.
Prerequisites: Chemistry 254 and Applied Mathematics 280 or equivalent.
2 lectures, 4 laboratory hours, second term half course.

356b. Bio-organic Chemistry. Applications of organic chemistry to biological systems. Enzymes and catalysis; a brief survey of metabolism; natural products and their biosynthesis; protein structure and synthesis; drug design; enzymes in industry.
Antirequisites: Biology 300 or 301.
Prerequisite: 353a.
2 lectures, second term half course.
(This course is not an acceptable prerequisite for any fourth year course in Biochemistry. Students may not obtain credit for both this course and Biology 300 or 301).

374a. Quantum Chemistry I. An introduction to quantum theory.
Prerequisite: Applied Mathematics 280 or equivalent.
3 lectures, first term half course..

451. Advanced Inorganic Chemistry. Selected topics..
Prerequisite: Chemistry 351
3 lecture hours.
Not offered after September 1975

453. Advanced Organic Chemistry. Selected topics.
Prerequisites or corequisites: Chemistry 353 and 363
3 lecture hours.
Not offered after September 1975

454. Advanced Physical Chemistry. Statistical thermodynamics.
Prerequisite: Applied Mathematics 380, or equivalent
2 lecture hours.
Not offered after September 1975

456. Bio-organic Chemistry. Organic Chemistry of biological molecules; mechanisms of enzyme catalyzed reactions; chemical basis of enzyme actions.
Prerequisite: 353a.
2 lectures, one term (half course).
Not offered after September 1975.

474. Quantum Chemistry II. A continuation of Chemistry 374.
Prerequisite: Applied Mathematics 380 or permission.
2 lecture hours.
Not offered after September 1975.

477a. Molecular Group Symmetry Theory and Chemical Applications of Group Theory.
Prerequisite or corequisite: Chemistry 374a.
3 lectures, first term (half course).

490. Experimental Chemistry and Seminar.
Prerequisite: Mandatory for students in Fourth Year Honors Chemistry.
12 laboratory hours.

Effective September 1975 the following courses will be offered:.

451a. Advanced Inorganic Chemistry I. Solid state chemistry.
Prerequisite: 351b.
3 lectures, first term (half course).

453a. Advanced Organic Chemistry I. Intermediates in reaction pathways.
Prerequisite: Chemistry 353a.
3 lectures, first term (half course).

454a. Advanced Physical Chemistry I. Advanced thermodynamics.
Prerequisite: Chemistry 354b.
3 lectures, first term (half course).

456b. Bio-organic Chemistry II. Chemical origins of enzymic catalysis. Mechanisms for model systems related to enzymic catalysis; methods for the investigation of enzyme mechanisms; some well understood enzymes; mysteries remaining.
Prerequisite: Chemistry 356b or Biology 300.
3 lectures, second term (half course).

461b. Advanced Inorganic Chemistry II. Selected topics.
Prerequisite: 351b.
3 lectures, second term (half course).

463b. Advanced Organic Chemistry II. Stereochemistry and Synthesis.
Prerequisite: 353a
3 lectures, second term (half course).

464b. Advanced Physical Chemistry II. Statistical Mechanics.
Prerequisite or corequisite: Applied Mathematics 380.
3 lectures, second term (half course).

474a. Quantum Chemistry II. A continuation of Chemistry 374a.
Prerequisite: Chemistry 374a.
3 lectures, first term (half course).

484b. Molecular Structure.
3 lectures, second term (half course).

494a. Chemical Kinetics. Modern theories and techniques; elementary processes; fast reactions; reactions in solution and at electrodes.
Prerequisite: Chemistry 354b.
3 lectures, first term (half course).

DEPARTMENT OF COMPUTER SCIENCE

Departmental Office: E.M.S. 2036.

Head of Department: Hart, J. F., BA, PhD Toronto. PROFESSORS: Elcock, Hart. ASSOCIATE PROFESSORS: Beckhoff, Carroll, Gargantini, Mullin Pylyshyn. ASSISTANT PROFESSORS: Bennett, Dunham, Kuehner. LECTURERS: Colpitts, Dewdney, Dixon, Langland, MacRae, Martin, Newkirk, Szilard. HONORARY LECTURERS: Lake, Slemon, Thierrin

PROGRAMS

Note: Students proceeding with a major in Computer Science are required to consult the Department in their choice of courses. They are advised that in courses with scheduled laboratory periods, additional time will be needed to complete the laboratory assignments. Wherever Computer Science 020 is stated as prerequisite, Computer Science 021 or Computer Science 023b or 133b may be substituted with the permission of the Department.

General BA

Students may complete a Three Year General Program for a BA degree with a Computer Science major by completing four or more senior Computer Science courses. One of these must be Computer Science 131 or Computer Science 134. Prerequisites are Computer Science 020 or 024 and one of the Mathematics 020, 021, 024, 027, Applied Mathematics 020.

Three Year BSc

(a) **Requirements for Admission:** Computer Science 020 or 024 and one of Mathematics 020, 021, 024, 027, Applied Mathematics 020.

(b) **Program Structure**

Second year

Computer Science 131, 134 and a senior Mathematics course. Two other courses.

Third year

Two of Computer Science 141, 142, 143, 144 (304 or 313 may be taken by consent of Department) and a senior mathematics course. Two other courses.

Note: It is strongly recommended that Mathematics 135 (or Economics 135) be included among the senior mathematics courses selected.

Honors BSc

(a) **Requirements for Admission**

A first year general program with Computer Science 020 or 024, one of Mathematics 024, 027 or Applied Mathematics 020, and any other course as a principal course. Admission to the program will be granted only after consultation with the department prior to registration.

(b) **Program Structure**

The honors program requires six honors courses in Computer Science and five honors courses in a chosen minor. The courses in the minor must conform with the recommendations of the Computer Science Department and the Department of the minor. Students must consult the Department in their choice of options. They should also examine the prerequisites for courses which they expect to take in subsequent years.

SECOND YEAR

Principal courses

Computer Science 200, 206

Applied Mathematics 202 or Mathematics 250

One of: Mathematics 256, 278, Applied Mathematics 200

Subsidiary course

One option

PROGRAM 1: Mathematics Minor

THIRD YEAR

Principal courses

Two of Computer Science 304, 313, 340a/341b

Two full courses or equivalent chosen from Computer Science 343a/344b, any Mathematics or Applied Mathematics courses at the 300 level.

Subsidiary course

One option

FOURTH YEAR

Principal courses

Four half courses in Computer Science on the 400 level. One 400 level course in Applied Mathematics, Mathematics or one of Mathematics 350, 356. One 300 level course subject to the approval of the Department.

Subsidiary course

One option

PROGRAM 2: NON-MATHEMATICS MINOR

THIRD YEAR

Principal courses

Two Computer Science courses at the 300 level

Two courses in the chosen minor at the 200 or 300 level

Subsidiary course

One honors course in the chosen minor

FOURTH YEAR

Principal courses

Four half courses in Computer Science at the 400 level

Two courses at the 300 or 400 level in the chosen minor

Subsidiary course

One option

COURSES

020. Introduction to Computer Science. Basic programming techniques and an introduction to subfields in Computer Science. Emphasis is on algorithm design and computer programming using the FORTRAN language with an introduction to assembly language programming. Other topics include computer hardware, logic design, operating system concepts, programming applications in sciences and business, and an introduction to artificial intelligence and automata theory.
Antirequisites: CS021, 022a, 023b, 024, 137.
Prerequisites: Two Grade XIII Mathematics courses.
2 lectures, 2 laboratory hours.

022a. Introduction to Computing I. An introduction to the digital computer and the programming language BASIC for manipulating data and solving problems. Examples and problems drawn from the Social Science disciplines, using socio-economic data files. No prior computing experience and only minimal mathematical skills are assumed.
Antirequisites: Computer Science 020, 21, 024, and137.
2 hours lecture, 2 hours laboratory, one term, half-course.

023b. Introduction to Computing II. The application of computers to data files. Examples will be drawn from Social Science data sets such as the Canadian census. Prior computing experience is assumed and will be extended to include advanced BASIC and FORTRAN programming in time-shared and remote batch environments. Elementary features of SPSS (Statistical Package for the Social Sciences). Computing concepts and examples will be applicable to other areas. Will be offered beginning January 1975.

Antirequisites: Computer Science 020, 21, 024, and 137.
Prerequisite: Previous computer experience such as CS 022a or an acceptable high school computing course
2 hours lecture, 2 hours laboratory, one term, half-course.

024. Introduction to Computer Science. An enriched introductory course for students with some previous knowledge of computing. Algorithmic and programming techniques are introduced using machine language, assembly language, and FORTRAN. Characteristics of computer hardware, including digital logic design, and operating system software will be discussed. The second half of the course will concentrate on several application areas (such as Simulation, Artificial Intelligence, Data Processing, CAI), and the related programming techniques. The theory of automata and formal languages will also be introduced.
Antirequisites: Computer Science 020, 21, 022a, 023b and 137.
Prerequisites: Two Grade XIII Mathematics courses, plus a high school course in Computer Science or Data Processing or a demonstratable basic knowledge of some programming language.
2 lectures and, 2 laboratory-tutorial hours per week.

130. Computers in Education. A survey of developments in Computer Science and their relevance to problems in Education. Topics include information systems for education, small computer systems and their use in problem solving, on-line computer systems and their use in instructional simulation and computer-assisted instruction, computer-managed instruction.
Prerequisite: Computer Science 020 or 024, or permission of the Department
2 lectures, 2 laboratory hours.

131. Information Processing Systems. A comprehensive introduction to the components of, analysis of, and design strategies for information systems. Topics covered include data organization and storage structure techniques, analysis of information content, retrieval systems, and dissemination; the systems method and applications in business. COBOL and/or PL1 will be used for advanced problem solving.
Prerequisite: Computer Science 020 or 024 or 137 or permission of the Department.
2 lectures, 2 laboratory hours.

132a. Introduction to Computer Modeling and Simulation of Social Systems. Computer representation and analysis of Social Science models and simulations of Social Science systems: model structure, stochastic terms, calibration, and validation methods.
Prerequisite: One of CS 020, 21, 023b, 024, or 133b; and completion of or concurrent enrolment in a Social Science quantitative methods course and a course in either Mathematics or Applied Mathematics.
2 hours lecture, 2 hours laboratory, one term, half-course.
limited enrolment.

133b. Social Science Information Processing. Examination of Social Science information systems; computer data files: structure, access methods, and applications to significant socio-economic data files; data reduction and display; questionnaire processing; advanced features of Social Science Statistical packages (SPSS and TSP).
Prerequisite: One of CS 020, 21, 022a, 023b, 024, 132a and completion of or concurrent enrolment in a Social Science quantitative methods course and a course in either Mathematics or Applied Mathematics, or permission of the course committee.
2 hours lecture, 2 hours laboratory, one term, half-course.
limited enrolment.

134. Programming Techniques. An intensive programming course using both a procedure-oriented language and an assembly language. Advanced FORTRAN programming techniques, basic searching and sorting algorithms, topics in numerical methods and analysis. Fundamentals of assembly language programming, interactive testing and debugging in a time-sharing environment. Introduction to systems software with emphasis on the basic assembler and loader.
Antirequisite: Computer Science 206.
Prerequisites: Computer Science 020 or 024 and a first year course in Mathematics at the 020 level.
2 lectures, 2 laboratory hours.

137. Computer Applications. A practical course in computer programming for students majoring in an area other than Computer Science. Emphasis is placed on a standard computer language (FORTRAN) and its application to the student's major or interest. Problem solving techniques in statistics, operations research and simulation will be discussed. This course is designed for senior students who desire one course in understanding and using computers.
Antirequisites: Computer Science 020, 024, 21, 022a, 023b.
Prerequisite: A first year course in Mathematics
2 lectures, 2 laboratory hours.

139. Computer Art and Graphics. Study of concepts in Computer Art through programs in CRUK (scope output) and FORTRAN (plotter output). Helpful mathematical concepts such as cartesian geometry, families of curves, etc. Laboratories and projects with individual student work.
Prerequisites: Computer Science 020 or 024 or permission of the Department.
2 lectures, 2 laboratory hours.
Note: Computer Science 139 has a limited enrolment. Preference is given to Visual Arts students..

141. Advanced Information Processing. Storage device characteristics, file structures, matching file structures to the problem, directories, hash-coding, sorting techniques. Specific data structures, such as lists, stacks, queues, trees. Languages for list and text processing. Information retrieval systems, retrieval, creation and update, indexing techniques, interpreters, operating system data structures.
Antirequisites: Computer Science 340a and 341b.
Prerequisite: Computer Science 131.
2 lectures, 2 laboratory hours.

142. Scientific Applications of Digital Computers. The structure and basis of algorithms for solving scientific problems on the computer. Topics will include linear programming, selected problems from statistics, and discussion of the practice of scientific programming in industry and research. One term will be spent studying simulation.
Prerequisites: One senior Computer Science course and one senior Mathematics course.
2 lectures, 2 laboratory hours.

143. Computer Logic and Programming. Theory of Boolean algebra and switching circuits, basic logical elements of a digital computer, logical design of computer components. Introduction to the theory of programming languages.
Antirequisite: Computer Science 313.
Prerequisites: Computer Science 020 or 024 and a course in Mathematics at the 020 level.
2 lectures, 2 laboratory hours.

144. Advanced Software Systems. A systems programming course using assembly language programming. Topics include information structures, machine organization, input-output programming of typical third generation systems, construction of assemblers, loaders, and compilers, operating systems, high level languages.
Antirequisite: Computer Science 304.
Prerequisite: Computer Science 134
2 lectures, 2 laboratory hours.

200. Introduction to Algorithms. Recursive definitions: induction, Euclid's algorithm, Fibonacci numbers, Chinese remainders, modular arithmetic, optimal algorithms, evaluation of polynomials. Numerical algorithms: integration, solution of equations, interpolation, statistical algorithms, errors. Non-numerical algorithms: sorting and searching, data structures, arrays, push-down stacks, lists, trees, symbolic differentiation, shortest path, hill climbing. Algorithms in business: COBOL, data conversion, file manipulation and file organization. Software, compilers, advanced FORTRAN.
Prerequisites: Computer Science 020 or 024 and one of Mathematics 024, 027, or Applied Mathematics 020.
3 lectures, 1 laboratory hour.

206. Machine-oriented Theory and Programming. An introduction to the mathematics and mathematical systems relevant to machine theory, and to machine-level programming. Number systems, numeric data representation and machine arithmetic, codes. Boolean algebra. Assembly language programming techniques (MACRO-10), interactive testing and debugging (DDT) in a time-sharing environment. Introduction to systems software with emphasis on the basic assembler and loader.
Antirequisite: Computer Science 134 (formerly 34).
Prerequisites: Computer Science 020 or 024 and one of Mathematics 024, 027 or Applied Mathematics 020
2 lectures, 2 laboratory hours.

304. Systems Programming and Software Engineering. Systems Programming: Review of assembly language programming, macros and their use, input-output programming, basic data structures for system programs, construction of useful and basic systems programs.
Software Engineering: large program management, construction of assemblers, loaders and compilers, operating systems, benchmarking operating systems.
Antirequisite: Computer Science 144 (formerly 44)
Prerequisite: Computer Science 206
2 lectures, 2 laboratory hours.

313. Computer Logic and Design. A study of combinational and sequential circuits, the basic components and design principles of memory, control and processor systems in a digital computer. Introduction to finite automata.
Antirequisite: Computer Science 143 (formerly 43)
Prerequisites: CS-206 and a senior course in Mathematics
2 lectures, 2 laboratory hours.

340a. Data Structures and Applications. Stacks, queues, and lists. Tree structures. Arrays and sparse matrices. Sorting. Block structure. Secondary Storage Techniques.
Antirequisite: Computer Science 141 (formerly 41).
Prerequisites: Computer Science 200 and Computer Science 206.
half course.

341b. Data Structures-Languages and Compilers. Data structure facilities in computer languages. General purpose and special purpose computer languages. Algebraic compilers, list processing string processing, systems programming languages and compiler building languages. Meta languages such as Backus-Naur form. Topics in compiler design.
Antirequisite: Computer Science 141 (formerly 41).
Prerequisite: Computer Science 340a.
half course.

343a. Combinatorial Mathematics. Existence and enumeration problems, permutations and combinations, recursion and generating functions; linear programming; block designs. (This course is the same as Mathematics 343a).
Antirequisite: Mathematics 343a (same course) IDENTICAL WITH

MATHEMATICS 343a - OFFERED IN ALTERNATE YEARS UNDER EACH TITLE.
Prerequisites: Mathematics 250 and one of 256 or 278; or Applied Mathematics 200 and 202
3 hours for one term, (half course).

344b. Computer Combinatorics. Computational tools, enumerative algorithms, detection algorithms, restricted optimization problems, coding and information theory, formula manipulation algorithms, tree-search strategies.
Prerequisites: Computer Science 343a (Mathematics 343a) and 200 or permission of department
2 lectures, 2 laboratory hours for one term, (half course).

420a. Computing Algorithms. A study of software and hardware used to implement numerical algorithms. Error analysis.
Prerequisites: A 300 level course in computer programming and senior courses in matrix algebra and in advanced calculus.
2 lectures, 2 laboratory hours, (half-course).

421b. Computing Algorithms. A study of algorithms in Numerical Analysis.
Prerequisite: Computer Science 420a
2 lectures, 2 laboratory hours, (half-course).

430a. Automata Theory and Formal Languages. The course covers the concept of a language, finite representations for a language, grammars, including regular, context-free, context-sensitive and type o, types of automata, both deterministic and non-deterministic, including finite automata, pushdown automata, linear bounded automata and Turing machines.
Prerequisite: An honors course in Computer Science and in Abstract Algebra (Mathematics 350).
2 lectures, 2 laboratory hours, (half-course).

431b. Automata Theory and Formal Languages. Specific topics in context-free languages, Chomsky and Greibach Normal forms, self-embedding, ambiguity and inherent ambiguity, deterministic languages, LR(k) grammars, precedence grammars, parsing algorithms.
Prerequisite: Computer Science 430a
2 lectures, 2 laboratory hours, (half-course).

440a. Artificial Intelligence. A survey of attempts to mechanize intelligent behavior. Pattern recognition, game playing and theorem proving programs. Problems of domain dependent reasoning. Use of a high-level symbol manipulating language.
Prerequisite: Computer Science 206 and one 300 level Computer Science course.
2 lectures, 2 laboratory hours, (Half course).

441b. Mechanized Deductive Systems. Formal reasoning in first order logic. Applications to theorem proving, question answering and plan formation. Limitations of formalism. Motivation and philosophy of informal reasoning. Current research in knowledge-based deductive and perceptive systems. Use of a high-level symbol manipulating language.
Prerequisite: Computer Science 206 and one 300 level Computer Science course.
2 lectures, 2 laboratory hours, (Half course).

460a. Computer Simulation. Introduction to simulation languages. Methods for generating and testing pseudo-random number sequences to probability functions. Introduction to queuing theory. Principles of mathematical modelling.
Prerequisites: A 300 level course in computer programming and a course in statistics.
3 lectures, 1 laboratory hour, (half-course).

461b. Simulation Laboratory. Structure of simulation problems. Programming digital simulations. Design of simulation experiments, and selected topics in statistical analysis.
Prerequisite: Computer Science 460a
2 lectures, 2 laboratory hours, (half-course).

490y. Thesis. A project course that allows the student in the final year to complete a major programming assignment under minimal faculty supervision in order to gain experience in the practice of good software engineering techniques. The candidate is responsible for the demonstration of documented working software, an oral summary of the project objectives, a defense of the design and a list of performance achievements.
Prerequisite: Computer Science 304
No scheduled lecture or laboratory periods., (half course).

DEPARTMENT OF GEOLOGY

Departmental Office B & G 128A

Chairman of Department: Fyfe, W. S., BSc, MSc, PhD Otago, New Zealand, F. R. S. PROFESSORS EMERITUS: Reavely, Suffel PROFESSORS Dreimanis, Fyfe, Hutchinson, Winder. ASSOCIATE PROFESSORS Church, Edgar, Fleet, Hodder, Lenz, MacRae, Starkey, Sutterlin, Young INSTRUCTOR Gyorok VISITING LECTURER Fryer HONORARY LECTURERS Bancroft, Palmer, Quigley, Whiteside

PROGRAMS

General BA Program

Students may complete a 3-year General Program for a BA degree with an area of concentration in Geology by completing four or more Honors courses. Normally Geology 020 or 021 with a B minimum grade is prerequisite for second year courses. Minimum Geology Department requirements for the 3-year BA are Geology 219 and three other Geology courses. Geology 211 and 212 are designed for students in Geophysics and are not acceptable as part of the Geology BA program.

Three-year BSc Program

Normal requirements for admission:

Successful completion of a First Year General Program including Geology 020 (with Departmental permission students who have taken Geology 021 may be allowed to enter second year), Chemistry 020 or 023 and Mathematics 024 or Mathematics 027, or Applied Mathematics 020. The student should consult the general section of this Calendar for details of academic regulations, grades required for admission and progression which pertain to the 3-year BSc degree in the Faculty of Science. Specific course requirements of the Department of Geology for the 3-year BSc program are:

SECOND YEAR

Geology 219, 260

Chemistry 214

Options: a number elected to attain a total of five full courses.

THIRD YEAR

Geology 320, 340

One of: Geology 310, 375, 450, 467.

Options: a number elected to attain a total of five full courses.

Students intending to continue into the Fourth Year Honors BSc program should choose their options with due regard to the prerequisites outlined below for entry into the Honors program.

Students who registered before 1973 in the programs previously offered by the Department of Geology may either complete the original program or they may transfer to the Geology BSc three-year program provided they fulfil the requirements of that program.

A counselling service is provided in the Faculty of Science to assist students in selecting a program.

Honors BSc Program (Fourth Year)

Requirements for automatic admission:

Entry into the Fourth Year Honors program requires that the student have completed: a) 3-year BSc program including six senior geology courses and Chemistry 214, with an overall average of 70% in the last two years, and an average of at least 70% in all the senior geology courses with no mark less than 60%; b) two of: Biology 020 Physics 020, and Engineering Science 21; c) one of: Applied Mathematics 280, Biology 220a, 224a and Physics 252, 256.

Course requirements for the Fourth Year Honors program are:

Principal Courses

Geology 410a, 490.

Three of: Geology 375, 415, 420, 425, 430, 440, 450, 463, 467; Geophysics 202 or 302; Engineering Science 426; Geography 436.

Subsidiary Courses

One senior science option, which may be a Geology course.

All students must consult with the Geology Department concerning their choice of courses before registering for the Honors Program. Students are also expected to have completed at least one summer of field experience before entering the Fourth Year Program.

For graduation a student must have a grade average of at least 60% in the principal courses of the Fourth Year, and a passing grade in every course. A student who has a grade average below 60% in the Principal courses of the Fourth Year but has a grade average of at least 60% in all Geology courses of the Third and Fourth Years may graduate with an Honors degree only on the special recommendation of the Department.

Geology Chemistry Program

B.Sc. Degree (Three Year Program) in Geology and Chemistry.

The B.Sc. Three Year Program in Geology and Chemistry is designed to provide the student with a basic background in both these areas. Students with a sufficient standing in this Program may proceed to a Fourth Year Honors Program in either Geology or Chemistry.

Admission to the fourth year of the honors chemistry program requires completion of this program with a 70% average in five senior chemistry courses with no mark less than 60% in those courses.

Students may also qualify for admission to the fourth year honors program in geology provided that a 70% average has been obtained in five senior geology courses, with no mark less than 60% in those courses.

Requirements for Admission: A complete first year program which includes:

Chemistry 020 or 023

Geology 020

Applied Mathematics 020, or

Mathematics 024 or 027

Physics 020 or 026

Second Year

Chemistry 250, 252, 254

Geology 219, 260

Third Year

Chemistry 350

Applied Mathematics 280

Geology 320 and 340

The equivalent* of 1.0 additional course from Geology 310, Chemistry 351b, Chemistry 353a, Chemistry 354b (and Chemistry 374a with permission of the Department of Chemistry).

*NOTE: Students must consult with the Departments of Geology and/or Chemistry in making this course selection, since it may determine eligibility for entrance into the Fourth Year Honors Geology or Chemistry program.

Special Programs in Earth Science

Students interested in special programs leading to earth science teaching, environmental geology or geological engineering are advised to consult the chairman of the department before registration. For all these programs Chemistry 020 or 023, Geology 020 or 021, and an appropriate mathematics course are required in the first year.

COURSES

020. Introductory Geology. Minerals and rocks; geological processes and their results; structure of the earth; fossils; interpreting the earth's history; economic mineral deposits.
Antirequisite: 021.
2 lectures, 3 laboratory hours.

021. Geological Science. A survey emphasizing Canada; Origin of earth and solar system; Earth's internal structure; Origin and geological evolution of continents and oceans, mountain building, volcanism; Radiation and atmosphere, hydrosphere, lithosphere; Surficial processes, weathering, wind, water, ice; Earth resources and man, energy, minerals, soil; Time, life, biological evolution and change.
Antirequisite: 020.
2 lectures, 2 laboratory hours.

160. Earth History. Principles of rock nomenclature and correlation, Geologic time, Mountain building. Principle of uniformitarianism, The Evolution of life, History of the earth's surface from Precambrian to the present with emphasis on the Paleozoic and Mesozoic. Recent theories of continent and ocean basin development.
Antirequisite: 260.
Prerequisite: 020 or 021.
Extension only.

211 (Formerly 311). Earth Materials and Earth Processes. An introduction to minerals and rocks, their chemistry, reactions such as melting and phase changes, an elementary introduction to thermodynamic and kinetic principles governing such changes over the pressure-temperature range of the earth. Methods of determining structure and composition of earth materials. Introduction to aspects of geodynamics and geologic time.
Primarily for Geophysics and other students of science and engineering.
2 lectures, 1 hour per week extra for those who have not had Geology 020.

212 (Formerly 311). Resources of the Earth. *Concepts of Geology* emphasizing sedimentary and tectonic structures favorable for the localization of petroleum and mineral deposits. The study of mineral deposits emphasizing their physical and chemical characteristics as targets for exploration geophysics and geochemistry. Primarily for Geophysics 1 (Physical) and other students of science and engineering.
2 lectures.

219. Elements of Mineralogy. Elements of crystal symmetry, stereographic projection, crystal classes; introduction to morphological crystallography. Study of light transmission in minerals. Introduction to crystal chemistry and paragenesis of rock forming minerals and their identification in hand specimen and thin section. (This is intended as a first course in mineralogy for all students of Geology.)
Prerequisite: 020 recommended.
2 lectures, 2 laboratory hours.

260. Stratigraphy, Historical Geology and Paleobiology. Classification, morphology, ecology of invertebrates and of some vertebrates and plants; evolution; index fossils. Principles of stratigraphy. Phanerozoic history of North America and selected parts of the world. In early May a 10-day field camp will be held as part of the course in the region of Whitefish Falls and Manitoulin Island north of Lake Huron, or in the Sherbrooke region of the Quebec Appalachians. Students will have the opportunity to examine igneous, sedimentary and metamorphic rocks and learn various techniques of mapping.
Antirequisite: 160 (formerly 60).
Prerequisite: 020 recommended.
2 lectures, 3 laboratory hours.

310. Mineralogy. Systematic morphological crystallography, point groups, Bravais lattices: introduction to X-ray diffraction, chemical bonding and packaging models, structure and crystal chemistry and identification of important mineral groups.
Prerequisites: Geology 219 and Chemistry 214
2 lectures, 3 laboratory hours.

320. Igneous and Metamorphic Petrography. Classification of igneous and metamorphic rocks. Study of their mineralogy, textures and field occurrences and modes of formation. Laboratories include microscopic and macroscopic studies of selected rock suites.
Prerequisite: Geology 219
2 lectures, 3 laboratory hours.

340. Structural and Sedimentary Geology. Theory and techniques of structural analysis and petrology; strain analysis and rock mechanics; map interpretation. Primary and secondary structures of sedimentary rocks; petrography of selected sedimentary rock suites.
Prerequisite: Geology 219
2 lectures, 3 laboratory hours.

375 (Former 475). Invertebrate Macropaleontology. Advanced study of rugose corals, graptolites and Paleozoic brachiopods, with emphasis on stratigraphic occurrence, morphology and classification. Study of principles of taxonomy, evolutionary concepts, use of fossils in zonation and environmental influence.
Prerequisite: 260.
2 lectures, 3 laboratory hours.

391a. Geology for Engineers. Introduction to minerals, rock, weathering, transportation, deposition and glacial geology. Engineering properties of geologic minerals. Application of principles of weathering to the deterioration of construction materials. Ground water seepage conditions and their influence on slope stability. Glacial soils and their importance in engineering practice. Case histories of engineering projects markedly influenced by site geology.
5 hours, one term, (Half course).

410a. Field Investigation. Field study of the geology of the Precambrian in a region extending from Kirkland Lake to Sault Ste. Marie. The field study will include examination of rocks and their associated mineral deposits of Archean, Aphebian, Helikian and Hadrynian age, and the tectonics of the Superior, Southern and Grenville Provinces.
Normally offered in the Field prior to the first semester of the Fourth Year. (Half Course).

415. Advanced Mineralogy and Introductory X-ray Crystallography. Universal Stage, its mineralogy and petrographic uses. Advanced mineralogical concepts illustrated by reference to the crystal chemistry and structural crystallography of selected mineral groups, introductory X-ray crystallography, powder methods.
Prerequisite: 310.
2 lectures, 3 laboratory hours.

420. Igneous Petrogenesis. Principles of silicate phase equilibria, theories of igneous differentiation with examples from selected localities. Laboratory study of petrographic methods and problems, seminars.
Prerequisite: 320.
2 lectures, 3 laboratory hours.

425. Metamorphic Petrogenesis. Principles, classification and the facies concept. Physical-chemical principles involved in their genesis. Laboratory study of petrographic methods and calculations, seminars.
Prerequisite: 320.
2 lectures, 3 laboratory hours.

430. Geochemistry. Origin and abundancies of the elements, Trace element geochemistry, Application of thermodynamics to geological problems, Sedimentary geochemistry, Isotope geochemistry, Exploration geochemistry.
3 lectures.

440. Regional Geology. Phanerozoic geology of the world with special emphasis on *interpretation* of stratigraphic and structural problems of orogenic belts; plate tectonics and geosynclinal models. Evolution of the Precambrian crust, using the Canadian Shield for comparison with other shield areas of the world.
Prerequisite: 340 or permission.
2 lectures, 3 laboratory, tutorial hours.

450. Mineral Deposits Geology. Economic importance and descriptive geology of mineral deposits. Theories and problems of metallogenesis in relationship to lithologic, stratigraphic and tectonic processes. Laboratory work includes use of the reflecting light microscope and study of selected rock suites.
Prerequisite: A 300 level Geology course or permission.
2 lectures, 3 laboratory hours.

463. Sedimentation and Stratigraphy. Types of sediments and their habitat, conditions within the environment. Stratigraphic concepts of unit nomenclature, correlation and facies. Laboratory exercises in sediment analysis and map interpretation.
Prerequisite: 340.
2 lectures, 3 laboratory hours.

467. Glacial and Pleistocene Geology. Glaciers and their work. Glacial and extraglacial deposits, their structure and landscape forms. Pleistocene stratigraphy, especially of eastern North America. Economic aspect of Pleistocene deposits. Laboratory exer-

cises, field trips, and a field-laboratory project.
Prerequisite: A 300 level Geology course or permission
5 hours.

490 (Former 400). Senior Thesis. An original study including field observations, laboratory investigations and literature survey.
One and one-half courses.

DEPARTMENT OF GEOPHYSICS

Departmental: Office B & G 62

Head of Department
Beck, A. E., BSc London; PhD Australian National University
PROFESSORS: Beck, Carmichael, Mereu; ASSOCIATE PROFESSORS: Mansinha, Palmer, Schloessin; ASSISTANT PROFESSORS: Hayatsu; VISITING PROFESSOR: Park; LECTURER: Dvorak.

Geophysics is the study of problems associated with the earth using the methods of Mathematics, Physics and Geology. The physical properties of the earth's interior, the propogation of seismic waves, the earth's magnetic field, the rotation of the earth and the history of the earth are some of the topics covered in pure geophysics. Topics in applied geophysics deal with methods of locating oil deposits, ground water, and mineral deposits using various instruments and techniques of interpretation.

The opportunities for geophysicists are so broad that many areas of emphasis are available. Students should consult with the Department Head when choosing a program and specific course options. However, in general, for students with an interest in earth sciences and a talent, or additional interest, in Physics and Mathematics the Honors Geophysics I program is recommended; for students with an interest in earth sciences and a talent, or an additional interest, in Geology the Honors Geophysics II program would be recommended. For a student who becomes interested in Geophysics at a relatively late stage in his advance through the university, the Honors Geophysics III program would be recommended but for the student who intends to go on to graduate work there may be a small penalty at this and most other universities in the form of extra course work at the graduate level to make up for what he has missed at the undergraduate level. For the student who wishes to obtain a deeper knowledge of the earth sciences than can be obtained by one or two survey courses and yet does not want to commit himself to an Honors Program, the Three Year BSc with a major or a minor in Geophysics would be recommended. Occasionally, substitution of one course by another may be allowed but such requests will be treated individually and a decision made on the basis of merit and ability to schedule the work.

PROGRAMS

Degree programs offered within the Department of Geophysics:

Three Year BSc

Honors BSc (Geophysics I, II, III)

Three Year BSc

Requirements for Admission

Candidates must satisfy the general regulations for the BSc degree and include in their program the following courses:

Physics 020

Applied Math 020, or Math 024, or Math 027

Applied Math 270

Geophysics 202, 302, 304

Physics 256

Geology 211*

Geology 020 and Geophysics 021 are recommended but are not obligatory

A candidate should consult the Head of the Department to arrange his program which may begin either at the end of the First Year or the Second Year.

*This is regarded as a Geophysics course for the purposes of subject area concentration.

Honors BSc

Geophysics I (Physical)

Requirements for Admission First Year General Program with Physics 020 and Applied Mathematics 020 or Mathematics 024 or 027 as principal courses. Geology 020 is recommended as a subsidiary course. Students planning to enter a graduate school are advised to select courses which will satisfy the foreign language credit required by many graduate schools.

SECOND YEAR

Principal Courses

Geology 211

Geophysics 202

Physics (250, 264, 265) or (250, 254, 255)

Subsidiary Courses

Applied Mathematics 200, 202

OR as an alternative to above second year program

One of:

(a) Second year of Program in Honors Physics

(b) Second year of Program in Honors Mathematics

(c) Second year of Program in Honors Applied Mathematics

(d) Second year of Program in Honors Engineering

(e) Second year of Program in Honors Astronomy

Students who wish to enter the Third Year Honors Geophysics program after taking one of these programs must first consult the Head of the Geophysics Department who will give them advice on options and subsidiary courses.

THIRD YEAR

Principal Courses

Geophysics 302, 303, 304

Geology 212 (formerly 311)

Subsidiary Courses

Applied Mathematics 300, 370 or 380

Physics 366

One option (excluding Geophysics 021)

FOURTH YEAR

Principal Courses

Geophysics 300, 401, 490

One of Applied Mathematics Third or Fourth year Courses

Subsidiary Courses

Geophysics 458

One senior option from Physics or Astronomy or Geology

One option (excluding Geophysics 021)

Geophysics II (Geological)

Requirements for Admission First year General Program with Physics 020 and Geology 020 as principal courses, Applied Mathematics 020 or Mathematics 024 or 027 and Chemistry 020 or 023 as subsidiary courses.

Students planning to enter a graduate school are advised to select courses which will satisfy the foreign language credit required by many graduate schools.

SECOND YEAR

Satisfies requirements of second Year Geology programs with permission of Chairman of Geology Department

Principal Courses

Geology 219, 260

Physics 256

Geophysics 202 or Chemistry 214

Subsidiary Courses

Applied Mathematics 270 or 280

OR as an alternative to the above Second year program, the Second year of program in Honors Geology.

Students who wish to enter the Third year Honors Geophysics program after taking the second year program of Honors Geology must first consult the Head of the Geophysics Department who will give them advice on options and subsidiary courses.

THIRD YEAR

Principal Courses

Geophysics 302, 304

Geology 320, 340

Subsidiary Courses

One of Geophysics 303, Applied Mathematics 370, 380

One option (Geophysics 202 if not taken in 2nd year)

FOURTH YEAR

Principal Courses

Geophysics 300, 401, 490

Geology 450

Subsidiary Courses

Geophysics 458

One senior option from Physics, Astronomy, Mathematics, Applied Mathematics, or Geology

One option (excluding Geophysics 021)

Geophysics III (after Three Year BSc)

Requirements for admission Three year BSc with Geophysics major plus departmental permission; permission to enter this program will not be granted to students graduating with an average of less than 70% (or equivalent grade point average) in their Three Year BSc program.

FOURTH YEAR

Principal Courses

Geophysics 303, 300, 401, 490

Geology 212 (Formerly 311)

Subsidiary Courses

Applied Mathematics 370 or 380 or equivalent

Physics 366

Geophysics 458

COURSES

021. Physics of the Earth. A survey of: origin and development of the earth and solar system, constitution of the earth, tectonophysics, oceanography, meteorology, application of physical and chemical methods to oil and mineral exploration.

202. Seismology. Fundamentals of seismology and wave propagation with applications to seismic exploration methods, studies of the earth's interior and earthquakes.
Prerequisites: Applied Mathematics 020 (or equivalent), Physics 020 or permission of the Department.
2 lectures.

300 (Formerly 400). Communication Theory. Introduction to time-series analysis and digital filtering with applications to geophysical problems.
Prerequisites: Applied Mathematics 270 or 280 (or equivalent), Geophysics 202 (or equivalent) or permission of the Department.
2 lectures, 2 laboratory hours.

302. Exploration Methods. An introduction to gravitational, magnetic, electromagnetic, electrical and radioactive exploration methods.
Prerequisites: Physics 264, 265 (or 256) and Applied Mathematics 270 or 280 or permission of the Department.
2 lectures.

303. Potential Theory. Application of potential theory to problems concerning the earth's gravitational and magnetic field.
Prerequisites: Physics 264, 265 (or Physics 256) and Applied Mathematics 270 or 280 or permission of the Department.
2 lectures.

304. Laboratory. Covers various problems in exploration geophysics, earthquake seismology and computer programming and instrumentation.
Prerequisites: Physics 264, 265 (or Physics 256) and Applied Mathematics 270 or 280 or permission of the Department.
Corequisite: Geophysics 302.
4 laboratory hours.

401. Physics of the earth's interior. Application of mechanics, thermodynamics and atomic physics to problems of the earth.
Prerequisites: Geophysics 202, 302, 303, 304 or permission of the Department.
2 lectures.

458. Seminar. This is a course in which the students are required to prepare and present orally, papers on specified topics; the papers are also written in a style normally used for published papers.
For Honors Geophysics students (4th year)

490. Geophysics Thesis. A report on a field or laboratory study conducted by the student.
For Honors Geophysics students (Fourth Year)
One full course.

NOTE: Geology 211 and 212 are regarded as Geophysics courses for the purposes of subject area concentration.

DEPARTMENT OF HISTORY OF MEDICINE AND SCIENCE

Room 3331, Social Sciences Building

Chairman of the Department:
F. L. Holmes, BSc MIT; MA, PhD Harvard
PROFESSOR: Holmes. ASSOCIATE PROFESSOR: Richardson. ASSISTANT PROFESSOR: Plotkin. HONORARY LECTURERS: Balderston, Lewis, Nicholas, Warwick.

PROGRAMS

***BSc Honors Program in History of Science (Fourth Year)**

(a) Requirements for admission:

1) completion of the requirements for any BSc Three Year Program offered by the Faculty of Science, or a Three Year BA Program in Computer Science, Geology or Mathematics.
2) one history or history of science course at level 200 or higher.
3) an overall average of at least 70% in the last two years. A student with an overall average of at least 60% may be allowed to enter the program only with the permission of the Department of History of Medicine and Science .

(b) Principal courses:

1) History of Science 414 (senior seminar and research project in history of science).
2) four half courses, or equivalent, in History of Science. With permission of the Department, courses in a related subject such as the philosophy or sociology of science may be substituted for one or two of these.
3) one full, or two half courses in History at level 200 or above.
4) one additional full course, or equivalent, in either History or History of Science.

Honors Program in History and History of Science

See History and the History of Science, History section, Faculty of Social Science.

COURSES

200. History of Scientific Thought. A survey of the development of scientific ideas and their impact on society from antiquity to the beginning of the twentieth century. This course is intended primarily as an honors option for history or science majors, but is open to other interested students as well.
3 hours per week, lecture discussion.

210a or b. History of Astronomical Thought. An examination of the development of the major ideas of astronomy and cosmology from antiquity to modern times, with emphasis on the post-Copernican era. The course is intended primarily for undergraduates who have already taken an introductory course in astronomy, but is open to other interested students as well.
3 hours per week, lecture-discussion, half course.

310a. The Emergence of Modern Biology. Problems, ideas and methods which have been central to the emergence of the modern biological sciences. Focus on the nineteenth century, during which the basic areas of investigation comprising biology emerged as professional, experimental fields. Topics include neurophysiology, respiratory and digestive physiology, cell theory, evolution, and origins of genetics.
3 hours per week, lecture, half course.

311b. History of Evolutionary Thought. Emergence of question of origin of species in early nineteenth century zoology, plant geography, comparative anatomy, geology. Genesis and development of Darwin's theory of natural selection. Scientific and public reaction to Darwin, impact of Darwinism on biological and social sciences; influence on social and religious issues up until end of the century.
3 hours per week, lecture-discussion, half course.

312b. The Chemical Revolution and Its Milieu. The transition from traditional chemistry based on herbalist, metallurgical, and alchemical practices, to the modern experimental science of the nineteenth century. Examination of the interactions between conceptual and experimental factors; between developments within the science itself, the growth of large-scale industries, and the organization of research laboratories.
3 hours per week, lecture-discussion, half course.
Not offered 1974/75

314a. Science and Medicine in Canada. An examination of the development of scientific and medical activites in Canada from aboriginal times to the present day.
3 hours per week, lecture-discussion, half course.

316b. Science, Scientists and Society. Interrelations between science, scientists and society in which they operate. Historical examples primarily from the nineteenth century to the present, including the role of political ideologies in science, issues involved in scientists' participation in war research, impacts of an increasingly automated technology on society, and public images of the scientist.
2 hours per week, lecture-discussion, half course.

318b. The Development of the Scientist's Self-Image. A study of the way scientists have viewed themselves and their colleagues over the past three centuries, examined through autobiographies, biographies, eulogies, etc.; what they have sought to achieve, the personal qualities they have admired, what they have defined as acceptable and unacceptable behaviour, and the historical development of such standards.
2 hours per week, discussion, half course.

320a. Introduction to the History of Medicine. An overview of the development of medicine from antiquity to modern times, including the growth of medical sciences, concepts of disease, therapies, and the history of medical practice and institutions.
3 hours per week, lecture-discussion, half course.

414 a or b. Departmental Seminar. A required research seminar for students in the fourth year honors program in History of Science, and in the combined honors program in His-

tory and History of Science. Emphasis on methods of historical investigation and interpretation as applied to the history of science, and on readings which serve as models of various approaches to the subject. Each student will prepare a comprehensive research paper during the second semester.
2 hours per week, discussion, half course.

420a or b. Special Topics in History of Science. A course designed primarily for students in the fourth year honors program in History of Science or the last year of the combined honors program in History and History of Science. Topics will vary according to the interests of the students.
2 hours per week, discussion, half course.

440 a or b. History of Scientific Ideas. An examination of the historical growth of scientific thought, with particular attention given to the development of the biological sciences during the past two centuries. Note: this course, as in previous years, is intended primarily for fourth year honors students in the biosciences.
2 hours per week, lecture-discussion, half course.

*Proposed for 1974/75.

DEPARTMENT OF MATHEMATICS

Departmental Office - Room 3005
Engineering and Mathematical Sciences Building
Phone - 3654

Head of Department: Borwein, D., BSc Witwatersrand; PhD, DSc London, FRSE.
PROFESSOR EMERITUS: Magee PROFESSORS: Ali, Borwein, Cole, Moore, Ritcey, Thierrin; ASSOCIATE PROFESSORS: Bode, Bryan, Cass, Chan, Haq, McKay, Robinson, Shawyer, Wonnacott; ASSISTANT PROFESSORS: Baskerville, Biggs, Bruen, Dawes, Delkin, Florence, Heinicke, Klass, Miller, Milnes, Rankin, Reis, State, Strube, Vranch; LECTURERS: Callaghan, Mereu, Panjer, Rinco, Smet, Watson.

PROGRAMS

Mathematics may be elected as the subject of concentration within the following degree programs:

Three Year BSc, General BA, Honors BA, Honors BSc.

Departmental requirements pertaining to these programs are specified below.

Three Year BSc Programs

Two basic programs are offered:

(a) Mathematics 130, 132, 134 and at least one of Mathematics 131, 135, 136, 140, 144.

(b) Mathematics 250, 256, 278 and at least one Mathematics course numbered 300 or above.

Other programs may be set up in consultation with the Department. A prerequisite for any Three Year BSc Program is Mathematics 024 or 027 or Applied Mathematics 020.

General BA Program

A prerequisite for this program is Mathematics 020 or 021 or 024 or 027 or Applied Mathematics 020.

HONORS BA and BSc Programs

Requirements for Admission, Progression and Graduation: The requirements for admission to an Honors Program in Mathematics are the First Year General Program with Mathematics 024 or 027 or Applied Mathematics 020 and any two other courses as principal courses. For requirements concerning the joint Honors Program in Philosophy and Mathematics and for the Honors Program in Economics, Mathematics option, see the entries of the appropriate departments.

In order to qualify for the Honors BA degree, a student must successfully complete one of Programs 1, 2, 3 or 4 listed below.

In order to qualify for the Honors BSc degree, a student must successfully complete one of Programs 1, 2 or 3 with at least TWO of the five subsidiary courses chosen from Honors courses offered by the Faculty of Science.

Students who plan to continue into graduate studies are advised to take French or a foreign language if they have not already done so in their First Year.

Note: *All options referred to below are full courses or equivalent.*

SECOND YEAR

Principal Courses

Mathematics 250, 256, 278

Subsidiary Courses

Two options. A student intending to proceed in the Actuarial Mathematics Program should choose Mathematics 253 as one of these options.

THIRD AND FOURTH YEARS

In the Third and Fourth Years, a student may elect one of four programs.

MATHEMATICS (Program 1)

THIRD YEAR

Principal Courses

Mathematics 350, 356

One other Mathematics course numbered 300 or above

Subsidiary Courses

Two options

FOURTH YEAR

Principal Courses

Two of Mathematics 450, 456, 460

Two Mathematics courses numbered 300 or above

Subsidiary Course

One option

ACTUARIAL MATHEMATICS (Program 2)

Program 2 will prepare students to write the Preliminary Actuarial Examinations, Parts 1 and 2, prepared by the Educational Testing Service, and also to write Parts 3 and 4 of the Actuarial Examinations. Each year these examinations, which may

be written in London, will be held in May and November. Applications to write the examinations must be received by the Society of Actuaries not later than April 1 and October 1 respectively.

THIRD YEAR

Principal Courses

Mathematics 353, 355, 356

Subsidiary Courses

Two options

One of these options must be Mathematics 253 if it has not been taken previously.

FOURTH YEAR

Principal Courses

Mathematics 463

Three Mathematics courses numbered 300 or above

Subsidiary Course

One option

MATHEMATICAL STATISTICS (Program 3)

THIRD YEAR

Principal Courses

Mathematics 355, 356

One Mathematics course numbered 300 or above

Subsidiary Courses

Two options

FOURTH YEAR

Principal Courses

Two of Mathematics 336, 445, 455, 465

Two Mathematics courses numbered 300 or above, one of which must be Mathematics 350 if not taken previously.

Subsidiary Course

One option

MATHEMATICS, ECONOMICS OPTION (Program 4)

Requirements for Admission. First Year General Program with Mathematics 024 or 027 or Applied Mathematics 020, and Economics 020 as principal courses.

SECOND YEAR

Principal Courses

Economics 230, 255

Mathematics 250, 256, 278

THIRD YEAR

Principal Courses

Economics 340

Mathematics 355, 356, 378

One of Economics 237, 351

FOURTH YEAR

Principal Courses

Economics 360

Mathematics 350, and 445 or 455

One Mathematics or Economics course numbered 300 or above

Subsidiary Course

One option

COURSES

010. Calculus with Analytic Geometry. Topics in algebra, trigonometry and analytic geometry followed by an introduction to differential and integral calculus.
Antirequisites: Two credits in grade 13 Mathematics including a credit in Calculus.
Prerequisite: Grade 12 Mathematics
3 lectures, 1 tutorial hour.

020. Introductory Calculus and Algebra. An introduction to calculus; a study of logic, set theory, probability theory, and the algebra of vectors and matrices.
Antirequisites: Mathematics 021, 024, 027; Applied Mathematics 020, 022.
Prerequisites: Mathematics 010 or two credits in grade 13 Mathematics including a credit in Calculus.
3 lectures.
NOTE: *Mathematics 020 is not accepted as a prerequisite for most Honors Programs offered by the Faculty of Science.*

021. Mathematics for the Social Sciences. A problem-centred course with major emphasis on calculus, linear algebra, and probability. This course is primarily designed for students registered in the Faculty of Social Science.
Antirequisites: Mathematics 020, 021, 027; Applied Mathematics 020, 022.
Prerequisites: Mathematics 010 or two credits in grade 13 Mathematics including a credit in Calculus.
3 lectures, 1 tutorial hour.

024. Calculus. Differential and integral calculus with applications.
Antirequisites: 020, 021, 027; Applied Mathematics 020, 022.
Prerequisites: three credits in grade 13 Mathematics.
3 lectures, 1 tutorial hour.

027. Calculus. Differential and integral calculus with applications.
Antirequisites: Mathematics 020, 021, 024; Applied Mathematics 020, 022.
Prerequisites: Mathematics 010 or two credits in grade 13 Mathematics including a credit in Calculus.
3 lectures, 1 tutorial hour.

130. Algebra. An introduction to abstract algebra, with principal emphasis on the structure of groups, rings, integral domains and fields.
Antirequisite: Mathematics 350.
Prerequisite: Mathematics 020 or 021 or 024 or 027 or Applied Mathematics 020.
3 lectures.

131. Synthetic Geometry. Groups of transformations of the Euclidean plane, inversion, and coaxal systems; the projective plane.
Antirequisite: Mathematics 351.
Prerequisite: Mathematics 020 or 021 or 024 or 027 or Applied Mathematics 020.
3 lectures.

132. Linear Algebra with Applications to Geometry. Vector spaces, linear transformations and matrices, determinants. Applications to Euclidean geometry of two and three dimensions.

Antirequisites: Mathematics 250, 254; Applied Mathematics 202.
Prerequisite: Mathematics 020 or 021 or 024 or 027 or Applied Mathematics 020.
3 lectures.

133. Intermediate Calculus. Differentiation of functions of one variable including trigonometric, exponential, hyperbolic functions and their inverses. Techniques of integration of functions of one variable with applications. Functions of several variables; partial derivatives, multiple integrals. Infinite sequences and series. Ordinary differential equations.
Antirequisites: Mathematics 024 or 027; Mathematics 134 (formerly 34), 254, 278 or Applied Mathematics 020, 200, 270, 280.
Prerequisite: Mathematics 020 or 021.
3 lectures.

134. Calculus. Review of anti-differentiation; uniform continuity, Riemann integral, indeterminate forms, improper integrals, Taylor's formula; functions of several variables, partial differentiation, multiple integration; *line and surface integrals; infinite* sequences and series; ordinary differential equations.
Antirequisites: Mathematics 133 (formerly 33), 254, 278; Applied Mathematics 200, 270, 280.
Prerequisite: Mathematics 024 or 027 or Applied Mathematics 020.
3 lectures.

135. Statistics. Standard probability distributions; sampling distributions; estimation; test of hypothesis, analysis of variance; regression and correlation.
Antirequisites: See list of Statistics courses in Academic Programs and Policy section of Calendar.
Prerequisite: Mathematics 020 or 021 or 024 or 027 or Applied Mathematics 020.
3 lectures.

136. Elementary Operations Research with Applications. Linear programming, dynamic programming; the shortest route problem, the maximal flow problem; probability and theory of games.
Antirequisite: Mathematics 336 (formerly 453).
Prerequisite: Mathematics 020 or 021 or 024 or 027 or Applied Mathematics 020.
3 lectures.

137a. Statistical Methods. An introduction to frequency distributions, measures of central tendency, correlation, probability and hypothesis testing. Intended primarily for students in the Social Sciences, and cannot be taken for credit by students in Mathematics programs.
Antirequisites: see Mathematics 135.
3 lectures, first term (half course).

138b. Statistics. Distributions, hypothesis testing, multiple regression, prediction and experimental design. Intended primarily for students in the Social Sciences, and cannot be taken for credit by students in Mathematics programs.
Antirequisites: see Mathematics 135.
Prerequisite: Mathematics 137a.
3 lectures, second term (half course).

140. Elementary Theory of Numbers. Euclidean algorithm, congruences, indices, continued fractions, Gaussian integers, partitions and Diophantine equations.
Antirequisite: Mathematics 340.
Prerequisite: Mathematics 020 or 021 or 024 or 027 or Applied Mathematics 020.
3 lectures.

144. Complex Variable. Complex numbers, elementary point set topology, sequences and series, Cauchy-Riemann conditions, integration. Cauchy's theorem, Taylor and Laurent expansions, residue calculus and applications.
Antirequisites: Mathematics 356; Applied Mathematics 301a.
Prerequisite: Mathematics 134 (formerly 34).
3 lectures.
Not offered 1974-75.

145a. Statistical Analysis I. Multiple regression, time series analysis, sampling theory and designs.
Antirequisite: Economics 255.
Prerequisite: Mathematics 135 or permission of department.
3 lectures, first term (half course).

146b. Statistical Analysis II. Design of experiments, analysis of variance, standard statistical tests, nonparametric tests.
Antirequisite: Economics 255.
Prerequisite: Mathematics 135 or permission of Department.
3 lectures, second term (half course).

155b (Formerly 255b). Statistical Methods. An introductory, practical course intended primarily for honors students in departments other than Mathematics. Topics include sampling, confidence intervals, analysis of variance, regression and correlation. Cannot be taken for credit by students in Mathematics programs.
Antirequisites: see Mathematics 135.
2 lectures, second term (half course).

HONORS COURSES

NOTE: Associated with the group of principal Second Year honors mathematics courses is a two-hour problem session. A student taking any of these courses (i.e. Mathematics 250, Mathematics 256, Mathematics 278) is advised to fit at least one hour of this session into his timetable.

250. Linear Algebra. Vector and matrix algebra, determinants, linear equations, canonical forms. Applications to bilinear forms, quadratic forms, geometry.
Antirequisite: Applied Mathematics 202.
Prerequisite: Mathematics 024 or 027 or Applied Mathematics 020.
3 lectures.

253. Mathematics of Finance. Compound interest, annuities certain, amortization, sinking-fund, bonds; the mortality table; life annuities, standard forms of life insurance; commutation functions.
Prerequisite: Mathematics 024 or 027 or Applied Mathematics 020.
3 lectures.

254. Mathematics for the Social Sciences. Advanced calculus and linear algebra. Topics include maximizing functions, differential and difference equations, and the algebra of n-dimensional vector spaces as far as eigenvectors and quadratic forms. Cannot be taken for credit by students in Mathematics programs.
Antirequisites: Applied Mathematics 200, 202, 270, 280; Mathematics 132 (formerly 32) 134 (formerly 34) 250, 278; Economics 241 (formerly 41).
Prerequisite: Mathematics 021 or Applied Mathematics 022.
3 lectures.

256. Analysis I. Elementary point set topology, sequences, limits, continuity - these topics to be discussed with reference to Euclidean n-space. Differentiation, mean value theorems. Basic properties of the Riemann integral. Series: tests for convergence, uniform convergence, multiplication of series, power series.
Antirequisite: Mathematics 257a.
Prerequisite: Mathematics 024 or 027 or Applied Mathematics 020.
3 lectures.

257a. Real Variable. Completeness axiom for real numbers, Bolzano-Weierstrass theorem for real numbers. Limits, sequences, series. Continuity and uniform continuity of functions of one real variable. Basic properties of the Riemann integral sequences and series of functions, uniform convergence. Term by term differentiation and integration. Interchanging of orders of limit operations.
Antirequisite: Mathematics 256 - May not be taken by Honors Mathematics Students.
Prerequisite: Mathematics 024, or 027, or Applied Mathematics 020.
3 lectures, first term (half course).

278. Advanced Calculus. Functions of several variables, partial differentiation, co-ordinate transformations, Taylor's theorem, extrema, vectors, integral as a function of a parameter, multiple integration, line and surface integrals, integral theorems, ordinary differential equations.
Antirequisites: Applied Mathematics 200, 270, 280.
Prerequisite: Mathematics 024 or 027 or Applied Mathematics 020.
3 lectures.

Prerequisites for courses with numbers between 300 and 400 are Mathematics 250 and 256 or 278 or the permission of the Department. For courses numbered 400 or above the permission of the Department is required.

336. *Methods of Operations Research.* Optimization (linear, quadratic, and dynamic programming, Lagrange multiplier, etc.). Applied probability (queuing theory, Markov chains, etc.). Miscellaneous topics (theory of games, graphs, etc.).
3 lectures.

340. *Number Theory.* Divisibility, congruences, quadratic reciprocity, some functions of number theory, Diophantine equations, continued fractions, the distribution of primes, algebraic numbers, partitions.
3 lectures.

343a. Combinatorial Mathematics. Existence and enumeration problems; permutations and combinations, recursion and generating functions; linear programming; block designs.
Antirequisite: This course is the same as Computer Science 343a.
Prerequisites: Mathematics 250 and 256 or 278; or Applied Mathematics 200 and 202.
3 lectures, first term (half course).

344b. Combinatorics and Graph Theory. Hamiltonian circuits; extremal graphs; switching circuits; Kuratowski's, Menger's and Konig's theorems.
Prerequisite: Mathematics (or Computer Science) 343a or permission of the Department.
3 lectures, second term (half course).

345. Sampling Theory and Design of Experiments. Simple random sampling, cluster sampling, stratified multi-stage sampling, stratified multi-stage cluster sampling, regression estimates, double sampling. Randomised experiments, randomised blocks, latin square, missing observations, factorial experiments; factors at two levels and three levels, confounding, split-plot design, balanced incomplete blocks, incomplete latin square. Problems may require computer solution.
Antirequisites: Applied Mathematics 343a (formerly 403a), 344b (formerly 404b).
3 lectures.

350. Algebra I. Introduction to abstract algebraic systems; elementary theory of groups, rings, fields.
3 lectures.

351. Geometry I. Synthetic Euclidean geometry; synthetic and analytic methods in projective geometry.
3 lectures.

353. Finite Differences. Advancing differences, interpolation, divided differences, central differences, inverse interpolation, summation, approximate integration; applications to life contingencies; theory of graduation.
3 lectures.

355. Statistics I. Standard distributions; sampling distributions; sampling from finite population; estimation; test of hypothesis; design of experiments; analysis of variance and regression analysis; nonparametric methods; sequential analysis.
Antirequisite: Applied Mathematics 343a (formerly 403a), 344b (formerly 404b).
3 lectures.

356. Analysis II. Discussion of the real number system. Metric space topology and selected topics in real

variable theory, including the Riemann-Stieltjes integral. Complex variable theory differentiation and integration, Cauchy's theorem, Taylor and Laurent expansions, residue calculus and applications. Fourier and Laplace transforms.
4 lectures.

363. Numerical Methods. See Applied Mathematics 360.
Antirequisite: Applied Mathematics 360.
Not offered 1974-75

364. Ordinary Differential Equations. Existence theorems; general linear equation, matrix systems, adjoint systems, Green's function, expansion problems; stability theory.
3 lectures.
- not offered 1974-75

378. Differential equations. Ordinary differential equations, solution in series, matrix systems, Green's functions, eigenvalue problems, simple eigenvalue expansions. Non-linear systems, stability, phase plane, Liapounov functions.
3 lectures.

445. Theory of Probability. Probability measure, Lebesgue-Stieltjes and Riemann-Stieltjes integrals for n variables; Fourier integrals, matrices and quadratic forms; Beta and Gamma functions; orthogonal polynomials; mathematical expectation; correlation and regression, distribution theory; limit theorems, asymptotic distributions; significance tests.
3 lectures.

450. Algebra II. Elementary factorization theorems; field theory; Galois theory; groups with operators, semi-simple rings, general factorization theorem.
3 lectures.

452. Geometry II. Algebraic Geometry. Affine and projective varieties; divisors; Riemann-Roch Theorem; additional topics to be selected.
3 lectures.
- not offered 1974-75

455. Statistics II. Distributions in Rn; sampling theory and distributions; theory of estimation; fiducial inference; testing of hypothesis; analysis of variance; design of experiments and balanced designs; multiple correlation and regression; multivariate analysis; time series.
3 lectures.

456. Analysis III. Topics in point set theory. Introduction to measure and integration theory with applications.
3 lectures.

460. Introductory Topology. Metric spaces, topological spaces, connectedness, compactness, separation axioms, product spaces, function spaces, nets and convergence; simplicial complexes, elementary simplicial homology, classifications of compact 2-manifolds.
3 lectures.

463. Life Contingencies. General Life annuities and insurances, net and gross premiums, reserves, non-forfeiture values, combination benefits, joint annuities, last survivor annuities, generalized multiple life annuities, contingent assurances, reversionary annuities, population tables, multiple decrement tables.
3 lectures.

465. Multivariate Statistical Analysis. Matrix theory; normal distributions; correlations.
3 lectures.

468. Differential Geometry and Tensor Calculus. Theory of curves, Serret-Frenet formulae; curvilinear co-ordinates, first and second fundamental forms, geodesics, Codazzi equations, Gauss-Bonnet theorem. Introduction to differential geometry in the large. Introduction to n-dimensional Riemann geometry tensor analysis and general relativity.
3 lectures.

470. Foundations of Mathematics. Formal systems; first-order theories, the completeness theorem, one of the standard axiomatic set theories. Development of mathematics from

set theory emphasizing the number systems of mathematics. Discussion of various philosophies of Mathematics.
3 lectures.

478. Linear Operators. Continuous operators in normed spaces, linear functionals, contraction mappings, Hilbert space, adjoint operators, completely continuous operators, fixed point theorems, applications to integral equations and boundary value problems.
3 lectures.
- not offered 1974-75

488. Complex Analysis. Harmonic, entire and meromorphic functions, infinite products, the Gamma function, normal families, conformal mapping and Riemann mapping theorem. Elliptic functions, Picard Theorem, analytic continuation and Riemann surface of a function.
3 lectures.

DEPARTMENT OF PHARMACOLOGY

Departmental Office MS 275

Professor and Head of the Department: Gowdey, C. W., BA, MSc UWO: DPhil Oxon
PROFESSORS: Hamilton, Parker, Philp; ASSOCIATE PROFESSORS: Colhoun, Hirst; ASSISTANT PROFESSOR: Hersey; LECTURERS: Borda, Lovegrove, Meltzer, Spoerel, White; INSTRUCTORS: Geddes, Parks.

PROGRAMS

The Department of Pharmacology does not offer undergraduate degree programs at this time. In cooperation with the Department of Physiology, however, it does provide a Pharmacology option in the Fourth Year of the Honors Physiology Program; for further details, consult the listings of the Department of Physiology.

Programs

PHYSIOLOGY AND PHARMACOLOGY OPTION:

PRINCIPAL COURSES:

History of Science 440a.

Pharmacology 441y, 460b, 464a, 465a, 466b, 480

TWO OF:

Physiology 443b, 461b, 463b

Physiology 464b, 465b, 466a

Physiology 467b

SUBSIDIARY COURSES:

(a) If a student has completed *both* Biology 362 *and* a course in statistics (Biology 215b, Biology 344a, Psychology 281, or Mathematics 155b) then no subsidiary course is compulsory.

(b) If a student has *neither* Biology 362 nor a course in statistics, then Biology 362 is compulsory.

(c) If a student has Biology 362 but no course in statistics, then one of Biology 215b, Biology 344a, Psychology 281 or Mathematics 155b is compulsory.

HONORS COURSES

Prerequisites for Fourth Year courses: Successful completion of previous year's program or permission of the Head of the Department.

Biology 362. General Pharmacology. The principles of general pharmacology and a survey of the major classes of drugs.
Prerequisites: Chemistry 203 or 250 OR a 200 level course in Biology or Psychology with permission of the Department.
2 lectures, full course.

441y. Seminar. The preparation of essays on assigned topics in pharmacology and participation in the Department seminars.
Prerequisites: Biology 310 and 311, or 362 with permission of the Department.
2 hours - all year, half course.

460b. Environmental Toxicology. Effects on man of exposure (incidental or deliberate) to industrial, agricultural and household chemicals.
Prerequisites: Biology 362 or by permission of the Department.
2 lectures, half course.

464a. Pharmacology of the Autonomic Nervous System. Principles of chemical transmission of nerve impulses and mechanisms of drug effects involving modification of the activity of the autonomic nervous system.
Prerequisite: Biology 310 or Biology 362, or by permission of the Department.
2 lectures, half course.

465a. Chemical Pharmacology. Pharmacological screening, pharmacodynamics, structure-activity relationships of selected drug classes and receptor theory.
Prerequisites: Chemistry 203 or 250 or equivalent and one 300 level Biology course; or third year of a Chemistry program.
2 lectures, half course.

466b. Drugs and Enzymes. Principles of drug metabolism, competitive and non-competitive inhibition, enzyme induction, and genetic abnormalities of drug metabolism.
Prerequisites: Biology 300 or 301 equivalent.
2 lectures, half course.

480. Laboratory and Tutorial. A course of training in the techniques employed in modern pharmacological investigations. Opportunity for original projects will be provided. The tutorial will supplement both lecture and laboratory work.
Enrolment limited.
Prerequisites: Biology 310 and 362, or 310 and 311 with permission of the Department.
Minimum of 10 hours/week, full course.

DEPARTMENT OF PHYSICS

Room PB 125; Tel. 679-2283

Chairman of Department Alford, W. P. BSc. UWO, PhD Princeton
PROFESSOR EMERITUS: Durnford PROFESSORS: Alford, Brannen, Ferguson, Forsyth, Hay, Lyon, Moorcroft, Nuttall, McGowan, Rose, Vogan. ASSOCIATE PROFESSORS: Bow, Froelich, Fulford, Jarmain, John, Jones, Lowe, Murty, Stewart, Tong, Whippey. ASSISTANT PROFESSORS: Gaily, Gallaher, Lane-Smith, Rosner, Tunaley. INSTRUCTOR: Chefurka. SESSIONAL LECTURERS: Dawson, MacDonald, Marton.

PROGRAMS

The Physics Department offers a program leading to a BSc degree after three years of study and an Honors Program leading to an Honors BSc after four years of study. The Honors program is designed with sufficient options to allow the study of basic Physics as well as its relationship to other academic disciplines. With a suitable choice of optional courses, the student may progress to graduate research, secondary school teaching, or employment in industry or government. Students should consult the appropriate section of this calendar for details of academic regulations and grades required for admission, progression and graduation in these programs.

THREE YEAR BSc PROGRAM

Requirements for Admission: A First Year General Program which includes one of Physics 020, 022 or 026 and one of Applied Mathematics 020 or Mathematics 024 or 027. Admission to this program will be granted only after consultation with the Department prior to registration. To meet the requirements for this program a student must complete at least four senior courses in Physics. A program is outlined below:

SECOND YEAR

Physics 252 and 256

Applied Mathematics 270 or 202* or

Mathematics 278

Plus two options

THIRD YEAR

Physics 367 and one of Physics 203, 353, 366. Plus 3 options. Other programs may be set up in consultation with the Physics Department but must contain Physics 252, 256, 367 or equivalent.

*The student must take Applied Mathematics 200 concurrently or in his third year.

HONORS BSc

Requirements for Admission: First Year General Program with Physics 020 or 026 and Applied Mathematics 020 or Mathematics 024 or 027 as principal courses. Students who fail to maintain the required standing to continue, or decide not to continue, in this program may transfer to a Three Year Program, provided that they meet all normal or equivalent requirements of that program.

All students must consult with the Physics Department concerning their choice of courses before registering in each year of the program. Normally, six courses will be taken each year. Competence in computer programming is highly recommended for all Physics students.

SECOND YEAR

PRINCIPAL COURSES

Applied Mathematics 200 and 202 or equivalent

Physics 250, 254, 255

SUBSIDIARY COURSE

One Option

THIRD AND FOURTH YEARS

PRINCIPAL COURSES

Applied Mathematics 300

Physics 353, 357, 359, 451a and 458

Plus any other five Honors courses (or half-course equivalents), two of which must be Physics courses numbered 300 or higher.

SUBSIDIARY COURSES

Any two options

COURSES

020. Introductory Physics. This course is a suitable prerequisite for all science programs and is required for those students intending to specialize in the Physical Sciences. Grade XIII Physics is strongly recommended.
Antirequisites: 021, 022, 026.
Prerequisite: Mathematics 010 or two credits in grade 13 Math (including a credit in Calculus).
Corequisite: One of Applied Mathematics 020, Mathematics 024 or 027.
2 lectures, 3 laboratory/tutorial hours.

021. Introductory Modern Physics intended for Non-science Students. A treatment at the elementary level of the experimental facts of modern physics and the interpretation of these facts in terms of atoms and molecules, electrons and other particles, and quantized energy. The necessary concepts from classical physics are reviewed and conservation laws are stressed.
This course may not be taken by a freshman student registered in the Faculty of Science. This course is not a laboratory course in physics.
Antirequisites: 020, 022, 026.
3 lecture/laboratory hours.

022. Introductory Physics. For students intending to pursue most programs in the Biological and Health Sciences; this course has no corequisites and is not generally acceptable as a prerequisite for Honors Programs in the Physical Sciences.
Antirequisites: 020, 021, 026.
Prerequisite: Mathematics 010 or two credits in Grade 13 Math (including a credit in Calculus).
2 lectures, 3 laboratory/tutorial hours.

027b. Optics and sound. For students in First Year Engineering Sciences.
An introduction to the fundamentals of travelling waves, acoustics, reflection, and refraction of light wave phenomena.
Prerequisites: Two credits in Grade 13 Math (including a credit in Calculus).
Corequisite: Applied Mathematics 020.
2 lectures, 2 laboratory hours, second term, half course.

028a. Electricity and Magnetism. For students in First Year Engineering Sciences.
An introduction to electric fields, current electricity, magnetic properties of matter.
Prerequisites: Two credits in Grade 13 Math (including a credit in Calculus).
Corequisite: Applied Mathematics 020.
2 lectures, 2 laboratory hours, first term, half course.

133. The Physics of Music and Sound. An introduction to acoustics with applications to the production and transmission of musical sounds; including wave motion; sound waves and their characteristics; vibratory sources of sound; harmony and scales; hearing; electronic recording, reproduction and synthesis of sound; acoustics of buildings and building

materials. Open to students in the Faculty of Music, and those students with some formal musical training who are not pursuing a major in Physics.
Antirequisite: 134 (formerly 34)
3 lecture/laboratory hours.

134. Physics of Speech and Hearing. An introduction to the Physics of Sound primarily for students in the Communicative Disorders program of the Faculty of Medicine. Topics will include simple harmonic motion, vibration, resonance, waves, transducers, acoustic measurements, and electronic devices.
Antirequisite: 133 (formerly 33).
2 lectures, 2 laboratory hours.

138. Selected Readings in Physics. Intended for non Physics majors. A historical survey of major advances in Physics and discussion of their significance and their practical applications today. Emphasis is on understanding of the basic principles of these astonishing discoveries and the extent of their impact in our times. The course requires a minimum of Mathematics.
Prerequisite: One of Physics 020, 021, 022 or 026
2 lectures.

HONORS COURSES

203. Fundamentals of Meteorology. The atmosphere, the how and why of the basic meteorological measurements. A physically oriented treatment of air masses and fronts, cyclones and anticyclones, with applications of thermodynamics to adiabatic changes in dry and moist air; stability, instability, convection and turbulence. Special topics such as severe types of storms, and the problems posed by both deliberate, and inadvertent, climate modifications.
Prerequisites: Physics 020, 022 or 026 and Applied Mathematics 020 or Mathematics 024 or 027; or permission of department.
2 lectures.

204. Intermediate Physics for Biologists. Material on the mechanics of solids and fluids, sound, optics, DC and AC circuits, atomic and nuclear physics, with applications and examples pertinent to biological and medical situations.
Antirequisites: 253, 254, 255, 256, 264, 265.
Prerequisite: Physics 020, 022 or 026.
2 lectures, 3 laboratory hours alternate weeks.

250. Classical Mechanics. The dynamics of systems of particles described via Lagrange's equations and Hamilton's principle with applications to rigid body motion, central force motion, vibrating systems and normal mode analysis.
Antirequisites: 252, 253.
Prerequisites: Physics 020 or 026 and Applied Mathematics 020 or Mathematics 024 or 027.
Corequisite: Applied Mathematics 200 and 202 or equivalent
3 lectures.

252. Classical Mechanics. Vector algebra. A critical analysis of Newton's laws and their application to rotational motion, rigid body motion, central force motion and simple systems of particles. An introduction to relativistic mechanics.
Antirequisites: 250, 253.
Prerequisites: Physics 020, 022 or 026 and Applied Mathematics 020 or Mathematics 024 or 027.
Corequisite: Applied Mathematics 202 or 280 or Mathematics 278
2 lectures.

253. Intermediate Physics for Chemists. Essential topics in electricity and magnetism, classical mechanics and physical optics with emphasis where possible upon instrumentation.
Antirequisites: 204, 250, 252, 254, 255, 256, 264, 265.
Prerequisite: Physics 020 or 026.
3 lectures, 3 laboratory hours.

254. Waves. A general but rigorous treatment of electromagnetic and sound wave phenomena including the wave equation, reflection, impedance, dispersion, diffraction, interference, coherence, polarization and birefringence. Plane-wave solutions of Maxwell's equations and electromagnetic radiation from a point charge. This course is intended for Honors Physics students. (See Physics 264 for other Natural Science Honors students).
Antirequisites: 204, 253, 256, 264.
Prerequisites: Physics 020 or 026 and Applied Mathematics 020 or Mathematics 024 or 027.
Corequisite: Applied Mathematics 200 and 202 or equivalent.
2 lectures, 3 laboratory hours.

255. Electricity and Magnetism. A detailed discussion of the basic laws of electrostatics, magnetostatics and electromagnetic induction leading towards an empirical derivation of Maxwell's equations followed by a study of the effects of electric and magnetic fields in matter. This course is intended for Honors Physics students. (See Physics 265 for other Natural Science Honors students).
Antirequisites: 204, 253, 256, 265.
Prerequisites: Physics 020 or 026 and Applied Mathematics 020 or Mathematics 024 or 027.
Corequisites: Applied Mathematics 200 and 202 or equivalent
2 lectures, 3 laboratory hours.
NOTE: The laboratory of 254 and 255 will include the study of error analysis, numerical analysis and elementary computer programming and their applications to specific experiments.

256. Light; Electricity and Magnetism. An intermediate course in geometrical and physical optics; electrostatics, magnetism; and electromagnetism.
Antirequisites: 204, 253, 254, 255, 264, 265.
Prerequisites: Physics 020, 022 or 026 and Applied Mathematics 020 or Mathematics 024 or 027.
Corequisites: Applied Mathematics 270, 280 or recommended equivalent.
3 lectures, 3 laboratory hours.

264. Waves. Lectures are those of Physics 254 but the laboratory is 3 hours, alternate weeks. This course is intended for Natural Science Honors students other than Honors Physics students.
Antirequisites: 204, 253, 254, 256.
Prerequisites: Physics 020 or 026 and Applied Mathematics 020 or Mathematics 024 or 027.
Corequisites: Applied Mathematics 200 and 202 or equivalent.
2 lectures, 3 laboratory hours, alternate weeks.

265. Electricity and Magnetism. Lectures are those of Physics 255 but the laboratory is 3 hours, alternate weeks. This course is intended for Natural Science Honors students other than Honors Physics students.
Antirequisites: 204, 253, 255, 256.
Prerequisites: Physics 020 or 026 and Applied Mathematics 020 or Mathematics 024 or 027.
Corequisites: Applied Mathematics 200 and 202 or equivalent
2 lectures, 3 laboratory hours, alternate weeks.

353. Statistical and Thermal Physics. An introduction to the basic concepts of statistical mechanics; the interpretation of temperature and entropy in equilibrium systems and derivation of the laws of thermodynamics. The quantum statistics of Bosons and Fermions with applications to black body radiation and transport phenomena.
Prerequisite: Physics 250 or 252
2 lectures.

357. Quantum Physics. An introduction to atomic, molecular, nuclear and particle physics. The course combines elementary quantum mechanics with experimental illustrations drawn from modern physics.
Antirequisite: 367.
Prerequisite: Physics 250, 254 and

255 or equivalent
3 lectures.

359. Modern Physics Laboratory. A comprehensive laboratory designed to familiarize the student with the basic concepts of modern physics, with emphasis on the development of experimental skills.
Antirequisite: 367.
Prerequisites: Physics 254 and 255, or equivalent
6 laboratory hours.

360. Advanced Classical Mechanics. Given in collaboration with the Department of Applied Mathematics (AM350). A logically connected development of classical mechanics including a thorough treatment of Lagrangian and Hamiltonian methods. Special relativity may be included.
Antirequisite: Applied Mathematics 350.
Prerequisites: Physics 250, Applied Mathematics 200 and 202 or equivalent
3 lectures.

364a. Applied Optics. A discussion of the design, operation and uses of optical devices including spectrographs, spectrometers and interferometers. Material on sources and detectors of optical radiation, including lasers and photomultipliers.
Prerequisite: Physics 254 or 264
2 lectures, 1 term (half course).

365b. Electromagnetic Theory I. A study of static electric and magnetic fields using vector calculus; time varying electric and magnetic fields, Maxwell's equations and solutions; wave propagation in continuous and discontinuous media, wave guides; retarded potentials, radiation.
Prerequisite: Physics 255 or 256
Corequisite: Applied Mathematics 300
3 lectures, second term (half course).

366. Applied Electronics. A study of the operation and applications of electronic and solid state devices and circuits.
Prerequisite: Physics 253, 255 or 256, or permission of Department.
2 lectures, 2 laboratory hours.

367. Advanced General Physics. Topics in (a) electromagnetic theory (b) atomic and molecular physics (c) the physics of solids and (d) nuclear and particle physics. Quantum mechanical ideas are introduced in (b), (c) and (d).
Antirequisites: 357, 359.
Prerequisites: Applied Mathematics 270 or 202 or Mathematics 278, Physics 252 and 256 (or equivalent), or permission of the Department.
3 lectures, 3 laboratory hours.

451a. Quantum Mechanics I. An introductory course in quantum mechanics to include discussion of the free particle, barrier penetration, the harmonic oscillator and the hydrogen atom.
Antirequisite: Applied Mathematics 454.
Prerequisites: Physics 357 and Applied Mathematics 300
3 lectures, first term (half course).

458y. Seminar. Students will conduct seminars on topics of current interest and write an essay upon an assigned topic.
1 hour, (half course).

461b. Quantum Mechanics II. Time-independent and time-dependent perturbation theory, scattering and radiation processes.
Antirequisite: Applied Mathematics 454.
Prerequisite: Physics 451a.
3 lectures, second term (half course).

462a. Nuclear Physics. An introduction to nuclear and particle physics.
Prerequisite: Physics 357
2 lectures, 1 term (half course).

463b. Atmospheric Physics. Basic concepts of physics applied to atmospheric phenomena.
Prerequisite or corequisite: Physics 353
2 lectures, 1 term (half course).

464b. Atomic and Molecular Physics. A study of simple atomic and molecular systems with emphasis upon their interactions with each other and with the electromagnetic field.
Prerequisites: Physics 357.
2 lectures, 1 term (half course).

466b. Radio Physics. A discussion of selected topics in circuit analysis, transmission line theory and the propagation of radio waves.
Prerequisite: Physics 365b
2 lectures, second term (half course).

467a. Solid State Physics. An introductory course covering the thermal, electric and magnetic properties of crystalline matter.
Prerequisite: Physics 357
2 lectures, one term (half course).

468b. Plasma Physics. An introduction to the theory of highly ionized gases, their properties, production, diagnostics and application to thermonuclear fusion.
Prerequisite: Physics 365b
2 lectures, second term (half course).

469. Laboratory. A laboratory in which the student selects or suggests a project and works under the supervision of a faculty member. This may include instruction in workshop practice, electronics instrumentation and the techniques of high-vacuum or low temperature physics.
Prerequisite: Physics 359
9 laboratory hours.

DEPARTMENT OF PHYSIOLOGY

Health Sciences Centre Room 223

CHAIRMAN: Brooks, V. B., BA Toronto, MS Chicago, PhD Toronto
PROFESSORS: Armstrong, Brooks, Calaresu, Dellow, Mogenson; ASSOCIATE PROFESSORS: Bondy, Harding, Mercer, Seguin, Squires, Wiesendanger; ASSISTANT PROFESSORS: Cooke, Cunningham, Girvin, Kline, Lodge, Pirkle, Weick; LECTURER (SESSIONAL): Kenny, O'Hea, Sellery, Swart; HONORARY LECTURERS: Chess, Manning, Rounthwaite, Steele; TEACHING FELLOW: Patel.

PROGRAMS:

The Department of Physiology participates in the Three Year Biology BSc program. For complete details the student is referred to the Biology listing of this Calendar.

The Department of Physiology offers a program leading to the Honors BSc Degree. In Fourth Year of this program, the students may choose either the Physiology option or the Physiology and Pharmacology option.

In conjunction with the Department of Psychology, the Physiology Department offers an Honors Program leading to the BSc degree in Psychology and Physiology.

Requirements for admission into the Honors Programs in Physiology or Physiology and Pharmacology are completion of the requirements for a three year BSc. in Biology with the general prerequisites for entrance into Honors Programs and the following additional prerequisites:

Physics 020 or 022

Biology 310

Biology 311 for students who intend to choose the Physiology option or the Psychology and Physiology option in fourth year.

Biology 362 for students who intend to choose the Physiology and Pharmacology option in fourth year.

By permission of the Department, Biology 362 could be taken as a corequisite in the fourth year of the Honors Physiology and Pharmacology program if the student has completed Biology 310 *and* 311 with at least a B standing.

Two of:

Biology 202

Biology 300 or 301

Biology 250 (Formerly 302)

Biology 309

Biology 311 for students not taking this as a principal course

Biology 362 for students not taking this as a principal course

FOURTH YEAR HONORS BSc PROGRAM:

PHYSIOLOGY OPTION.

Students must consult the Department to determine their programs. Each must contain at least five principal course credits. Students who have not previously taken a course in Statistics must take Mathematics 155b (*or equivalent*) as an additional course.

Three representative program examples are listed below. Other combinations are possible. Please consult the Department.

Not all courses will be offered every year.

EXAMPLE 1: Systemic Physiology

Principal Courses:

History of Science 440a

Physiology 441a, 480

Three of:

Physiology 442a, 443b, 461b, 462a, 464b, 465b, 466a, 467b, 469b.

In addition, one full course and a half course or three half courses at a senior level with permission of the Department.

EXAMPLE 2: Neurophysiology

Principal Courses:

Science 440a

Physiology 441a, 463b, 468 and 464b or 465b, as well as one other half course in Physiology.

In addition, one full course and a half course or three half courses at a senior level with permission of the Department of Physiology.

EXAMPLE 3: Endocrinology

Principal Courses:

History of Science 440a

Physiology 441a, 462a, 480

Two of:

Physiology 442a, 443b

Physiology 461b, 464b, 465b, 466a, 467b

Physiology 469b

In addition, one full course and a half course or three half courses from the following list at a senior level, selected in consultation with the Department of Physiology.

Biochemistry 460

Biochemistry 464b

Biophysics 462b

Bacteriology 470a

Bacteriology 471b

Bacteriology 472b

Other senior courses which may meet specific interest or requirements.

Physiology and Pharmacology Option:

Principal Courses:

History of Science 440a

Pharmacology 441y, 460b, 464a, 465a, 466b, 480

Two of:

Physiology 443b, 461b, 463b

Physiology 464, 465b, 466a

Physiology 467b

Subsidiary Courses:

(a) If a student has completed both Biology 362 and a course in statistics (Biology 215b, Biology 344a, Psychology 281, or Mathematics 155b) then no subsidiary course is compulsory.

(b) If a student has neither Biology 362 nor a course in statistics, then Biology 362 is compulsory.

(c) If a student has Biology 362 but no course in statistics, then one of Biology 215b, Biology 344a, Psychology 281 or Mathematics 155b is compulsory.

Honors Psychology and Physiology

Requirements for Admission:

First Year

General Program

(Science) with Psychology 020, Biology 020, Chemistry 020, or 023 and Physics 020 as principal courses. Applied Mathematics 020 or Mathematics 024 or 027 is recommended as an option.

SECOND, THIRD AND FOURTH YEARS

After the first year, this programme requires six full honors courses (or half course equivalents) in Psychology, seven full honors courses (or half course equivalents) in Biology/Physiology, and two full courses in other Departments. The normal load is five full courses (or half courses equivalents) per year. All courses taken in any year will be considered principal courses.

SECOND YEAR:

Required Courses:

Psychology 221a and 222a or 222b

Psychology 281

Chemistry 203

Biology 200, 220a and 221b

One of:

Physics 204, 256

Applied Mathematics 020, 200

Mathematics 020, 021, 024, 027, 250

or other course selected in consultation with program advisors.

THIRD YEAR:

Required Courses:

Biology 310

Biology 311

Biology 301 or 309

One full (or two half courses) from:

Psychology 240 through 279 or

Psychology 340 through 379

Two of:

Psychology 223b, 224b, 225a, 226b, 227b

(all are half course).

FOURTH YEAR:

Principal Courses:

Physiology 443b or 463b, 480

Three of: Physiology 461b, 462a, 464, 465b, 466a, 467b, 469b. (all are half courses).

Two full courses, to be made up from:

Psychology 201a, 202b, 211, 223b, 224b, 225a, 226b, 227b

(or any other Psychology honors courses selected in consultation with programme advisors.

Students in this program will undertake a major project in behavioral physiology or sensory processes as part of their experimental work in Physiology 480.

Courses:

130. Human Physiology. A survey course of lectures, demonstration and laboratory exercises outlining the principles of mammalian physiology with emphasis on human physiology: general properties of the living cell and internal environment, nerve and muscle, cardiovascular, respiratory and gastrointestinal system; metabolism and nutrition; body fluids and the kidney; the nervous system; endocrine glands; reproduction; controls regulations and homeostasis.
Enrolment limited.
Antirequisite: Physiology 020.
Prerequisite: Grade 13 Biology or equivalent.
2 lectures, 3 laboratory hours.

Biology 310. Mammalian Physiology. A survey of the physiology of various systems (e.g. cardiovascular, digestive, respiratory, etc.) of the mammal.
Prerequisites: Chemistry 203 or equivalent; Physics 020 or 022; One of Mathematics 020, 021, 024, 027 or Applied Mathematics 020, Biology 020, or by permission of the Department.
2 *lectures*, 3 laboratory hours.

Biology 311. General Physiology and Pharmacology. A survey of cellular and general physiology
Prerequisites: Chemistry 203 or equivalent; Physics 020 or 022; One of Mathematics 020, 021, 024, 027 or

Applied Mathematics 020; Biology 020; or by permission of the Department.

2 lectures.

342. Human Physiology. A survey for students in Honors Physical and Health Education.
Antirequisite: Physiology 130 (formerly 30).
2 lectures, 3 laboratory hours.

441a. Seminar. The presentation of scientific papers and reports and the writing of essays on assigned topics.
Prerequisites: Biology 310 and 311.
2 hours, (half course).

442a. Physiology of Exercise. A study of the response and regulation of the human cardiovascular, respiratory and neuromuscular systems to acute and chronic exercise.
Prerequisites: Biology 310 or 311; or Physiology 020, 130 or 342.
1 lecture, 3 laboratory hours, (half course).

443b. Neurophysiology. A study of the physiology of the central and peripheral nervous systems. In this course, neurophysiology will be presented at a more advanced level than in Biology 310 or an equivalent survey course in Physiology, but at a less advanced level than Physiology 463b.
Prerequisites: Biology 310 and 311; or Physiology 020, 130 or 342.
2 lectures, one term only (half course).

461b. Cardiovascular Physiology. A study of the cardiovascular system including the heart, blood vessels, capillary exchange and venous return as well as special vascular beds.
Prerequisites: Biology 310 and 311.
2 lectures one term only, (half course).

462a. Metabolic and Reproductive Physiology. Role of the endocrine system in regulation of metabolism and reproduction in mammals.
Prerequisites: Biology 310 and 311.
2 lectures, one term only (half course).

463b. Neurophysiology of Sensorimotor Integration. Selected topics will be studied at an advanced level.
Prerequisites: Biology 310 and 311.
2 lectures, one term only (half course).

464b. Systems Analysis in Physiology. The use of control system theory in physiology and a study of some examples.
Prerequisites: Biology 310 and 311.
1 lecture, (half course).

465b. Neurophysiology of Autonomic-Somatic Integration. A study of the integrated responses of the whole animal to environmental changes in terms of the internal and external activities controlled by the nervous system.
Prerequisites: Biology 310 and 311.
2 lecture hours, (half course).

466a. Body Water and Renal Physiology. Body fluid compartments and kidney function.
Prerequisites: Biology 310 and 311.
2 lectures, one term only (half course).

467b. Selected Advanced Topics in Physiology. A seminar course, by arrangement with the Department of Physiology.
Prerequisites: Biology 310 and 311.
(half course).

468. Laboratory Course in Electro- and Neurophysiology. An introduction to experimental electro- and neurophysiology. The course will be oriented towards obtaining quantitative data from experimentation for subsequent analysis. Conference sessions will be held at which results will be discussed and plans for further experimentation made.
Minimum 10 hours per week.
Prerequisites: Biology 310 and 311.
(Corequisite: Physiology 463b; or equivalent by consultation with the Department).

469b. Gastrointestinal Physiology. A study of gastrointestinal secretion,

digestion, absorption and motility including hepatic physiology.
Prerequisites: Biology 310 and 311.
2 lectures, one term only (half course).

480. Laboratory and Tutorial. Laboratory research projects and instrumentation in physiology. Open only to honors students in Physiology. Minimum 10 hours per week.

DEPARTMENT OF PLANT SCIENCES

B.G. 232

Chairman of Department: Bancroft, J. B., BA British Columbia; PhD Wisconsin. PROFESSORS: Bancroft, Cook, Hickman, McKeen, McLarty, Orloci, Walden, Wilson; ASSOCIATE PROFESSORS: Cavers, Day, Fahselt, Greyson, Hopkins, van Huystee, Jancey, Phipps, Wellman; VISITING ASSISTANT PROFESSORS: Cummins, Harle, Hayden, Maun; INSTRUCTORS: Day, Elgie, Howard, King. HONARARY LECTURERS: Lee, Minshall, Richardson, Ward.

The Department provides for study in many areas of the plant sciences including: ecology, genetics, morphogenesis, mycology and plant pathology, phycology, plant biochemistry and physiology, radiobiology, systematics. The programs lead to a BSc Biology degree or to an Honors BSc Plant Sciences degree. These latter provide basis for professional work in academic, government and industrial fields.

PROGRAMS

GENERAL COURSES

Biology 021. Biology. The fundamental principles of biology with stress on the cell as a unit, the origin and preservation of the individual and the race, the mode of inheritance, and the application of biology to social and economic problems.
The course is given both in the Department of Plant Sciences and in the Department of Zoology.
Antirequisites: Biology 020, Contemporary Science 023.
2 lectures, 2 demonstration/laboratory hours, Full Course.

135. Genetics. Principles of heredity discussed at various levels of cellular organization, from the chromosome within the cell nucleus to populations of multicellular organisms, using plants and animals as illustrative material.
Antirequisite: Biology 209.
Prerequisites: Biology 020, or Biology 021.
2 lectures, Full Course.

136. Microbiology. Morphology, biology, classification and economic importance of microorganisms.
Antirequisite: Biology 202.
Prerequisite: Biology 020, or Biology 021.
4 lecture, laboratory hours.

137y. Microbiology. (For registrants in the Home Economics Program only. The lectures are the same as those of Plant Sciences 136.)
Morphology, biology, classification and economic importance of microorganisms.
Prerequisite: Biology 020, or Biology 021.
1 lecture hour both terms, 3 laboratory hours second term, Half Course.

Students not registered in the BSc Biology or the joint Biology/Chemistry or Honors BSc Biology or Honors BSc Plant Sciences programs but who wish to take Honors level Plant Sciences courses must first obtain permission from the Chairman of the Department.

THREE YEAR

BSc BIOLOGY PROGRAM

The Department of Plant Sciences participates in the BSc Biology three year program. For complete details the student is referred to the Biology listing of this calendar.

Students who have successfully completed a First Year Program which included Biology 020 and Chemistry 020 or 023 may register in the second year of the BSc Biology program.

COURSES FOR BSC BIOLOGY THREE-YEAR PROGRAM

020. Biology of Organisms* (given together with the Department of Plant Sciences). Growth, development, integration, organization, reproduction and heredity of unicellular, colonial and multicellular organisms.
2 lectures, 3 laboratory hours, Full course.

*Students who have done well in Biology 21 and wish to transfer to the -3 Year BSc program may, with the permission of the Dean of the Faculty of Science, substitute Biology 21 for Biology 20.

200. Biology of Cells. (given together with the Department of Plant Sciences). The organization and the physiological, genetical and biochemical processes occurring in cells.
Prerequisite: Biology 20 and Chemistry 20.
2 lectures, 3 laboratory hours, Full course.

201. Biology of Populations. (given together with the Department of Plant Sciences). The distribution, genetics and evolution of populations and their growth, regulation and interactions with other populations and their environment.
Prerequisite: Biology 20.
2 lectures, 3 laboratory hours, Full course.

Biology 202. Microbiology (given by the Departments of Bacteriology and Immunology and Plant Sciences). A comparative study of the morphology, biology and relationships of algae, bacteria, fungi, protozoa and viruses.
Prerequisite: Biology 020.
Co-requisite: Biology 200 desirable.
2 lectures, 3 laboratory hours.

Biology 203a. Plant Ecology. An experimental approach to interrelations between an individual plant and various factors in its environment.
Prerequisite: Biology 020.
2 lectures, 3 laboratory hours, Half Course.

Biology 204a. Plants and the Changing Environment of Ontario. A study of the natural flora of Ontario, with emphasis on Southwest Ontario. This course will deal with plants and their distribution patterns as affected by past and modern climates and technological change. Some field work included.
Prerequisite: Biology 020.
5 lecture, laboratory hours, Half Course.

Biology 205a. Growth and Development in Plants. An experimental approach to tissue differentiation and organogenesis in vascular plants. Growth patterns and their regulation in sporophytic and gametophytic phases. Morphogenesis. Patterns and symmetry.
Prerequisite: Biology 020.
2 lectures, 3 laboratory hours, Half Course.

Biology 209. Genetics. Principles of heredity discussed at various levels of cellular organization, from the chromosome within the cell nucleus to populations of multicellular organisms.
Prerequisite: Biology 020.
2 lectures, 3 laboratory hours.

Biology 213b (Formerly 313b). Productivity and Pollution in Aquatic Ecosystems. A study of the ecosystem with emphasis on primary production, the degrading influences of pollution and the necessity of conservation practice.
Prerequisite: Biology 020.
2 lectures, 3 tutorial/laboratory hours, Half Course.

Biology 215b. Biostatistics. A course in applied statistics directed to the beginner with an interest in a survey of the elementary concepts and methods of probability and statistics as applied to Biology.
Antirequisites: See Statistics courses in Academic Programs and Policy section of calendar.
Prerequisites: Mathematics 020, 021, 024, 027 or Applied Mathematics 020 or equivalent standing in Mathematics.
2 lectures, 3 laboratory hours, Half Course.

Biology 216b (Formerly 216a). Survey of the Plant Kingdom. A comparative study of the main groups of plants. Emphasis will be on their characteristic features, including morphology, life cycles, physiology and general biology and on major adaptive-evolutionary strategies.
Prerequisite: Biology 020.
5 lecture, laboratory hours, Half Course.

Biology 217b. Plants in the Service of Man. An introduction to economically important plants and their products, especially as sources of food, fuel, drugs and industrial raw materials. National and international programs relating to food and other plant resources.
Prerequisite: Biology 020.
2 lectures, 3 laboratory hours, Half Course.

Biology 304a. Evolution of Plants. This course will concentrate on aspects of evolution relatively little dealt with in Biology 201 - origin of life, geological background, biosystematics of plant populations, biochemical and physiological evolution, the logical problems of deducing evolutionary pathways.
Prerequisite: Biology 201
2 lectures, 3 laboratory hours, Half Course.

Biology 305b. Plant Physiology. Principles of 'plant function', including nutrition, water relations, adaptation to environmental stress, mechanisms of dormancy and hormonal action, and the physiology of growth and reproduction.
Prerequisite or Corequisite: Biology 200.
2 lectures, 3 laboratory hours.

Biology 307. Applied Microbiology (given by the Departments of Bacteriology and Immunology, and Plant Sciences). A survey of selected topics in agricultural and industrial microbiology with reference to food microbiology, fermentation reactions, single cell protein synthesis, the principles of plant disease control and applied immunological techniques.
Prerequisites: Biology 202 or 306.
Corequisites: Biology 300 or 301; and 202 or 306.
2 lectures, 3 laboratory, tutorial or demonstration hours.

Biology 308. Advanced Genetics (given by the Departments of Plant Sciences and Zoology). Critical analyses of recent concepts of the gene and chromosomes.
Prerequisites: Biology 209.
2 lectures, 3 laboratory hours.

Biology 315a. Advanced Plant Cell Biology. Plant cell ultrastructure in relation to basic metabolism of plant cells. Biochemical pathways which

are unique in plants including detailed study of photosynthesis.
Prerequisite: Biology 200
2 lectures, 3 laboratory hours, Half Course.

Biology 317. Micro-organisms and Plant Pathology. Morphology, classification, physiology and general biology of micro-organisms with emphasis on plant pathogens. Plant diseases parasitic and non-parasitic. Relationships between host and pathogen, epidemiology. Methods of control.
Prerequisite: Biology 202
2 lectures, 3 laboratory hours.

HONORS PLANT SCIENCES (FOURTH YEAR)

Principal Courses

Any four of Plant Sciences 402y, 403y, 404y, 405y and one of Genetics 433 or 467.

A total of 2 full courses from Plant Sciences 420a or 430y or any Biology course offered by the Plant Sciences Department at the 200-300 level.

One full course from Faculty of Science at the 200-400 level. Students should arrange their program in consultation with the fourth year Plant Sciences coordinator.

The principal courses are arranged into a coordinated series of lecture/laboratory blocks for the intensive investigation of the current status of the various areas of Plant Sciences. Visiting speakers and a year-end week-long symposium will focus attention on the various roles available to plant biologists.

Honors Courses

402y. Advanced Microbiology. Selected Topics of current interest in microbiology.
Prerequisite: Permission of Department.
10 lectures, laboratory, tutorial hours for 5 weeks, Half Course.

403y. Advanced Ecology. Detailed consideration of sampling and experimental design, plant responses to environment under extreme condition, plant competition and evolution with emphasis on ecology.
Prerequisite: Permission of Department.
10 lecture, laboratory, tutorial hours for 5 weeks, Half Course.

404y. Modern Approaches in Systematics. Consideration at the advanced level of species delimitation, biochemical systematics and introduction to numerical taxonomy.
Prerequisite: Permission of Department.
10 lecture, laboratory hours for 5 weeks, Half Course.

405y. Advanced Growth and Development. Current topics in plant physiology and biochemistry.
Prerequisite: Permission of Department.
10 lecture, laboratory, tutorial hours for 5 weeks, Half Course.

420a. Field Course in Experimental Biology. This course will consist of a field project with subsequent laboratory. The laboratory work may include further sampling, data analysis and report preparation. Students should be prepared to meet part of their travelling expenses.
Prerequisite: Permission of Department.
3 laboratory hours for 1 term, Field Trip, Half Course.

430y. Independent Study in Experimental Biology. This course will enable a student to pursue any topic of his own interest in the Plant Sciences. It could consist of a library project or research project.
5 hours for 1 term.
Prerequisite: Permission of Department.
Half Course.

Genetics 433. Cytogenetics (given by the Departments of Anatomy and Plant Sciences). The study of chromosomes and chromosomes behavior with emphasis on the genetic principles involved. Examples are drawn from plants and animals including man.
Prerequisites: Biology 209 and Permission of Department.
2 lectures, 2 laboratory hours.

450y. Selected Topics in Biology. Available by prior arrangement with the Plant Sciences Program co-ordinator.
Prerequisite: Permission of Department.
5 lecture, laboratory/discussion hours, Half Course.

460y. Selected Topics in Biology. Available by prior arrangement with Plant Sciences Program co-ordinator.
Prerequisite: Permission of Department.
5 lecture, laboratory/discussion hours, Half Course.

462b. Radiobiology and Molecular Biophysics (given by the Departments of Biophysics and Plant Sciences) . Nature and effects of electromagnetic radiations and biomolecular structure on living cells. Applied radiobiology and radioecology.
Prerequisite: Permission of Department.
2 lectures, 1 laboratory hours, one term only, Half Course.

Genetics 467. Microbial Genetics (given by the Departments of Bacteriology and Immunology and Plant Sciences). The genetics of microorganisms particularly fungi bacteria and bacteriophage. Current research using these microorganisms to elucidate fundamental principles of recombination, regulation, gene action, and replication.
Prerequisites: Biology 209 and Permission of Department.
Corequisite: Biology 300 or 301 strongly recommended.
2 lectures, 3 laboratory hours.

DEPARTMENT OF ZOOLOGY

Department Office: BG 344
Telephone: 679-3155

Chairman of Department: Locke, M., MA, PhD Cantab
PROFESSOR EMERITUS: Battle. PROFESSORS: Bourns, Judd, Keenleyside, Locke, Scott. ASSOCIATE PROFESSORS: George, McMillan, Misra, Ogilvie, Purko, Steele. ASSISTANT PROFESSORS: Atkinson, Caveney, Eggleston, Hay, Kidder, Millar, Owen, Planck, Roth, Shivers, Tam, Wiebe. LECTURERS: Ankney, Mobbs. INSTRUCTORS: Moulton, Scott. HONORARY PROFESSOR: Stinson. HONORARY LECTURERS: Bond, Brown, Chefurka, Colhoun, Harris, McLeod, Nagai, Vardanis.

The Zoology Department teaches and does research upon the Biology of Animals. Members of the Department have a wide array of interests from parasitic flukes to mammals and at levels of organization from organelles to animal behaviour and population dynamics. The Department has special strengths in Population Biology

and Ecology, Ethology, Reproductive Biology and Endocrinology, Developmental Biology and the Physiology of Adaptation, Comparative Physiology - particularly Insect Physiology and Neurobiology, and Cell Biology especially experimental studies on Ultrastructure. The facilities of the Huntsman Marine Laboratory in St. Andrews, New Brunswick, are available to research workers in the department, and for summer field courses

The Zoology Department participates in the Three Year Biology BSc program. The courses offered cover the broad spectrum of modern biology appropriate both for a liberal education and for many present day careers. In the second and third year the emphasis is upon biology as an essential cultural background as well as a preparation for the Honors year. The courses available in the fourth year of the Honors program allow a choice of topics more closely related to a future career.

Students should consult with the Department's undergraduate curriculum advisors, Drs. T. K. R. Bourns, J. A. George and D. B. McMillan. When choosing their second year courses all third and fourth year students have their own Faculty career advisor to help them. Fourth year students, and potential Honors students from the second or third years who have a special interest in Zoology, may ask in the Department Office for a career advisor to help them personally in their selection of courses appropriate for particular careers.

PROGRAMS

General Courses

An understanding of the principles of Biology has become increasingly important in everyday life. To meet this need the Department of Zoology offers sections A and C of Biology 021 which are intended as general introductions to Biology for the non-Biologist. Each section has its own emphasis. Students should consult the course outlines available in the Department Office to see which they prefer. Biology 021 is not intended for students going on in Biology, although they may do so with the Dean's permission and an outstanding record.

Biology 021. Biology. An introduction to molecular and cellular biology, energetics and physiology, heredity and evolution, animal behavioor, ecology and population biology. Emphasis is on facts and principles of particular relevance to mankind. Antirequisites: Biology 020, Contemporary Science 023 (formerly b).

2 lectures, 2 laboratory or tutorial hours. Full course.

3 Year BSc Program

All courses other than Biology 021 (and numbered below 400) lead to the three year BSc in Biology. The undergraduate teaching builds upon the three core courses devoted to the Biology of Organisms (020), the Biology of Cells (200) and the Biology of Populations (201). These courses are a preparation for the series of 35 half-year courses given in the second, third and fourth years. The choice of half-courses will vary with your career objective -- High School Teaching, Medicine, Dentistry, Graduate Studies in Ecology, Wildlife, Physiology, Medical Technology, Cell and Developmental Biology, or just a general cultural background in Biology. The variety of courses will enable a student to opt for a broadly based degree or one tailored to his special interests. Students should ask the Department Office for outlines of the courses recommended as preparation for various careers.

020. Biology of Organisms* (given together with the Department of Plant Sciences). Growth, development, integration, organization, reproduction and heredity of unicellular, colonial and multicellular organisms.
2 lectures, 3 laboratory hours, Full course.

*Students who have done well in Biology 21 and wish to transfer to the 3 Year BSc program may, with the permission of the Dean of the Faculty of Science, substitute Biology 21 for Biology 20.

200. Biology of Cells. (given together with the Department of Plant Sciences). The organization and the physiological, genetical and biochemical processes occurring in cells.
Prerequisite: Biology 20 and Chemistry 20.
2 lectures, 3 laboratory hours, Full course.

201. Biology of Populations. (given together with the Department of Plant Sciences). The distribution, genetics and evolution of populations and their growth, regulation and interactions with other populations and their environment.
Prerequisite: Biology 20.
2 lectures, 3 laboratory hours, Full course.

Biology 220a. Vertebrate Biology I. The principles of design of vertebrates. Emphasis will be placed on structural adaptations to aquatic and terrestrial environments.
Prerequisite: Biology 020.
2 lectures, 3 laboratory hours for one term, Half course.

Biology 221b. Vertebrate Biology II. The physiological basis for environmental adaptation in selected vertebrate types.
Prerequisite: Biology 020.
2 lectures, 3 laboratory hours for one term, Half course.

Biology 224a. Invertebrate Biology. An introduction to the invertebrates. A survey of the invertebrate phyla, their radiation and evolutionary relationships.
Prerequiste: Biology 020.
2 lectures, 3 laboratory hours for one term, Half course.

Biology 225b. Arthropod Biology. *The characteristic structure, function* and adaptations of the arthropods. The mechanisms of support and movement. Economic and medical importance.
Prerequisite: Biology 224a
2 lectures, 3 laboratory hours for one term, Half course.

Biology 308. Advanced Genetics (given by the Departments of Plant Sciences and Zoology). Critical analysis of recent concepts of the gene and chromosomes.
Prerequisites: Biology 209.
2 lectures, 3 laboratory hours, full course.

Biology 322a. Vertebrate Histology. An introduction to comparative aspects of the microscopic structure and development of tissues and organs in the various vertebrate classes.
Antirequisite: Biology 309.
Prerequisite: Biology 200
2 lectures, 3 laboratory hours for one term, Half course.

Biology 323b. Vertebrate Physiology. The principles of homeostasis with emphasis placed on functional relationships in diverse vertebrate types.
Prerequisite: Biology 221b
2 lectures, 3 laboratory hours for one term, Half course.

Biology 329b. Comparative Physiology of Growth and Nutrition in Animals. Analysis of growth processes. Principles of nutrition.
Prerequisite: Biology 200
2 lectures, 3 laboratory hours for one term, Half course.

Biology 332b. Parasitology. Parasitism as a way of life. Structures, life histories and host-parasite relationships of some representative animal parasites.

Prerequisite: Biology 224a or permission of the Department of Zoology.
2 lectures, 3 laboratory hours for one term, Half course.

Biology 335b. Physiological Ecology of Animals. Physiological mechanisms and life history strategies in different environments. Ecological aspects of reproduction, growth and metabolism. The use of physiological indices in ecological studies.
Prerequisite: Biology 201
2 lectures, 3 laboratory hours for one term, Half course.

Biology 336a. Animal Behaviour. Introduction to animal behaviour with emphasis on social organization and the adaptive nature of behaviour.
Prerequisite: Biology 201
2 lectures, 3 laboratory hours for one term, Half course.

Biology 338b. Animal Development. Principles of development and cell specialization. The embryology of selected vertebrates and invertebrates.
Prerequisite: Biology 200
2 lectures, 3 laboratory hours for one term, Half course.

Biology 342a. Cell Biology of Animals Molecules to biological structures. Ultrastructure and life history of cells and organelles. Intercellular communication.
Prerequisite: Biology 200
2 lectures, 3 laboratory hours for one term, Half course.

Biology 344a. Biometry. Methods of measurement and sampling and the application of statistical methods to biological data.
Antirequisites: See Statistics courses in Academic Programs and Policy section of Calendar.
Prerequisite: Biology 200 or 201; a Mathematics course at the 020 level.
2 lectures, 3 laboratory hours for one term, Half course.

Biology 345a. Principles of Synecology. An integrative approach to ecology, stressing the structure and function of ecosystems, their diversity, stability and productivity.
Prerequisite: Biology 201 or permission of Department.
2 lectures, 3 laboratory/tutorial hours for one term, Half course.

Biology 346b. Topics in Applied Ecology. The application of ecological principles, with emphasis on the capacity of the earth to provide energy, materials and food, and to absorb the impact of human activity.
Prerequisite: Biology 345a.
2 lectures, 3 laboratory/tutorial hours for one term, Half course.

Fourth Year Honors BSc in Zoology

Ten 300 or 400 level Zoology half-courses should be taken in the fourth year for graduation with Honors. One or more courses offered by other departments may be substituted for Zoology courses with the approval of the department's undergraduate advisors. Biology 344a, Biometry, is the only required course and should usually be taken in the third year.

The Honors year continues the objectives of the three year degree - a broadly based education in Biology or a deeper training for a particular career. It is very important for potential Zoology Honors students to get the help of the department's advisors in choosing appropriate courses during their second and third years.

Students planning to finish their Honors Zoology program under the course and program structure existing before inception of the 3 year BSc in Biology, must confer with a department advisor before registering in 4th year.

Students who plan to continue into Graduate Studies are advised to select courses which will satisfy the foreign language credit required by many graduate schools.

Honors Courses

422b. Comparative Histology. Comparative aspects of the structure and development of organ systems at the microscopic level.
Prerequisite: Biology 322a
2 lectures, 3 laboratory hours for one term, Half course.

424a. Insect Taxonomy. The principles and historical development of insect taxonomy and the classification of specimens by means of keys and monographs.
Prerequisite: Biology 255b and one 300 level Biology course.
3 laboratory hours for one term, Half course.

426a. Insect Physiology. The principles of insect physiology. Insects as experimental animals.
Prerequisites: Biology 200 and 225b and one 300 level Biology course.
2 lectures, 3 laboratory hours for one term, Half course.

427b. Comparative Neurophysiology. Principles of action of excitable tissue and neural transmission (jointly with the Department of Physiology); evolution of complexity in nervous systems, the basis of animal motor control, the variety of sensory systems of animals, primitive central nervous systems.
Prerequisite: Biology 200 and one 300 level Biology course.
2 lectures, 3 laboratory hours for one term, Half course.

428a. Comparative Endocrinology. Hormonal integration in vertebrates and invertebrates.
Prerequisite: Biology 200: 322a.
2 lectures, 3 laboratory hours for one term, Half course.

432a. Immunity to Parasites (given jointly with the Department of Bacteriology and Immunology). Natural and acquired resistance to animal parasites, medical and veterinary implications; serological and immunological methods; in vitro culture.
Prerequisite: Biology 332b
2 lectures, 3 laboratory hours for one term, Half course.

434a. Advanced Population Biology. Population regulation. Dynamics of population growth. Competition. Predation. Genetic variation. Fitness and natural selection.
Prerequisite: Biology 201 and one 300 level Biology course.
2 lectures, 3 laboratory hours for one term, Half course.

436b. Advanced Behaviour. Neural correlates of behaviour. Bioperiodism. Cybernetic systems. Animal social systems. Communication.
Prerequisite: Biology 336a
2 lectures, 3 laboratory hours for one term, Half course.

438a. Advanced Developmental Biology. Analysis of interacting systems in development at the molecular, cellular, and intercellular levels. Storage and transfer of developmental information; mechanisms and role of intercellular communication, morphogenetic cell movements, and cell shape changes in development.
Prerequisite: Biology 338b.
2 lectures, 3 laboratory hours for one term, Half course.

440b. Developmental Genetics. Critical molecular analysis of how a single cell - the fertilized egg - gives rise, through genomic regulation, to the many different kinds of cells that make up the bodies of metazoan organisms (i.e., how one cellular genotype produces many hundreds of different cellular phenotypes).
Prerequisites: Biology 200, Biology 338b, Biology 300 *or* 301.
2 lectures, 3 laboratory hours for one term, Half course.

441b. Evolution. Concepts of species. Polymorphism, selection and gene flow. Theories of speciation. Fitness-set analysis.
Prerequisite: Biology 201 and one 300 level Biology course.
2 lectures, 3 laboratory hours for one term, Half course.
(Possibly not offered in 1974-75).

442b. Advanced Cell Biology. Cell function. Cell and tissue specialization. Transport. Transporting epithelia. Contractility and motility.
Prerequisite: Biology 342a
2 lectures, 3 laboratory hours for one term, Half courses.

444b. Advanced Biometry. Advanced statistical methods.
Prerequisite: Biology 344a
2 lectures, 3 laboratory hours for one term, Half course (not offered in 1974-75).

446b. Population Genetics. A lecture course dealing with large and small random and non-random mating populations, path analysis, inheritance of quantitative characters and some implications of these considerations for the process of evolution.
Prerequisites: Biology 344a and a course in Genetics.
3 lectures for one term, Half course.

450a. Special Topics in Experimental Biology I. A practical course within a particular field under the direction of a faculty member.
Prerequisite: Average of 70% in third year. Permission of Instructor required. See research notice boards for areas of specialization of the faculty and fields available.
8 laboratory and tutorial hours for one term, Half course.

451b. Special Topics in Experimental Biology II. As for Zoology 450a.
Prerequisite: successful completion of Zoology 450a
8 laboratory and tutorial hours for one term, Half course.

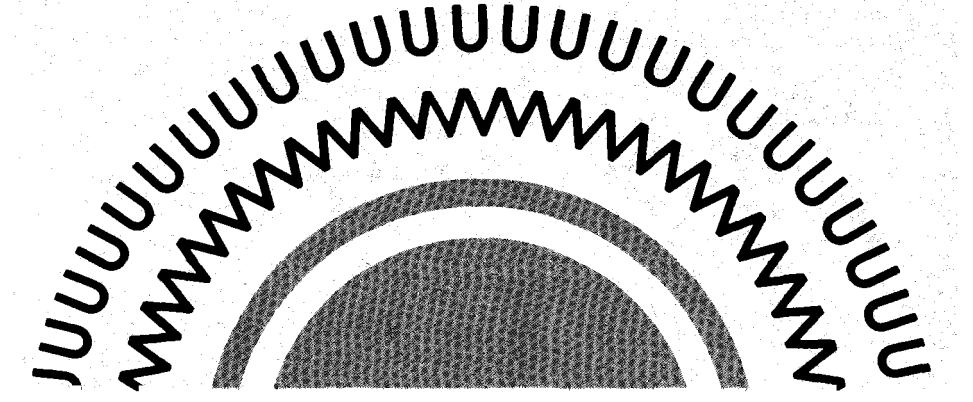
452a. Field Course in Experimental Biology. A study of living organisms in the field. Fieldwork and laboratory studies. Students should be prepared to meet part of the travel expenses.
Prerequisite: Permission of instructor
Field trip plus, 3 lab hours for one term, Half course.

453b. Political Biology. The biological consequences of human activities for the biotic world and particularly man and his institutions. Direct physical and chemical effects upon metabolism, development, adaptation, genes, and population structure. Indirect effects through climatic change, population density, social conditions and changed patterns of survival. Predictions and mechanisms for influencing the future.
Prerequisites: Biology 200 and 201; 4th year only.
2 lectures, 3 tutorial hours for one term, Half course.

454a. Advanced Laboratory Techniques. A practical course in advanced techniques, including tissue culture, histology, autoradiography, stereology, photomicrography and the preparation of illustrations.
Prerequisite: Biology 200 and one 300 level Biology course, or permission of instructor.
1 lecture, 6 laboratory hours for one term, Half course.

455b. Advanced Microscopy. Phase, ultraviolet, interference, polarising, fluorescence, and Nomarski microscopy. Electron microscopy, interpretation and presentation of data.
Prerequisite: Zoology 454a or permission of instructor
1 lecture, 6 laboratory hours for one term, Half course.

Faculty of Social Science



Dean:
Grant L. Reuber, BA UWO; AM, PhD Harvard, FRSC, Professor of Economics
Office: Room 9438, Social Science Centre
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Faculty of Social Science

Associate Dean:
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Assistant Dean:
Thomas N. Guinsburg, BA, MA, PhD Columbia, Associate Professor of History
Office: Room 9438, Social Science Centre
Telephone: 6365

ACADEMIC COUNSELLING

Office: Room 2040, Social Science Centre
Telephone: 3097

The Faculty of Social Science maintains a full-time counselling service for all students registered, or intending to register, in the Faculty. Students are urged to use this service as well as to consult with members of individual Departments in the Faculty. Inquiries should be directed to the Office of the Dean or to the Chairman of the Department concerned.

UNDERGRADUATE PROGRAMS IN SOCIAL SCIENCE

The Faculty of Social Science offers two basic programs leading to a Bachelor of Arts degree (BA):

- four-year honors programs
- three-year programs

First Year

The first year is common to both programs. It is intended primarily to provide one year of general education in the social sciences. Having taken University courses in several social science subjects, the student then selects those areas of social science on which he wishes to focus in subsequent years. Upon the successful completion of the first year, the student is eligible to register in the second year of either an honors program or a three-year 15-course program.

The first-year program in the social sciences is intended to lead to programs offered by Departments within the Social Science Faculty. However, it also affords admission to programs in the Faculties of Arts or Science provided that the prerequisites for upper-year courses are satisfactorily met. Similarly, students who have successfully completed a first-year program in Arts or in Science are eligible to enrol in social science programs in subsequent years.

The election of first-year options is described in the section of this calendar on academic regulations.

Four-Year Honors Programs

The Faculty offers the following honors programs:

Anthropology
Economics
Economics with Geography options
Economics with History options
Economics with Mathematics options
Economics with Political Science options
Geography
History
History and Economics
History and German
History and the History of Science
History and Philosophy
History and Russian
Journalism
Political Science
Political Science and French
Psychology
Psychology and Philosophy
Psychology and Physiology
Sociology

Honors programs have a long tradition in Britain and Canada. In general they are intended to provide an opportunity for students to gain some specialized training and a well-developed understanding of a particular subject or inter-related set of subjects. Because of the relatively small size of most honors classes, it is possible for honors students to study under close supervision and to maintain a direct personal association with their teachers.

A student will be automatically accepted into the second and subsequent years if he has an average of at least 70 per cent with no grade of less than 60 per cent in

the courses listed as principal courses by the Department(s) of the subject(s) in which he is specializing. He must also have a passing grade in each of the courses listed as subsidiary courses by the Department(s) concerned.

Three-Year Programs

Three-year 15-course programs are offered with an area of concentration in the following fields:

Anthropology
Economics
Geography
History
Political Science
Psychology
Secretarial Science
Sociology

Few restrictions are placed on the courses that may be taken in these programs. The question arises: which 15 courses should a student select from the hundreds listed in the Calendar?

A good education should have a main focus. The student should settle on that and organize other courses around it. The focus might be a subject of interest within a particular Department (e.g., economic development, linguistics, political philosophy), a particular interest area (e.g., Canadian studies, Communist studies), or a more specialized topic which brings together work in several Departments (e.g., cities and their problems, ecology and the environment, landscape development, minority groups).

The 15-course programs offer students an opportunity to obtain a good general education by tailoring a program of studies to suit their particular interests and aptitude.

The three-year program in Secretarial Science is somewhat more specialized. Along with courses in Secretarial Science subjects, this program includes courses in Business, Economics and English as well as options in other subjects.

LANGUAGE SKILLS

English is the language of instruction in most courses. Students whose command of English is inadequate are asked to seek advice from the Office of the Dean about remedial instruction in English.

Because of the bilingual nature of Canadian society as well as for cultural and academic reasons, it is important that social science students have some command of French. Which courses are most appropriate to achieve this objective will depend upon the student's background and should be worked out in consultation with the Department of French. For most students a sequence of courses including French 020 and French 031 or French 271, as listed in the Department's offerings, will enable them to speak and write in French.

HISTORY OF SCIENCE

A number of courses, which may be taken as options, are offered by the Department of History of Medicine and Science, Faculty of Medicine, in co-operation with the Faculties of Science and Social Science. The following

courses may be of particular interest to Social Science students: History of Evolutionary Thought (311b); Science and Medicine in Canada (314a); Science, Scientists and Society (316b); Development of the Scientist's Self-Image (318b). See Faculty of Science section for detailed course listings. For honours programs in History and the History of Science, see p. E-31 below.

MATHEMATICS, STATISTICS, COMPUTER SCIENCE

In most branches of social science it is important for students to take courses in Mathematics, Statistics and Computer Science. Such courses should be taken as soon as possible upon entering the University. The following courses, offered in the Faculty of Science, have been specially designed to meet the needs of social science students. Some of these courses require very little background training in Mathematics; others require Grade XIII Mathematics.

022. Applied Mathematics. Introductory Mathematics for Social Science. A problem-centred course based upon basic algebra, linear algebra and calculus. The course is designed for students registered in Social Science.
Antirequisite: Mathematics 021.
3 lectures, 1 tutorial hour.

233. Applied Mathematics This basic course in Statistics emphasizes applications in the social and management sciences. Topics include descriptive statistics, probability distributions, estimations, hypothesis testing, sampling, correlation and regression, goodness of fit tests and contingency tables. According to the interests of the students, additional topics are chosen from experimental design, time series, non-parametric methods, Bayesian decision-making, and queuing models. This course cannot be taken for credit by students in Mathematics programs.

Prerequisite: Applied Mathematics 022 or Mathematics 020, or 021, or consent of the instructor.
3 hours.

021. Mathematics. A problem-centred course with major emphasis on calculus, linear algebra, and probability. This course is primarily designed for students registered in the Faculty of Social Science.

Prerequisite: Grade 13 Mathematics A, or Grade 13 "Calculus" plus one of Grade 13 "Algebra" or Grade 13 "Relations and Functions" or Mathematics 010.

3 lectures, 1 tutorial hour.

137a. Mathematics. Statistical Methods. An introduction to frequency distributions, measures of central tendency, correlation, probability and hypothesis testing. Intended primarily for students in Social Science and cannot be taken for credit by students in Mathematics programs.
3 hours for one term, (half-course).

138b. Mathematics. Statistics. Distributions, hypothesis testing, multiple regression, prediction and experimental design. Intended primarily for students in Social Science and cannot be taken for credit by students in Mathematics programs.
Prerequisite: Mathematics 137a.
3 hours for one term, (half course).

254. Mathematics. Advanced Mathematics for Social Science. Advanced calculus in linear algebra. Topics include maximizing functions, differential and difference equations, and the algebra of n-dimensional vector spaces up to eigenvectors and quadratic forms. Cannot be taken for credit by students in Mathematics programs.
Prerequisite: Mathematics 021 or Applied Mathematics, 022.
3 hours.

Most graduate programs at this and other Universities require a degree of competence in at least one foreign language, and some require proficiency in two. Students who may wish eventually to enter a graduate program should prepare themselves to meet such language requirements in their undergraduate work.

SOCIAL SCIENCE COMPUTING LABORATORY

Director:
Edward H. Hanis, AB Cornell; PhD Indiana
Office: Room 1004A, Social Science Centre
Telephone: 6378

Honorary Lecturer:
James K. Mullin, BS, MS, PhD Carnegie Mellon Associate Professor, Department of Computer Science

Computer Science courses prepared especially for students in the social sciences are offered cooperatively with the Department of Computer Science, Faculty of Science.

022a. Introduction to Computing I. An introduction to the digital computer and the programming language BASIC for manipulating data and solving problems. Examples and problems drawn from the social science disciplines, using socio-economic data files. No prior computing experience and only minimal mathematical skills are assumed.
Antirequisites: Computer Science 020, 021, 024, and 137.
2 hours lecture, 2 hours laboratory, one term, half course.

023b. Introduction to Computing II. The application of computers to data files. Examples will be drawn from social science data sets such as the Canadian census. Prior computing experience is assumed and will be extended to include advanced BASIC and FORTRAN programming in time-shared and remote batch environments. Elementary features of SPSS (Statistical Package for the Social Sciences). Computing concepts and examples will be applicable to other areas. Will be offered beginning January 1975.
Antirequisites: Computer Science 020, 021, 024, and 137.
Prerequisites: Previous computer experience such as CS 022a or an acceptable high school computing course.
2 hours lecture, 2 hours laboratory, one term, half course.

132a. Introduction to Computer Modeling and Simulation of Social Systems. Computer representation and analysis of social science models and simulations of social science systems: model structure, stochastic terms, calibration, and validation methods.
Prerequisite: One of CS 020, 021, 023b, 024, or 133b; and completion of or concurrent enrolment in a social science quantitative methods course and a course in either Applied Mathematics or Mathematics.
2 hours lecture, 2 hours laboratory, one term, half course.
Limited enrolment.

133b. Social Science Information Processing. Examination of social science information systems; computer data files: structure, access methods, and applications to significant socio-economic data files; data reduction and display; questionnaire processing; advanced features of Social Science Statistical Packages (SPSS and TSP).

Prerequisite: One of CS 020, 021, 022a, 023b, 024, 132a and completion of or concurrent enrolment in a social science quantitative methods course and a course in either Applied Mathematics or Mathematics or permission of the course committee.
2 hours lecture, 2 hours laboratory, one term, half course.
Limited enrolment.

DEPARTMENT OF ANTHROPOLOGY

Chairman and Associate Professor:
D. L. Guemple, BA, MA, PhD Chicago
Telephone: 3476
Departmental Office: Room 3322, Social Science Centre

ASSOCIATE PROFESSORS: Guemple, Silverman. ASSISTANT PROFESSORS: Spence, Tobias, Creider, Turner. LECTURERS: Freedman, Finlayson, Sequin.

GENERAL PROGRAM

Students who wish to elect an area of concentration in Anthropology will be REQUIRED TO COMPLETE Anthropology 020 and attain a grade of no less than 65 percent in that course. They will also be required to complete the equivalent of at least four senior Anthropology courses in the second and third years.

The Department also offers a concentration in Anthropology with a specialization in Linguistics. This specialization requires Anthropology 20 plus four courses or equivalents in Linguistics. These may include Anthropology 141, 245a/246b, 335a/336b, and either Anthropology 325a/326b or an approved course offered in another department. Before beginning a specialization in Linguistics, the student should consult the booklet "Course Offerings in Linguistics" which can be obtained at the Department office.

GENERAL COURSES

020. Introduction to Anthropology. A survey of the basic concepts and methods of Anthropology with topical consideration of questions such as the development of man's capacity for culture, the study of culture history, the comparative study of social systems, languages, religions, and other institutions. The ethnography of various societies is discussed.
2 hours lecture, 1 hour discussion.

HONORS PROGRAM

Requirements for Admission: First year general program (Arts, Social Sciences, or Sciences) with Anthropology 020 and four other courses as principal courses. Continuance in the honors Anthropology program is in accordance with University regulations. Students who fail to meet these requirements will be allowed to continue with Anthropology as an area of concentration in the general program. Not all of the courses shown may be offered in 1974-75. Students should obtain a copy of "Course Offerings in Anthropology for 1974-75" from the Departmental Office before selecting their courses.

SECOND YEAR

Principal Courses

Anthropology 200, 250 and two other 200 level courses or equivalents

Subsidiary Courses

Three approved options

THIRD YEAR

Principal Courses

Anthropology 300, either 250 or 350, and one other 200 or 300 level full course or equivalent

Subsidiary Courses

Three approved options

FOURTH YEAR

Principal Courses

Anthropology 400, 430a, 431b, 450

Subsidiary Courses

Two approved options

HONORS COURSES

141. General Linguistics. This course provides an introduction to the discipline of Linguistics. Topics covered will include basic tenets of modern linguistic theory, properties of communication systems, the evolution of human languages and the interrelation between language and culture. This course serves as a prerequisite for subsequent Linguistics courses in this program.
3 hours lecture.

200. Traditional Societies. Intensive study of a single society or community with emphasis on the holistic character of their social and cultural life.
Prerequisite: Anthropology 020 or consent of Instructor.
4 hours.

210a. Native Cultures. Intensive study of a single local or regional culture with emphasis on development of the cultural system.
Prerequisite: Anthropology 020 or consent of Instructor.
4 hours.

220b. Anthropological Profiles. Intensive study of the contributions of a single individual or group of anthropological scholars to the discipline. The course will consist of reading and evaluating the works of some individual or "school," together with the comments of their principal critics.
Prerequisite: Anthropology 020 or consent of Instructor.
4 hours.

230a. Prehistoric Societies. A study using archeological materials, of the nature and development of prehistoric societies.
General topics such as culture contact, culture change, ecological adaptation, and prehistoric social organization will be examined, with extensive illustrations from the relevant literature.
Prerequisite: Anthropology 020 or consent of Instructor.
4 hours.

231b. Prehistoric Economies. An investigation will be made of the settlement and subsistence systems of prehistoric societies in various regions of the world. Topics to be studied will include the evolution of economic systems, the ecological adaptations of various cultures, the effects of environmental change, the social correlates of various subsistence systems and the nature and function of trade. Although the emphasis will be on archaeological materials, historical and modern societies will also be examined.
Prerequisite: Anthropology 020 or consent of Instructor.
4 hours lecture.

245a (Former 320a). Topics in Language and Culture. Culture is investigated using linguistic methods and techniques. Topics include: the analysis of lexical sets, cognitive categories, language as a symbolic communicative process.
Prerequisite: Anthropology 020 or consent of Instructor.
4 hours.

246b (Former 320a). Topics in Language and Society. An investigation of the interrelationship between language and social structure with particular attention to linguistic differentiation on this basis and the direction of language change. The speech of minority groups will be investigated.
Prerequisite: Anthropology 020 or consent of Instructor.
4 hours.

250. Workshop in Anthropology. A problem oriented course focusing on a subject that is of current interest to staff members and students. This course is open to all Honors Anthropology students and to others with consent of the Department Chairman.
Prerequisite: Anthropology 020.
3 hours.

260a (Former 330a). Native Peoples of Canada. A survey of the traditional lifeways of the autochthonous peoples of Canada including the development of major cultural differences between these and their social and cultural adaptations.
Prerequisite: Anthropology 020 or consent of Instructor.
4 hours.

261b (Former 331b). Contemporary Natives of Canada. A survey of the conditions under which native peoples live in modern Canada, including consideration of their intercultural contacts with whites, acculturation to greater Canadian society, the development of a pan-Indian culture, and the current problems facing Indians in living in the present era. The course serves in part as a vehicle through which local native peoples can present their own interpretation of their traditional ways and air their views on contemporary Indian problems.
Prerequisite: Anthropology 260a or consent of Instructor.
4 hours.

300. Topics in Social Anthropology. A discussion of the models used by social anthropologists to analyze traditional social systems. Some attention may be given to the application of these models to complex societies.
Prerequisite: Anthropology 200 or consent of Instructor.
4 hours.

310. Topics in Archeology. An examination of the techniques used to obtain and analyze information in archeology, together with some of the major theoretical contributions to that field. Topics include the role of ecology in shaping prehistoric societies and the effects of their social compositions.
Prerequisite: Anthropology 230a or consent of Instructor.
4 hours.

325a (Former 420a). Readings in Anthropology.
Prerequisite: Anthropology 200 and consent of Instructor.

326b (Former 421b). Special Topics in Anthropology.
Prerequisite: Anthropology 200 and consent of Instructor.

335a. Historical Linguistics. This course provides an introduction to comparative linguistics. Issues to be discussed will include the study of historical relationships, reconstruction of proto-languages and the implications of lingustic reconstructions for culture history. Current theoretical issues, such as the nature of sound change will also be discussed.
Antirequisite: Anthropology 235b
Prerequisite: Anthropology 241 or consent of Instructor.
4 hours.

336b. The Study of a Non-Indo-European Language. The phonologi-

cal and lexical-grammatical systems of a non-Indo-European language are studied. Selected aspects of the language are analyzed in terms of current problems in linguistic theory.
Prerequisite: Anthropology 241 or consent of Instructor.
4 hours lecture.

350. Seminar in Anthropology. A research oriented course focusing on a topic formulated by individual students. This course is required of honors Anthropology students and others with the consent of the Department Chairman.
3 hours.

400. Anthropological Thought. Exploration of the application of general theoretical models to the synthesis of anthropological thought.
Prerequisite: Anthropology 300 or consent of Instructor.
4 hours.

430a (Former 410a). Supervised Research.
Prerequisite: Anthropology 300 or consent of Instructor.
4 hours.

431b (Former 411b). Methods and Techniques.
Prerequisite: Anthropology 300 or consent of Instructor.
4 hours.

450. Colloquium in Anthropology. A joint faculty-student seminar.
3 hours.

DEPARTMENT OF ECONOMICS

Chairman and Associate Professor:
J. C. Leith, BA Toronto; MS, PhD Wisconsin
Telephone: 3592, 3593
Departmental Office: Room 4071, Social Science Centre

PROFESSORS EMERITI: Harvey, Inman, Reilly. PROFESSORS: Bodkin, Burley, Courchene, Melvin, Patinkin, Reuber, Wonnacott. ASSOCIATE PROFESSORS: Berry, Leith, Saraydar. ASSISTANT PROFESSORS: Avio, Baumann, Bhatia, Blomqvist, Boyer, Burgess, Carter, Clark, Davies, Dick, Frankena, Fried, Gaudet, Haessel, Haites, Howitt, Johnson, Ketchum, Kuch, Markusen, May, McFetridge, Palmer, Parai, Plourde, Rao, Scheffman, Smith, Toda, Woodward. LECTURERS: Bosch-Domenech, Olson, Osberg, Romer, Vermeeren.

GENERAL PROGRAM

All students who wish to make Economics their area of concentration will be required to take any four senior Economics courses. Students who may plan later to enroll for a two-year MA program are required to take Economics 130 and 133.

Students who have received credit for Economics 137 prior to 1971-72 may not receive credit for Economics 149. Students who have received credit for Economics 130 prior to 1970-71 may not receive credit for Economics 133. Honors courses are generally restricted to students in the Honors Economics program. However, with permission of instructors, general students in limited numbers will be allowed to enroll in Honors courses. Students will not be given credit for both Honors courses and Pass courses which are equivalent.

GENERAL COURSES

020. Introduction to Economics. National income, unemployment and inflation; distribution of income; balance of payments and the exchange rate; the competitive firm, profit maximization and monopoly; supply and demand with applications to the minimum wage, agricultural programs and rent control; the government's role in

regulating business, stabilizing the economy and transferring income to the poor.
Antirequisite: Economics 021.
3 lectures.

021. Introduction to Economics. A mathematical treatment of introductory economics. Topics covered are the same as those in Economics 020.
Antirequisite: Economics 020.
Prerequisite: A 020 level Mathematics or Applied Mathematics course.
3 lectures, 1 optional tutorial hour.

130. Intermediate Microeconomic Theory. A survey of microeconomic theory including theories of the firm, consumer behavior, market organization, distribution and welfare.
Antirequisite: Economics 230 (if both 130 and 133 have been taken).
Prerequisite: A 020-level Economics course.
3 lectures.

131. International Trade and Finance. A discussion of the principles of international economics and their application to contemporary problems in the international economy.
Antirequisite: Economics 351
Prerequisite: A 020-level Economics course.
3 lectures.

132. Soviet Economics. Theory and practices of socialist economies in comparison with capitalism. Topics include the introduction to Marxian economics, theories of centralized planning, the institutions and the current reforms in the USSR and Eastern Europe, the development of the Chinese economy.
Prerequisite: A 020-level Economics course.
3 lectures.

133. Money and Income. A course in intermediate macroeconomic theory and policy. Topics will include national accounts, income determination, banking theory and practice, monetary theory, stabilization policies in closed and open economies.
Antirequisite: Economics 230 (if both 133 and 130 have been taken).
Prerequisite: A 020-level Economics course.
3 lectures.

135. Introduction to Econometrics. Introduction to statistics and econometrics including such topics as index numbers, time series analysis, probability, sampling theory, estimation theory, hypothesis testing, simple and multiple regression models.
Antirequisite: Economics 255; see also Statistics page in Academic Programs and Policy section of Calendar.
Prerequisite: Economics 020 and a 020-level Applied Math or Mathematics course, or Economics 021, or permission of the instructor.
3 lectures.

136. Labor Economics. A survey of labor economics and industrial relations. Topics include labor force participation, the demand for labor, unemployment, wage determination, poverty and the distribution of income, the history of the trade union movement, the economics of trade unions, labor law, and labor relations.
Antirequisite: Economics 336.
Prerequisite: A 020-level Economics course.
3 lectures.

137. Economic History of Canada. An analysis of the strategic factors determining growth and welfare in Canada's past from colonial times to the present. Topics include the staple trades, transportation, industrialization, regional growth and the emergence of a national market, and the public-private mix of institutional arrangements.
Antirequisite: Economics 337 (Formerly 437).
Prerequisite: A 020-level Economics course.
3 lectures.

138. Economic Development. A review of the principles of economic development and their application to contemporary problems.

Antirequisite: Economics 370 (Formerly 470).
Prerequisite: A 020-level Economics course.
3 lectures.

139. Regional Economics and Fiscal Federalism. An analysis of theoretical and policy issues relating to Canada's regions. Topics will include regional income disparities, manpower policies, incentives for industrial location, intergovernmental tax-sharing agreements, the theory of intergovernment grants.
Antirequisite: Economics 339 (if both 139 and 145 have been taken).
Prerequisite: A 020-level Economics course.
3 lectures.

140. Seminar in Economic Policy. A discussion of policy issues of current interest.
Antirequisite: Economics 200 or 300.
Prerequisite: Economics 130 or 133.
3 seminars.

143. Public Finance. A survey of the role of government, the economic effects of taxes and public expenditures, fiscal policy for stability and growth and intergovernmental relationships.
Antirequisite: Economics 363 (Formerly 463).
Prerequisite: A 020-level Economics course.
3 lectures.

144. Income Distribution and Poverty. A course on the distribution of income and wealth, economic causes of inequality and poverty, and economic measures to achieve a more equal distribution. Topics include: Neoclassical and radical economic theories of income distribution, education, discrimination, theories of the state and the political economy of inequality, and economic critiques of capitalism and socialism.
Antirequisite: Economics 148 (Formerly 48).
Prerequisite: A 020-level Economics course.
3 1-hour lectures per week.

145. Urban Economics. A policy-oriented analysis of the economic problems of cities. Topics include urbanization, location of economic activity in cities and suburbanization, housing and slums, transportation and congestion, pollution, urban poverty, crime, and fiscal problems.
Antirequisite: Economics 339 (if both 139 and 145 have been taken).
Prerequisite: A 020-level Economics course.
3 lectures.

147. The International Economy in Historical Perspective. A study of the emergence of the international economy in the late nineteenth century, its contraction during the inter-war years, and the attempts at revival since 1945.
Prerequisite: A 020-level Economics course.
3 lectures.

148. Special Topics in Economics. Topics to be announced in Departmental calendar supplement.
Prerequisite: A 020-level Economics course.
3 lectures.

149. Economic History of the United States. An historical analysis of the economic development of the United States since about 1790. Topics include labor and the economy, the role of government, transportation, the evolution of a national market, technological change, the structure of industry, savings and capital formation, agriculture, industrial concentration, and economic fluctuations.
Antirequisite: Economics 397 (Formerly 497).
Prerequisite: A 020-level Economics course.
3 lectures.

HONORS PROGRAMS

Requirements for Admission

First Year General Program (Arts, Social Science or Science) with a 020-level Economics, a 020-level Mathematics or Applied Mathematics 022, and one other course as principal courses.

Students who receive a grade of 70 or higher in a 020-level Mathematics or Applied Mathematics course will be encouraged to take Economics 241 in the second or third year; those students who receive a grade of 75% or higher are encouraged to take Mathematics 254 in the second or third year.

In a special case of a student who has not taken a recommended Mathematics course in his first year, the Department may grant conditional entry into the second year of the Honors program provided that the 020-level Mathematics or Applied Mathematics 022 requirement is met in the second year.

Students already in the program, and who in 1974-75 are in their final year, will be required to take five courses in the manner prescribed, and will not be allowed to offer any course completed in their second or third year for credit in their fourth year.

Second Year

Principal Courses

Economics 230, 255 and Economics 200 or 237

Subsidiary Courses

Two options

Third Year

Principal Courses

Economics 340, 360

One other Honors Economics course at the 300 or 400 level

Subsidiary Courses

Two options (which may include any Honors Economics course)

Fourth Year

Principal Courses

Economics 400

Two other Honors Economics courses at the 300 or 400 level

Subsidiary Courses

Two options (which may include any Honors Economics courses)

ECONOMICS WITH GEOGRAPHY OPTIONS

Requirements for Admission

First Year General Program (Arts, Social Science or Science) with Economics 020 or 021, Geography 020, and a 020-level Mathematics or Applied Mathematics 022 as principal courses

Second Year

Principal Courses

Economics 230 and 255

Two of Geography 230, 232, 241, 345

Subsidiary Courses

One option

Third Year

Principal Courses

Economics 340 and 360

One other Honors Economics

Two Geography courses at the 300- or 400-level in consultation with Geography Department

Fourth Year

Principal Courses

Economics 400

Two other Honors Economics

One Geography course at the 300- or 400-level in consultation with Geography Department

Subsidiary Courses

One option

NOTE: Economics 339 must be taken in either the third or fourth years. Economics 255 must not be duplicated in the selection of Geography courses.

ECONOMICS WITH HISTORY OPTIONS

Requirements for Admission

First Year General Program (Arts, Social Science or Science) with a 020-level Economics course, a 020-level History course and one other as principal courses. It is recommended that a 020-level Mathematics course or Applied Mathematics 022 be taken.

Second Year

Principal Courses

Economics 230, 237 and either Economics 255 or another Honors Economics course

One Honors History course

Subsidiary Courses

One option

Third Year

Principal Courses

Economics 340

One of Economics 437, 447, 497 and one other Honors Economics course

Two Honors History courses

Fourth Year

Principal Courses

Economics 360, 400 and one of 437, 497, 447

Two Honors History courses

ECONOMICS WITH MATHEMATICS OPTIONS

Requirements for Admission

First Year General Program (Arts, Social Science or Science) with a 020-level Economics course, and Mathematics 024, 027 or Applied Mathematics 020 as principal courses.

Second Year

Principal Courses

Economics 230, 255

Mathematics 250 and 256 or 278

Subsidiary Courses

One option

Third Year

Principal Courses

Economics 340, 360

One other Honors Economics course at the 300 or 400 level

Mathematics 355, 363

Fourth Year

Principal Courses

Economics 400

Two Honors Economics courses at the 300 or 400 level

Mathematics 453

Subsidiary Courses

One option

ECONOMICS WITH POLITICAL SCIENCE OPTIONS

Requirements for Admission

First Year General Program (Arts, Social Science or Science) with Economics 020 or 021, Political Science 020 or two half courses in Political Science at the 020 level, and a 020-level Mathematics course or Applied Mathematics 022 as principal courses.

Second Year

Principal Courses

Economics 230 and 255

Two Honors Political Science in consultation with the Political Science Department

Subsidiary Courses

One option

Third Year

Principal Courses

Economics 340 and 360

One other Honors Economics

Two Honors Political Science in consultation with the Political Science Department

Fourth Year

Principal Courses

Economics 400

Two other Honors Economics

One Honors Political Science in consultation with the Political Science Department

One option

NOTE: Political Science 230 and 237 must be taken in the second or third year. Economics 463 must be taken in the third or fourth year. Economics 255 must not be duplicated in the selection of Political Science courses.

HONORS COURSES

Honors courses are generally restricted to students in the Honors Economics program. However, with permission of instructors, general students in limited numbers will be allowed to enroll in Honors courses.

Students who have received credit for Economics 437 prior to 1971-72 may not receive credit for Economics 497. Mathematics 135 may not be credited as a subsidiary course in the Honors Economics program. Students will not be given credit for both Honors courses and Pass courses which are equivalent.

200. Introductory Seminar in Economic Policy. The analysis of contemporary problems and discussion of the relevance of economic principles and policies to deal with these problems. The topics of discussion depend upon current problems and interest of the students.
Antirequisite: Economics 140 (Formerly 40).
Prerequisite: A 020-level Economics course.
2 seminars.

230. Economic Theory. An outline and survey of microeconomic and macroeconomic theory, taught at an intermediate level.
Antirequisites: Economics 130 and 133 (Both). Credit for one may be held.
Prerequisite: A 020-level Economics course.
3 lectures.

237. The Economic History of the Modern World. A study of the economic history of major nations in the recent past concentrating on Europe, North America, and the development of the emerging nations in more recent years. Topics include changing attitudes to international economic cooperation.
Prerequisite: A 020-level Economics course.
2 lectures.

241 (Former 41). Principles of Mathematical Economics. An introduction to the principles of mathematical economics (linear and matrix algebra, differential calculus, maximization, constrained maximization, implicit differentiation, and differential equations). Applications to economic problems include the Keynesian model, supply and demand analysis, production functions, and indifference curves.
Antirequisite: Mathematics 254.
Prerequisites: Economics 020 and a 020-level Mathematics or Applied Math course, or Economics 021.
3 hours lecture, 1 seminar.

255. Introduction to Econometrics. Introduction to statistics and econometrics including such topics as probability, random variables, sampling, estimation theory, hypothesis testing, simple and multiple regression models, serial correlation, and estimation of systems of equations.
Antirequisite: See Economics 135.
Prerequisite: A 020-level Economics, and a 020-level Math or Applied Math course.
3 lectures.

300. Intermediate Seminar in Economic Policy. An introduction to techniques of economic research with emphasis on their application to policy issues.
Antirequisite: Economics 140 (Formerly 40).
Prerequisite: Economics 230.
2 seminars.

336. Labor Economics. A study of the labor market, wage determination and the relationship among wages, employment and prices.
Antirequisite: Economics 136 (Formerly 36).
Prerequisite: Economics 230.
3 lectures.

339. Regional-Urban Economics. Theoretical and policy issues relating to Canadian cities and regions. Urban topics include urban growth, location of economic activity in cities, housing, urban transportation, pollution. Regional topics include industrial location, regional income disparities, migration, fiscal federalism.
Antirequisites: Economics 139 (Formerly 39) or Economics 145 (Formerly 45).
Prerequisite: Economics 230.
3 lectures.

340. Intermediate Macroeconomic Theory. An analysis of general equilibrium models of national income and the price level in both a static and dynamic context. The aims and techniques of macroeconomic policy will be discussed with respect to employment, inflation and growth.
Prerequisite: Economics 230.
3 lectures.

351. International Trade and Finance. Topics to be covered include the pure theory of international trade, the theory of balance of payments adjustment, stabilization policies for open economics, the economic consequences of various commercial policies, and the problem of international liquidity.
Antirequisite: Economics 131 (Formerly 31).
Prerequisite: Economics 230.
3 lectures.

360. Resource Allocation and Economic Welfare. An intensive survey of microeconomic theory, including theories of the firm, consumption, market organization, distribution and welfare.
Prerequisite: Economics 230.
3 lectures.

400. Senior Seminar in Economic Policy. An analysis of economic policy issues of current interest.
Prerequisite: Economics 340.
2 seminars.

410. Mathematical Economics. A course designed to give the student the ability to use the basic tools of static mathematical economics.
Prerequisite: Economics 360 or permission of the instructor.
3 lectures.

433. Advanced Monetary Theory and Policy. A detailed analysis of the foundations of monetary theory as well as a survey and analysis of recent advances in both monetary theory and policy.
Prerequisite: Economics 340.
2 lectures.

334 (Former 434). Industrial Organization. An application of basic microeconomic theory to areas such as firm size and structure, price discrimination, resale price maintenance, advertising, innovation, foreign ownership, etc. Part of the course will be devoted to the objectives and performance of Canadian antitrust policy.
Prerequisite: Economics 230.
2 lectures.

337 (Former 437). Economic History of Canada. An analysis of selected topics concerned with growth and welfare in the Canadian past. Topics include the role of theory and measurement in economic history, colonial economic growth, industrialization, the development of a national economy, and the public-private mix of institutional arrangements.
Antirequisite: Economics 137 (Formerly 37).
Prerequisite: Permission of the instructor.
2 seminars.

347 (Former 447). The Economic History of Europe. A study of economic change in Europe since the eighteenth century, with special reference to the economic history of England, France and Germany. Topics include: the problems of transforming traditional societies and the creation of a sophisticated manufacturing sector; the economics of imperialism; and the growth of the international economy.

Prerequisite: Permission of the instructor.
2 seminars.

350 (Former 450). History of Economic Thought. Survey of economic theories of earlier thinkers, with emphasis on the topics of value and distribution, money, aggregate income determination, growth and development, and scope and method. Course commences with ancient economic thought, surveys the medieval scholastics and then focuses on developments in the last three centuries.
Prerequisite: Economics 230 or permission of the instructor.
2 lectures.

355 (Former 455). Econometrics. Development of statistical ideas and concepts as employed in testing economic theories. First term is devoted to the classical regression model and second term to developments and extensions. Topics covered include serial correlations and simultaneous equation systems.
Prerequisite: Economics 255 or permission of the instructor.
3 lectures, 1 tutorial hour.

363 (Former 463). Public Finance. An economic analysis of the role of government in a market economy. The principles of resource allocation in the public sector, cost-benefit analysis, and topics in taxation will be examined in a Canadian setting.
Prerequisite: Economics 143 (Formerly 43).
3 lectures.

370 (Former 470). Economic Development. A policy-oriented application of economic theory to problems of developing countries. Topics include peasant and commercial agriculture, industrialization and foreign trade, development planning, income distribution, unemployment, population, and education.
Antirequisite: Economics 138 (Formerly 38).
Prerequisite: Economics 230.
3 lectures.

397 (Former 497). Economic History of the United States. The historical development of economic activity in the United States since 1790. Lectures and student discussion papers focus on the evolution of the national market during the nineteenth century and changes in the urban, industrial and agricultural sectors during the twentieth century.
Antirequisite: Economics 149 (Formerly 49).
Prerequisite: Permission of the instructor.
2 lectures.

399 (Former 498). Current Topics in Economics. An analysis of current problems in the national and international economy.
Prerequisite: Permission of the instructor.
2 lectures.

499. Special Topics in Economics. An analysis of selected problems in resource allocation.
Prerequisite: Permission of the instructor.
2 lectures.

DEPARTMENT OF GEOGRAPHY

Chairman and Professor:
W. Warntz, BS, MA, PhD Pennsylvania.
Telephone: 3428
Departmental Office: Room 2433, Social Science Centre

PROFESSORS: Hossé, Nelson, Nicholson, Packer, Philbrick, Pleva, Warntz.
ASSOCIATE PROFESSORS: Bjorklund, Day, Goodchild, Janelle, Langtvet, McDa-

niel, Taylor, Whebell, Wightman. ASSISTANT PROFESSORS: Butler, Cecil, King, Luckman, Smith, Troughton, White. LECTURER: Fieguth. Curator of the Map Library: S. A. Sauer.

GENERAL PROGRAM

General BA students wishing to elect an area of concentration in Geography must consult with the Department.

020. Introduction to Geography. A systems introduction to Geography; investigation of the spatially interacting systems within the limits of human habitability.
2 lectures, 2 hours practical work.

130. Process of Landscape Development. Examination of the landscape of selected Canadian regions with particular emphasis on the relationship between climate and the geomorphic processes which are presently active. Some attention will be given to the role of man in altering the natural landscape.
Antirequisite: Geography 230
Prerequisite: Geography 020 or permission.
2 lectures, 2 hours practical work.

131. Cartology. The study of maps, map makers and map making techniques. A review of the development of maps and mapping with special reference to techniques and inventions in mapping, survey and printing from primitive maps to computer maps.
Antirequisite: Geography 241.
Prerequisite: Geography 020 or permission.
2 Lectures, 2 hours Practical Work..

132. The Geography of Culture. Theory, exemplification, and application of models of perception, the processes of culture, and the formation of regional cultures.
Antirequisite: Geography 232.
2 lectures, 2 hours practical work.

133. Introduction to Urban and Regional Development and Planning. Spatial aspects of structure and growth of cities and urban systems. Processes and principles of land use planning for urban and regional development in Canada. Current issues and relevant case studies.
2 lectures, 1 hour tutorial.

135. Environment, Resources and Planning. Study of human use of and impact on landscape, with emphasis on Canada; the interpretive model integrates ecology, strategies and institutional arrangements, perception and attitudes and technology.
Field trips and report, 2 hours lecture, 1 hour tutorial.

137. Geography of Developing Countries. An examination of the environmental, human and economic factors that interact in developing countries. Systematic analysis of spatial aspects of urbanization, industrialization, agriculture, resources, population and related factors. Special emphasis is placed on the implications of change. Spatial concepts and models are used to study the development process, and reference is made to selected case studies.
Prerequisite: 1 course in Geography or permission.
2 lectures, 2 hours of seminar/workshop.

139. Elements of Economic Geography. A conceptual interpretation of the factors influencing the spatial distribution of economic activities, present and future.
Antirequisite: Geography 339.
2 lectures, 2 hours practical work.

140. Political Geography. The human geography basis of the world's territorial divisions: concepts, selected regional examples, and some applications.
Antirequisite: Geography 340 (Formerly 440).

Prerequisite: 1 course in Geography.
2 lectures, 1 hour tutorial.

145. Geography of North America. The geographic basis of human occupance in North America with particular attention to regional analysis and practical case studies. The natural wealth of North America and its conservation through wise development and use.
Antirequisite: Geography 345.
Prerequisite: Geography 020 or permission.
2 lectures, 2 hours practical work.

146. World Regional Geography. A systematic analysis of the major environments with emphasis on problems of resource use. Regional samples are analyzed in detail emphasizing culture and cultural progression. Practical work includes map analysis and seminars on selected problems.
Antirequisite: Geography 346.
Prerequisite: 2 courses in Geography or permission.
2 lectures, 2 hours practical work.

147. Geographical Aspects of North American History. An introduction to the main themes of the historical geography of North America to 1900, with special attention in the second term to the detailed attributes of these themes as applied to Southern Ontario.
Antirequisite: Geography 347 (Formerly 447).
Prerequisite: 2 courses in Geography (preferably Geography 020) or permission.

HONORS PROGRAM

Requirements for Admission.

First year General Program (Arts, Social Science or Science) with Geography 020 and any two others as principal courses. A student who wishes to enter Second Year and has not taken Geography 020 will cover a prescribed reading program during the summer before Second Year, pass a written and/or oral examination during the first week of lectures in September, complete the laboratory exercises for Geography 020 during the academic year and write the Geography 020 Spring examination.

SECOND YEAR

Principal Courses

Geography 200, 230, 232, 241

During the first two years the following courses must be completed: Economics 020 or 021, Geology 020 or 021.

Options must be selected in consultation with a Departmental Adviser.

Subsidiary Courses

Two options

THIRD YEAR

Principal Courses

Geography 339, 343y

Two of: Geography 345, 346, another 300-level Geography course

Subsidiary Courses

Three options. One of these options may be a Geography course.

FOURTH YEAR

Principal Courses

Geography 443y (half course), 448 (half course), 490 (one and one-half courses)

One of: Geography 330, 331, 332, 333, 334, 335, 337, 439, 340, 347, 400, 451

One of: Geography 451, 360, 361, 362, 363, 364, 365, 366, 367, 368

Subsidiary Courses

One option

HONOURS COURSES

200. Quantitative Methods in Geography. Methods of analyzing geographical data; an introduction to statistical methods.
Antirequisite: See Statistics page in Academic Programs and Policy section of calendar.
Prerequisite: Geography 020;
A 020 level mathematics, applied mathematics or computer science course is strongly recommended in the first year.
2 lectures, 2 hours practical work.

230. Physical Geography. Studies of the environmental factors, meteorology, climatology, geomorphology, hydrology, vegetation, and soils, their interrelationships, techniques of measurement and classification.
Antirequisite: 130 (Formerly 30).
Prerequisite: Geography 020 or equivalent.
2 lectures, 2 hours practical work.

232. Cultural Geography. An introduction to the spatial behavior of different cultures, the cultural processes occurring among people, and the conceptual and theoretical framework for interpretation.
Antirequisite: 132 (Formerly 32).
2 lectures, 2 hours practical work.

241. Cartographic Representation and Photo Interpretation. Scales and projections, map making, surveying on the ground and from the air, official and professional maps, cartographic specialties. Techniques in the use of air photos in geographic analysis.
Antirequisite: 131 (Formerly 31).
Prerequisite: Geography 020 or permission.
1 hour lecture, 4 hours practical work.

339. Economic Geography. An analysis of the spatial organization of economic activity, together with a critical examination of the analytic methods of the subject.
Antirequisite: 139 (Formerly 39).
Prerequisite: Geography 200 or permission.
2 lectures, 2 hours practical work.

343y. Field Methods and Practices. Departmental field camps and field trips as arranged.
Sessions and hours by arrangement, (half course).

345. Geography of North America. A detailed analysis of the regional geography of North America, case studies and type areas; special attention to major geographical regions shared by Canada and the United States.
Antirequisite: 145 (Formerly 45).
Prerequisite: Geography 020 or permission.
2 lectures, 2 hours practical work.

346. World Regional Geography. A systematic analysis of the major environments with emphasis on problems of resource use. Regional samples are analyzed in detail emphasizing culture and cultural progression. Practical work includes map analysis and seminars on selected problems.
Antirequisite: 146 (Formerly 46).
Prerequisite: 2 courses in Geography or permission.
2 lectures, 2 hours practical work.

400. Information Structures in Geography. An examination of the structures of data specifically related to geography and the methodology used in spatial data display and analysis techniques. Practical exercises in the use of computing equipment to produce maps and manipulate spatial entities. Geographic information systems in use by Government and research groups will be discussed.
Prerequisite: Geography 200 and a computing course or permission.
2 lecture hours, 2 laboratory hours.

330 (Former 430). Meteorology and Climatology. The meteorological processes of climate classification, regional climate, microclimatology, climatic change, and applied climatology.
Prerequisite: Geography 230 or permission.
2 lectures, 2 hours practical work.

331 (Former 431). Geomorphology. Examination of recent periodical literature with particular emphasis on geomorphic process and current research techniques.
Prerequisite: Geography 230 or permission.
2 lectures, 2 hours practical work.

332 (Former 432). Advanced Cultural Geography. Seminar lectures and discussions towards the development of quantitative theoretical world cultural geography.
Prerequisite: 3 courses in Geography, including Geography 232.
2 lectures, 2 hours practical work.

333 (Former 433). Urban Geography. Systems of cities; urban land use; social, cultural and political patterns within the city; urban problems.
Prerequisite: 2 courses in Geography or permission.
2 lectures, 2 hours practical work.

334 (Former 434). Agricultural Geography. Identification and study of the components of the agricultural system; emphasis on the level of the operational farm unit; models of agricultural location, land use and decision making; the development of agricultural classifications; projects investigating the local farm system and changes taking place in agricultural and related rural activities.
Prerequisite: 2 courses in Geography or permission.
2 lectures, 2 hours practical work.

435. Introduction to Resources Geography. Human use of and impact on mineral, soil, biotic, water and other resources. A critical review of selected theory and practice with emphasis on the effects of technology.
Prerequisite: A 300-level Geography course or permission.
2 lectures, 2 hours practical work.

336 (Former 436). Soil Geography. An examination of soils as three-dimensional natural bodies. The factors affecting soil formation and areal differentiation. The processes giving rise to soil profile development. Techniques of soil classification, horizon nomenclature and soil survey, and their practical applications.
Prerequisite: Geography 230 or permission.
2 lectures, 2 hours practical work.

337 Recreation Geography. Examination of leisure resources, comparison of urban and rural recreational land use patterns; the areal and seasonal variations in intensity of use of land; case studies of the impact of recreation upon various areas.
Prerequisite: A 300-level Geography course or permission.
2 lectures, 2 hours practical work.

439. Advanced Economic Geography. Methods of Regional analysis; introduction to spatial futuristics.
Prerequisite: Geography 339 or permission.
2 lectures.

340 (Former 440). Advanced Political Geography. Examination in depth of selected aspects of political geography with special reference to applications of current theories and models.

Prerequisite: 3 courses in Geography.
2 lectures, 2 hours practical work.
Not offered 1974-75.

443a. Field Methods and Practices. Departmental field camps and field trips as arranged; special studies and practical problems in field techniques.
Mandatory for Fourth Year Honors.
Sessions and hours by arrangement, (half course).

347 (Former 447). Historical Geography. Studies and methodological approaches to historical geography with special reference to Ontario.
Antirequisite: 147 (Formerly 47).
Prerequisite: 2 courses in Geography or permission.
2 lectures, 2 hours practical work.

448a. Senior Seminar in Geography. An examination of the methodology of Geography. Of central concern are diverse interpretations of the field and various problems of explanation in Geography.
Mandatory for Fourth Year Honors.
Two hours seminar, Half course.

490 (Former 450). Senior Report. A report on a geographical problem including the results of field work, cartographic representation, and a study of the relevant literature.
Restricted to and mandatory for Fourth Year Honors..
Hours by arrangement, (One and one-half courses).

451. Tutorial in Geography. An advanced reading course in a regional or systematic field of interest to the student. Normally, the student should have taken, during his Third Year, the relevant 300 level lecture course in the field of interest.
Prerequisite: Permission of the instructor in the field of interest. (No exam).

SENIOR STUDIES IN THE REGIONAL GEOGRAPHY OF SIGNIFICANT WORLD AREAS

360 (Former 460). Current Issues in Canadian Geography. Geographical problems in the regional and national development of the human and natural resources of Canada.
Prerequisite: 3 courses in Geography or permission.
2 lectures, 2 hours practical work.

361 (Former 461). United States. A study of the geographic factors in the regional development of the United States; a systematic analysis of the overall occupance and economy with ten detailed type studies of selected areas to illustrate problem solving techniques.
Prerequisite: 3 courses in Geography or permission.
2 lectures, 2 hours practical work.

362 (Former 462). Latin America. Regional study of economic and cultural geography; analysis of economic, cultural and political development in the Latin American context.
Prerequisite: 3 courses in Geography or permission.
2 lectures, 2 hours practical work.

363 (Former 463). Western Europe. A systematic analysis of the regional geography of Western Europe; type studies.
Prerequisite: 3 courses in Geography or permission.
2 lectures, 2 hours practical work.

364 (Former 464). U.S.S.R. and Eastern Europe
(Not given 1974-75).

365 (Former 465). Middle East (Southwest Asia and North Africa)
(Not given 1974-75).

366 (Former 466). Africa
(Not given 1974-75).

367 (Former 467). Australasia and the Pacific. An examination of the growth and structure of regional systems in Australia, New Zealand and associated areas of the Pacific. Selected sub-regional areas will be discussed in detail, and some comparisons with North America will be noted.
Prerequisite: 3 courses in Geography or permission.
2 lectures, 2 hours practical work.
(Not given 1974-75).

368 (Former 468). South, East and Southern Asia (Particularly India, China, Japan)
(Not given 1974-75).

DEPARTMENT OF HISTORY

CHAIRMAN AND ASSOCIATE PROFESSOR:
J. N. Thompson, BA McMaster; MA, PhD Princeton
Departmental Office: Room 4328, Social Science Centre
Telephone: 3645

PROFESSORS EMERITI: Dorland, Ferguson, Maine, Overton. PROFESSORS: Balderston, Kerr, Lander, Rowe, Talman, Zaslow. ASSOCIATE PROFESSORS: Armstrong, Dreyer, Emerson, Flaherty, Guinsburg, Gwynne-Timothy, Hilborn, Hohner, Hyatt, McLaughlin, Metcalf, Neary, Ogelsby, Ruud, Steele, Stockdale, Zoltvany. ASSISTANT PROFESSORS: Avery, Emery, Hahn, Metzger, Pospielovsky, Santosuosso, Sea, Simpson. LECTURERS: Alcorn, McCullough, Soranaka.

FIRST YEAR COURSES

Any course in the History 020 series *fulfills the first-year principal* course requirement in History leading to a General or Honors History program. Only one History course at the 020 level may be taken. No particular History 020-series course is a prerequisite for any senior History course. History 021, History 022, History 023, History 024, History 026, History 027, History 028, and History 029 are courses with limited enrollment.

020. Modern Europe. 1715 to the Present. Analysis of the evolutionary and revolutionary development of Modern Europe, with intensive treatment of the great landmarks in the formation of Western society and culture./Staff
3 hours.

021. Totalitarianism in the 20th Century. A study of totalitarian systems, 1917 to the present, with emphasis on Nazism and Soviet Communism. The course will examine the similarities and differences of Nazis, Communists and Italian Fascists both in theory and in practice and with respect to foreign policy as well as domestic affairs.
Lectures and discussion.
(Limited enrollment)./Hilborn.
3 hours.

022. The Enlightenment: 18th Century European Social and Intellectual History. A study of the Age of Reason and its social setting. The course will deal with the works of various British, French, and German thinkers and with the cultural elites to which they belonged./Emerson
3 hours.

Not offered, 74-75.

023. An Introduction to the Study of American History: Selected Problems. Studies in the critical use of historical sources, problems in research and writing, and readings on the nature of historical inquiry. Intensive study of selected topics, such as the American Revolution, the dream of opportunity, ethnic identity and assimilation, urbanization, and global politics.
(Limited enrollment)./Hohner.
3 hours.
Not offered 74-75.

024. Selected Problems in American History. An examination of specific historical events and the controversies which have developed around them in an effort to explore the principal themes of American history. Through extensive use of primary source materials, the course will also focus on such problems as verification and the proper use of evidence. Procedural emphasis will be on discussions and written exercises.
(Limited enrollment)./Simpson.
3 hours.

025. Canada: A Survey, From the Beginning of the French Regime to the Present. Not open to students holding credit for History 231./Staff
3 hours.

026. The Two World Wars. An examination of the causes, course and consequences of the First and Second World Wars, stressing comparison of the two conflicts. Students will be asked to consider a variety of historical analyses of both wars and to study the process of interpretation as well as events.
(Limited enrollment)./Hyatt.
3 hours.

027. Ethnic Groups and the Problems of Racism in Canadian Development, 1600-1970. Role of major ethnic groups in the development of Canadian society. Basic themes will include relations between Amerindians and Europeans, between English and French, and among the established population (both English and French) and immigrants of diverse origins.
(Limited enrollment).
3 hours.

028. Asian Revolutions. A comparative analyses of the revolutionary experiences of China, Japan, and Southeast Asia. Emphasis on the kinds of revolutions which these areas had and are having, the way different kinds of Western imperialism affected these revolutions and the process by which their traditional civilizations modernize.
(Limited enrollment)./Soronaka.
3 hours.

029. The Duel for Empire: Anglo-French Colonial Rivalry, 1688-1904.
(Limited enrollment)./Gwynne-Timothy.
3 hours.

GENERAL COURSES

General BA students wishing to elect an area of concentration in History must earn credit in four senior history courses.

Students in programs other than History who wish to take a History option may take any History general course except those from which they are excluded by prerequisites.

The Department of History offers numerous combined courses intended equally for students in the 15-course (General) BA and Honors BA programs. To obtain credit towards a 15-course degree, students need not achieve a standard higher than that required in general courses. Since the courses have Honors status, however,

general students who complete them with at least B standing will enjoy an advantage should they wish to transfer to the Honors program.

These combined courses are:

205-209. Military and Strategic Studies

231. Canada

236. Europe and England

220. China

221. Japan

222. Modern Southeast Asia

225. British Social History

238. Latin America

240. Modern Italy

348. Selected Topics in Latin American History

356. Modern Germany

372. The Reformation

381a. International Relations since 1943

382b. International Relations since 1943

383b. Revolutionary War in International Politics

These courses are open to students in the 15-course (General) program without special permission. Any other Honors course may be taken with the Instructor's permission.

See descriptions of these Honors courses for details.

All courses numbered 150 and above will have limited enrollment.

After completion of second year, a General student who wishes to enter the third year as an Honors student in History may be granted Honors credit, on a recommendation of the Instructor approved by the Chairman of the Department and the Dean of Social Science, for any General History course above the 020 level in which the student has performed with distinction (normally, a good B grade).

130. Mediaeval Europe. From the 4th to the 15th Centuries./Lander
Antirequisite: History 230 (Formerly 330).
3 hours.

132. England to 1688. An introduction to English history from the Anglo-Saxons./Balderston
3 hours.

133. British Empires. A comparative study of the theory, practice, and legacy of British Imperialism in America, India, and Africa./Steele
3 hours.

134. The United States, Colonial Period to the Present. Emphasis first term upon the emergence of the American nation, the equalitarian impulse, national expansion and sectional conflict; second term, upon the great transformations of the modern era: the growth of industrialism, big government, a pluralistic society, and international predominance./Flaherty, Simpson, Hohner
Antirequisite: History 234.
3 hours.

135. England since 1688. English political, social, economic, and diplomatic development./Dreyer
Antirequisite: History 235 (Formerly 335).
3 hours.

136. British Society 1688-1832, as seen by Men of Letters. An examination of the use of literary documents for historical purposes. Defoe, Richardson, Fielding, Smollett, Hume,

Johnson, and Jane Austen will be among the authors studied./Emerson
3 hours.

137. A History of Russia From the Earliest Times through the Soviet Period. An introductory course which analyzes the principal political, social, economic, and cultural issues of the course of Russian and Soviet history. Emphasis on the modern period./Pospielovsky
Antirequisite: History 237.
3 hours.

141. Post-Confederation Canada, 1867-1972. Emphasis on important topics such as the settlement of the west, French-English relations, and Canadian-American relations. (Not to be taken simultaneously with History 231)./Staff
Antirequisite: History 233.
3 hours.

149. Responses to Western Dominance. A comparative examination of salient themes in the history of South and Southeast Asia and Tropical Africa. The course will discuss selected examples of indigenous systems and their response to Western expansion, the nature and effect of Western dominance, and aspects of continuity and discontinuity with tradition in the rise of new nationalisms. Stress will be laid on non-western interpretations of the historical processes./Radcliffe
3 hours.
Not offered, 74-75

150. Urbanization in Canadian Development 1759-1914. The course will concentrate on Eastern Canada before Confederation. Topics will include causes and stages of urban evolution, inter-urban rivalries, city planning and architecture, and the evolution of trade and business connections. In addition, the rise and continuity of urban elites will be examined.
Prerequisite: A survey course in Canadian history which includes the pre-Confederation period./Armstrong
3 hours.

151. Canadian Party Politics, 1867-1957.
Antirequisite: History 360.
Prerequisite: History 025 or 231 or 141 or 233 or permission of the instructor.
3 hours.
Not offered, 74-75.

152. Canadian Social History. The Impact of Industrialization, 1870-1960./Avery
Antirequisite: History 362.
Prerequisite: History 025 or 231 or 141 or 233 or permission of the instructor.
3 hours.

153. French Canada in the Modern Period. A survey history of French Canada from 1791 to the present with special emphasis on the changing character of nationalism from the period of Papineau to that of the Quiet Revolution./Zoltvany
3 hours.

160. Selected Topics in American History./Staff.
Prerequisite: History 134 or 234, or permission of the instructor.
3 hours.

Not offered, 74-75.

161. The United States, 1841-1901: The Prelude to Modern America.
Prerequisite: History 134 or 234, or permission of the instructor.
3 hours.

Not offered, 74-75.

62. The United States in the 20th Century. A survey of American history, 1901 to the present, with emphasis upon political, social, and economic developments. Intensive examination of selected topics in seminar./Hohner
Antirequisite: History 444.
Prerequisite: History 134 or 234, or permission of the instructor.
3 hours.
Not offered 1974-75.

170. Selected Topics in European History.
3 hours.
Not offered, 74-75.

171. Mediaeval Europe.
Antirequisite: History 330.
3 hours.
Not offered, 74-75.

174. Modern France since 1815./Gwynne-Timothy.
Antirequisite: History 346.
3 hours.

HONORS PROGRAMS

HISTORY

Requirements for Admission. First Year General Program (Arts, Science or Social Science) with a 020-level History Course and two other courses as principal courses.

TYPE A CERTIFICATE IN HISTORY

A student who wishes to qualify for a Type A certificate in History should consult the Registrar of Althouse College.

COURSE REQUIREMENTS FOR AN HONORS DEGREE IN HISTORY

Nine (9) Honors courses in History as principal courses and six (6) options, approved by the Department, must be taken over the second, third and fourth years. A normal program is three honors courses in history and two options each year. The nine Honors courses in History must include History 234, History 236, one course in Canadian history at the 200 level, and at least one course at the 400 level. Not more than two (2) additional 200 level courses may be taken, except as options if the Department approves. History 234, History 236 and the 200 level course in Canadian history must be completed before entering fourth year. One of the Honors courses (other than History 236) taken in third or fourth year must be in the field of British or European history. A student not in fourth year can take a 400 series course only with approval of the instructor.

NOTE: Classical Studies 275 (Greek and Roman History) can be offered as a principal course in the Honors History program.

In selecting options, students intending to pursue graduate studies should bear in mind that a language other than English is generally required for the MA and that two languages other than English are generally required for the PhD. Not more than three courses in Military and Strategic Studies may be counted towards a degree. Students interested in a more detailed study of Russian history are advised to take the following sequence: History 331, 226, 339 instead of History 237. Students in Honors programs other than History but in the Faculty of Arts or the Faculty of Social Science, may take as an option any History course except those from which they are excluded by prerequisites or by limitation of enrollment. Students interested in the History of Science and Medicine should consult the offerings of that Department listed at the beginning of the Faculty of Social Science section of the calendar.

SECOND YEAR

Principal Courses

A 200-level Canadian History course, 234, 236

Subsidiary Courses

2 options

THIRD YEAR

Principal Courses

Three honors courses in History

Subsidiary Courses

2 options

FOURTH YEAR

Principal Courses

Three Honors courses in History

Subsidiary Courses

2 options

HISTORY AND ECONOMICS

The Department of History offers a combined honors program with the Department of Economics that enables students to emphasize either (i) mathematical and theoretical economics or (ii) economic history.

I. Requirements for Admission. First Year General Program (Arts, Science or Social Science) with a 020-level History course, Economics 020 and Mathematics 020 or 024 as principal courses. ***History Courses.*** Students are required to take History 236 and either 231 or 234 before the end of the third year. In addition, they are to take two honors courses in modern European history and two honors courses in modern North American history before the end of the fourth year. ***Economics Courses.*** Students are required to take Economics 230 and 255 in the second year; 340 and one other honors Economics course, to be selected in consultation with the Department, in the third year; and 360 plus one other honors Economics course in the fourth year. Optional Courses. One unrestricted option is permitted in each of the second, third and fourth years.

II. Requirements for Admission. First Year General Program (Arts, Science or Social Science) with a 020-level History course, Economics 020 and one other as principal courses. Either Mathematics 020 or 024 is strongly recommended. ***History Courses.*** Students are required to take History 236 and either 231 or 234 before the end of the third year. In addition, they are to take two honors courses in modern North American history and two courses in modern European history before the end of the fourth year. ***Economics Courses.*** Students are required to take Economics 230 and 237 in the second year; a third-year Economics course in the third year; plus Economics 437 Economics 447 and one further honors Economics course in the third and fourth year. Optional Courses. One unrestricted option is permitted in each of the second, third and fourth years.

HISTORY AND FRENCH

Requirements for Admission. First Year General Program (Arts, Science or Social Science) with French 020, a history course at the 020 level, and one other course as principal courses.

Second Year. Three courses chosen from the History 200 and 300 series. (A student who chooses to proceed in honors history, with or without concentration in French, must complete History 234, History 236, and a course in Canadian History at the 200 level before entering fourth year.) French 271 and 290.

NOTE: On successful completion of second year, students may choose to continue in the normal Honors History program, or in Honors French language and literature (with the possibility of concentration in History), or in Honors History with concentration in French. For Honors French language and literature (with concentration in History), see the listings of the Department of French.

Honors History (with concentration in French) third and fourth years: students will be expected to meet all the requirements of the normal Honors History program, with the additional requirement that one of their third or fourth year courses must be chosen from History 336, 346, 361 (unless one of these courses has been completed in second year).

Two courses in French must be chosen from the following: French 232, 370, 380, 381, 396. One course is to be taken each year.

Two options, one to be taken each year.

HISTORY AND GERMAN

Requirements for Admission. First Year General Program (Arts, Science or Social Science) with a 020-level History course and German 020 or 022 and one other course as principal courses. After the First Year the program consists of a total of at least fifteen courses, a minimum of seven honors German courses, seven honors History courses and one option.

NOTE: There is to be a total of seven German honors courses in the three senior years. Students are normally required to take the three language courses German 291, 391, and 491. Students fully proficient in spoken and written German are required to include as their only language course, German 491. A comprehensive examination in the spring, designated as German 495, is recommended in addition to the seven German honors courses for all students planning to do graduate work in German.

SECOND YEAR

Principal Courses

History 231, 236

German 290 and either 291, 391 or 491

Subsidiary Courses

One option (an additional German or History course may be selected).

THIRD YEAR

Principal Courses

Two of History 230, 235, 226, 346, 356

Three of German 233, 299, 391, 220, 210, 270, 294, 480, 481, 482

FOURTH YEAR

Three of History 230, 226, 356, 436, 460

Two of German 233, 299, 391, 220, 270, 294, 280, 481, 482

HISTORY AND PHILOSOPHY

Requirements for Admission. First Year General Program (Arts, Science or Social Science) with three principal courses including Philosophy 020, if taken, and a History course at the 020 level. With the permission of the Philosophy Department, a student who has not taken Philosophy 020 may enter this program. After the first year, this program requires a minimum of six honors Philosophy courses, six honors History courses and three options. Some of these options may be additional Philosophy or History courses, and probably should be in the case of a student contemplating graduate work.

The Philosophy courses must include: Philosophy 254, taken in second year; at least one 400 level Philosophy course. The History courses must include at least four 300 or 400 level History courses. History 231 and 236 are recommended, but not required, in second year.

For the rest, the student makes his own selection of courses in consultation with the Departments, and with their approval. The normal load is five courses each year including two honors Philosophy and two honors History courses. Additional courses may be taken with the approval of the Departments. All honors Philosophy and History courses taken in any year will be considered principal courses. A student who wishes to qualify for a Type A certificate in History must choose additional honors or general History courses as options after consultation with the Registrar of Althouse College.

HISTORY AND RUSSIAN

See Russian and History, Russian Studies Section, Faculty of Arts.

HISTORY AND THE HISTORY OF SCIENCE

Requirements for Admission. First Year General Program (Arts, Science or Social Science) with a 020-level History course and a 020-level course in a science or mathematics, and one other principal course. After the first year, students are required to take six honours courses in history, four honours courses in history of science, including History 414, one course in a science at level 200 or above, one additional course in any of the preceding areas, and three unrestricted options.

Second year: History 200 is recommended as one of the history of science courses.

Third and Fourth year: History of science courses should be chosen from 210a/b, 310a, 312b, 314a, 316b, 318b, 420.

Fourth year: 414 is required. See Faculty of Science for course descriptions. Each student should define a special area of concentration within which he investigates some historical developments related to a science whose modern aspect he has also studied, and should select at least one of his history courses so that it is related in time and place to these developments. The area of concentration can be developed by a combination of choices of courses and of individual projects within the Departmental seminar. In case the student chooses to concentrate on the history of a social science or on a topic such as the development of scientific institutions, the science requirements can be met by courses in the social science appropriate to such a program.

OTHER COMBINED PROGRAMS

In addition to formal Combined Programs, other combinations may be arranged by Honors students in consultation with the departments concerned.

HONORS COURSES

Students in Honors programs other than History who wish to take a History option may take any History course except those from which they are excluded by prerequisites.

200. The History of Scientific Thought (Science 200). A survey of scientific thinking from Babylonian Science to the beginning of the 20th century./Plotkin
3 hours.

205-209. Military and Strategic Studies: Selected Topics. A lecture course also open to students in the general program. One course in the series will be offered each year. Consult the History Department for details of the current offering./Visiting Professor of Military History.
3 hours.

231. Canada. From the beginning of the French Regime to 1957. Open to students in the general program./Staff

Antirequisite: History 025.
3 hours.
May not be taken in the same year with History 141 (Formerly 41)..

232. Canada: From the Beginning of the French Regime to Confederation.
3 hours.
May not be taken in the same year with History 231..

233. Canada: From Confederation to the Present./Staff.
Antirequisite: History 141 (Formerly 41).
3 hours.
May not be taken in same year with History 231.

234. The United States, Colonial Period to the Present. Emphasis first term upon the emergence of the American nation, the equalitarian impulse, national expansion and sectional conflict; second term, upon the great transformations of the modern era: the growth of industrialism, big government, a pluralistic society, and international predominance./Flaherty, Simpson, Hohner.
Antirequisite: History 134 (Formerly 34).
3 hours.

236. Europe and England in the 16th and 17th Centuries. Open to students in the general programing./Metzger, Sea.
3 hours.

237. History of Russia-USSR. From the early beginnings (pre-historical, Kievan, and later) through the Soviet period, but with emphasis on the pre-18th century period of Russian history. Pospielovsky
Antirequisite: History 137 (Formerly 37).
3 hours.

Classical Studies 275. Greek and Roman History. This course, taught by the Department of Classical Studies, can be taken for Honors History credit as a principal course.
Antirequisite: Classical Studies 140 or 141.

220 (Former 320). Survey of Chinese History. The political, economic, social and cultural history of China from prehistoric times to the present. Open to students in the general program./McCullough
3 hours.

221 (Former 321). Survey of Japanese History. The political, economic, social and cultural history of Japan from prehistoric times to the present. Open to students in the general program./Soranaka
3 hours.

222 (Former 322). The History of Modern Southeast Asia. The traditional political systems of the area, the course of western involvement and the development of colonial control, Southeast Asian responses to this challenge, and the resulting processes of change that led to the emergence of the modern nations of Southeast Asia. Open to students in the general program./Radcliffe
3 hours.
Not offered, 74-75.

230 (Former 330). The High Middle Ages. Charlemagne to the end of the 13th Century./Rowe
Antirequisite: History 130 (Formerly 30) or 171 (Formerly 71).
3 hours.

225 (Former 332). British Social History, 1660-1820. A study of changing social structures and the emergence of new elites. Open to students in the general program./Emerson
3 hours.

223 (Former 333). The First British Empire. Seminar on selected areas; Elizabethan expansion to the American Revolution./Steele
Antirequisite: History 133 (Formerly 33).
3 hours.

226 (Former 337). Russia. The 18th, 19th and early 20th centuries.

with emphasis on intellectual history. The course culminates with a detailed study of the events of 1917./Ruud
3 hours.
Not offered, 74-75.

235 (Former 335). England, 1715-1914. A study of English history in the 18th and 19th centuries, stressing as a central theme the development of the modern state. The course will be based mainly on the writings of the following contemporary authors: Locke, Bolingbroke, Burke, Adam Smith, Paine, Bentham, James Mill, Engels, Robert Owen, Newman, and the Fabian Essayists.-/Dreyer
Antirequisite: History 135 (Formerly 35).
3 hours.

238 (Former 338). Latin America. An introduction to Latin America. The first term emphasizes the colonial foundations of Spanish and Portuguese civilization in the New World; the second term emphasizes the growth of the individual republics, personalist rule, federalism vs. centralism, revolution, and the 'static society'. Open to students in the General Program./Ogelsby
3 hours.

240 (Former 340). History of Modern Italy. Revolution, counter-revolution, and democracy, 1789-1946. Nationalism, liberalism, socialism, and fascism in Italy from the origins of the movement of unification to the collapse of the Fascist regime. The great personalities of the period, i.e., Mazzini, Garibaldi, Cavour, and Mussolini. Lectures and discussion. Open to students in the general program./Santosuosso
3 hours.

331. A History of Russia from its Pre-historical Beginnings to the 18th Century. The old Russian culture, the Church, the State and the Russian Society of the period, and the early beginnings of Russian political thought. The aim of the course is to introduce the student with a serious interest in Russia and its history to its spiritual, cultural, political, and social roots./Pospielovsky
3 hours.

334. Foreign Policy of the United States since 1775. A study of the interaction between domestic forces—ideological, political, and economic—and external forces in the development of United States foreign policy./Guinsburg
Prerequisite: History 134 or 234, or permission of the instructor.
3 hours.

336. Absolutism and Society. France and Spain, ca. 1550-1700. A seminar on the social causes and consequences of absolutism in 16th and 17th century France and Spain-/Metzger
Prerequisite: History 372, 236 or permission of the Instructor.
3 hours.

339. The Soviet Union. Social, political, intellectual, cultural, and economic history of the USSR, beginning with a detailed study of the Russian revolutions of the 20th century.
Prerequisite: One previous course in Russian history, or permission of the instructor./Pospielovsky.
3 hours.

343. American Social History. A systematic study of the structural evolution of America from polycentric Colonial times into a modern integrated society. Emphasis is on the examination of various social units in history including families, kin-groups, communities, elites, etc./Alcorn
Prerequisite: History 134 (Formerly 34) or History 234 or permission of the instructor.
3 hours.

344. The United States, 1783-1877. The Development of the American Nation. The framing of the Constitution, the emergence of political parties, the growth of nationalism and sectionalism, the impact of equalitarianism, and the disintegration and

restoration of the Union./Simpson
Prerequisite: History 134 or 234, or permission of the instructor.
3 hours.

346. France, 1715 to the Present. The social and political structure of eighteenth century France and its collapse, the revolutionary and Napoleonic impact, the conflict between order and liberty in the nineteenth century, social rifts and political instability, and the new balance of forces under the Fifth Republic after 1958. Lectures, seminars, and book discussions./McLaughlin
Antirequisite: History 174 (Formerly 74).
Prerequisite: One Senior History Course or Permission of the instructor.
3 hours.

348. Selected Topics in Latin American History. The "ABC Powers": An analysis of the growth of Argentina, Brazil, and Chile from their foundation to the present./Ogelsby
Prerequisite: One Senior History course or permission of the instructor. Open to general students.
3 hours.

352. English Constitutional History. A study of the development of the English Constitution from the Anglo-Saxons to the present./Balderston.
Prerequisite: One previous course in History or permission of the instructor.
3 hours.

356. Modern Germany, 1815 to the Present. Open to students in the general program./Hahn
Prerequisite: One Senior History Course or permission of the instructor.
3 hours.

360. The Evolution of Canadian Political Parties 1867-1968. An examination of the factors which have influenced party politics in Canada (including economic nationalism, continentalism, imperialism, regionalism, industrialism and urbanism)./Neary
Antirequisite: History 152 (Formerly 52).
Prerequisite: History 141 or 233 or permission of the instructor.
3 hours.

361. New France. A detailed study of the early history of French Canada: its political, legal, and religious institutions, socio-economic organization, territorial expansion, and its evolution during the first half century of British rule./Zoltvany
Prerequisite: History 025, 231, 233 or permission of the instructor.
3 hours.

362. Selected Problems in Canadian Social History. Class, ethnicity, religion, industrialization and other features of Canadian society since 1800./Emery.
Antirequisite: History 152 (Formerly 52).
Prerequisite: History 025, 231, 233 or permission of the instructor.
3 hours.

363. The Development of Western Canada. /Zaslow
Prerequisite: History 025 or 231 or permission of the instructor.
3 hours.

372. The Reformation. An examination of the religious upheavals of the 16th century with emphasis on the interplay between ideas and their socio-economic context. Open to students in the general program./Sea
Prerequisite: History 236 or permission of the instructor.
3 hours.

378a. European International Relations, 1871-1918./Hahn.
Prerequisite: One Senior History Course or permission of the instructor.
3 hours, Half course.

379b. European International Relations, 1919-1939./Hahn.
Prerequisite: One Senior History Course or permission of the instructor.
3 hours, Half course.

381a. International Relations since the Dissolution of the Comintern, 1943 to the Present. A survey. Lectures and discussions. Open to students in the general program./Hilborn
Prerequisite: One Senior Course in History or Political Science or permission of the instructor.
3 hours, Half course.

382b. Selected Problems in International Relations, 1943 to the Present. Emphasis is on such topics as the Berlin crises, the strategic arms race, Rhodesia and other issues in southern Africa, Sino-Soviet relations and U.S. policies towards China and Cuba. Offered in alternate years. Open to students in the general program./Hilborn
Prerequisite: History 381a or permission of the instructor
3 hours, Half course.

383b. Revolutionary War in International Politics, 1943 to the Present. Emphasis on Southeast Asia. Lectures and seminars. Offered in alternate years. Open to students in the general program./Hilborn
Prerequisite: One Senior Course in History or Political Science or permission of the instructor.
3 hours, Half course.
Not offered, 74-75.

490 (Former 400). Senior Thesis. With permission of the Department.

405-409. Seminar in Military and Strategic Studies: Selected Topics. One course in the series will be offered each year. Consult the History Department for details of the current offering./Visiting Professor of Military History.
Prerequisite: One Senior History Course, or permission of the instructor.
3 hours.

410. Urban Development. A survey of the city in history from the earliest times to the present, concentrating on the city in western civilization using such key cities as London and Rome. Attention will be given to the geographic and economic backgrounds, planning and architecture and the problems of size and character./Armstrong
Prerequisite: One Senior History Course or permission of the instructor
3 hours.
Not offered, 74-75.

420. The Intellectual History of China. An intensive study of the major intellectual currents in Chinese history from Confucius to Mao. Emphasis on understanding the role of philosophy in Chinese government and society, as well as on the ideas which have shaped China's civilization./McCullough
Prerequisite: History 139 or 339 or 320, or permission of the instructor.
3 hours.
Not offered, 74-75.

421. Modern Japan. The development of Japan from a feudal society in the nineteenth century to its place as one of the world's leading industrial nations to-day. Emphasis will be on the analysis of economic, social and political change leading to and after the Meiji Restoration which altogether made this transformation possible. The impact of this change on the thought and everyday lives of the Japanese people will also be analyzed./Soranaka
Prerequisite: History 139 or 339 or 221, or permission of the instructor.
3 hours.

431. Canada since 1867. Selected topics and seminar discussions./Kerr
Prerequisite: History 231 or 233 or permission of the instructor.
3 hours.

432. England, 1399-1642. A political, social and constitutional study of England from the 15th century to the mid-17th century./Lander
Prerequisite: One Senior History Course or permission of the instructor.
3 hours.

433. The Second British Empire and Commonwealth./Gwynne-Timothy.
Prerequisite: One Senior History Course or permission of the instructor.
3 hours.

434. The United States, 1841-1901. The Prelude to Modern America. Economic, social, and constitutional developments against the general background of the period.
Prerequisite: History 134 or 234, or permission of the instructor.
3 hours.

435. Slavery in the Atlantic World, 1500-1860. Topics include origins of the British slave trade, the planter-slave societies of the New World, effects of the trade upon the peoples of west Africa, profits of the trade to the metropolitan powers, abolition, aftermath./Metcalf
Prerequisite: One Senior History Course or permission of the instructor.
3 hours.

436. Selected Topics in European Intellectual History 1660-1900.
Prerequisite: History 236 or permission of the instructor.
3 hours.
Not offered, 74-75.

442. The Opening of the Canadian North./Zaslow.
Prerequisite: One Senior History Course or permission of the instructor.
3 hours.

444. The United States in the Twentieth Century. A survey of American history, 1901 to the present, with emphasis upon political, social, and economic developments. Intensive examination of selected topics in seminar./Hohner
Antirequisite: History 162 (Formerly 62).
Prerequisite: One Senior History Course or permission of the instructor.
3 hours.

451. Urbanization in Canadian Development, 1759-1914. The course will concentrate on Eastern Canada before Confederation. Topics will include causes and stages of urban evolution, inter-urban rivalries, city planning and architecture, and the evolution of trade and business connections. In addition, the rise and continuity of urban elites will be examined./Armstrong
Prerequisite: History 231 or 232 or 233 or permission of the instructor.
3 hours.

454. Origins of the United States. American society in the seventeenth and eighteenth centuries, including the period of settlement and the American Revolution. Lectures and discussions./Flaherty
Prerequisite: History 134 (formerly 34) or History 234 or permission of the instructor.
3 hours.

455. United States Legal History. The major developments in the history of law from the first settlements to the mid-twentieth century. Open to students in the Faculty of Law./Flaherty
Prerequisite: History 134 (formerly 34) or History 234 or permission of the instructor.
3 hours.
Not offered, 74-75.

457. Warfare. With emphasis on the relations between warfare and modern political, economic, and social conditions./Hyatt
Prerequisite: One Senior History Course or permission of instructor.
3 hours.

460. The Age of the Renaissance. Thematic approach to the intellectual, cultural, social, and political heritage of the Renaissance and its relationship to Western civilization. Emphasis on the thought and achievements of many great thinkers of the age, i.e., Leonardo, Michelangelo, Machiavelli, Thomas More, Erasmus, Montaigne, and Cervantes. The course covers

roughly the period from the second half of the fourteenth century to the beginning of the seventeenth century. Lectures, seminars and discussion of student papers. /Santosuosso
Prerequisite: One Senior History Course or permission of the instructor.
3 hours.

467. Selected Topics in Russian Political and Intellectual History.
Prerequisite: One Senior course in Russian history and permission of the instructor./Ruud/Pospielovsky
3 hours.

470. British Science and Society in the 17th and 18th Centuries. A study of the development of modern science and its impact on British society. Reading of original material will be emphasized. Lectures, class discussion, essays./Balderston
Prerequisite: One Senior History Course or permission.
3 hours.
Not offered, 74-75.

476. An Examination of English Thought and its Relation to Society, 1850-1914. Seminar essentially on source materials.
Prerequisite: Any Senior History course (preferably History 35 or 335) or permission of the instructor./Stockdale.
3 hours.

479. Britain in the 20th Century. An examination of the main features of British history from the pre-World War I period to the present. Special emphasis will be placed on the political response to new economic and social developments, the two world wars and a declining empire and world position.
Prerequisite: One Senior History course or permission of the instructor./Thompson.
3 hours.

487. Directed Readings in History. The subject will be selected by the student in consultation with an instructor of his own choice. The student will discuss his reading with the instructor and write at least one examination. Permission of the Department is required.

491-499. Specialized Historical Studies. A course on a special topic, normally taught by a visiting professor. One course in the series will be offered each year.
Consult the History Department for details of t he current offering.
3 hours.
Not offered, 74-75.

DEPARTMENT OF JOURNALISM

Chairman and Professor:
A. W. MacFarlane, BA Toronto
Telephone: 2441
Departmental Office: Room 218, Middlesex College

PROFESSORS: MacFarlane, Wild ASSOCIATE PROFESSORS: Key, Wilson ASSISTANT PROFESSORS: Bambrick, Laing, O'Connor LECTURERS (Part-time): Corfield, Drea, Heine, Lockyer, O'Neail

GENERAL COURSES

021. Survey of Mass Communication. The structure of the media of mass communication: relationship of the media to the social, economic, political and cultural environment; elements of mass communication theory; critical analysis of the media with reference to the main issues in the news.
3 hours, Lecture

131. Media Analysis. An examination of mass media functions, motives, processes, effects and feedback mechanisms; general media theories and behavioral-social hypotheses as applied to print, broadcasting and film.
Prerequisite: Journalism 021 or permission of instructor.
3 hours, Lecture

142. Theoretical Applications To Media Design, Production, Effectiveness, and Analysis. An exploration into the theoretical and critical literature which can be applied to enhance the growth, efficiency, and effectiveness of mass communication media.
Prerequisite: Journalism 021 or 131, or permission of instructor.
3 hours, Lecture, Full Course.

HONORS PROGRAM

Requirement for Admission: First Year General Program (Arts, Science or Social Science) with any four courses as principal courses.

Note: The Department of Journalism has proposed a Master's degree program. When the program is instituted, the Honors Journalism program will be phased out, beginning with second year. Students planning to enter second year Honors Journalism are advised to check with the department before registration.

Students should be proficient in typewriting by the beginning of the second year.

SECOND YEAR

Principal Courses

Journalism 250, 255y, 260y

Four options of which two must be Social Science courses.

THIRD YEAR

Principal Courses

Journalism 350, 351a, 356y, 375y

Three options of which two must be Social Science courses.

FOURTH YEAR

Principal Courses

Journalism 451, 455

Four options of which two must be Social Science courses.

DIPLOMA PROGRAM IN JOURNALISM

Requirements for Admission: A degree in a field other than Journalism from a recognized university with a graduating average satisfactory to the Department of Journalism.

The Department of Journalism has proposed a Master's degree program. When the program is instituted, the Diploma in Journalism will no longer be offered. Students planning to enter the Diploma program are advised to check first with the Department.

Candidates for the Diploma in Journalism will take the prescribed courses and complete special assignments in reporting, writing and editing.

An average of 60% is required for the Diploma.

Principal Courses

Journalism 255y, 260y, 351b, 356y, 375y, 400, 451, 455

HONORS COURSES

250. News Writing and Reporting. Introduction to the news media with emphasis on the daily newspaper; newswriting, reporting of specialized fields.
Prerequisite: Registration in the Honors Journalism program
5 Hours, Lecture, Workshop.

255y. History of Journalism. A survey of the development of journalism in the British Isles, the United States and Canada.
Prerequisite: Registration in the Honors Journalism Program
1 Hour, Lecture, Half-Course.

260y. Law for Journalists. Basic principles of the common law with special emphasis on access to news, legal guarantee, and limits of freedom of the press; defamation; contempt of court and copyright.
Half Course.

350. Interpretative News Writing and Reporting. Depth reporting; interpreting the news; reporting social developments; news analysis; reviewing the arts and critical writing; editorial and column writing.
Prerequisite: Journalism 250
4 Hours, Lecture, Workshop.

351a or b. Newspaper Production. Newsroom organization; copy editing; page makeup; survey of the mechanical phases of newspaper production.
Antirequisite: Only one of A or B may be taken for credit.
Prerequisite: Journalism 250.
5 Hours, Lecture, Workshop, Half-Course.

356y. Radio News Writing and Reporting. Comparative study of newspaper and radio writing and news treatment; writing and editing of newscasts; radio interviewing.
Prerequisite: Journalism 250
2 Hours, Lecture, Workshop, Half-course.

375y. Feature and Magazine Article Writing, Magazine Editing. Feature writing for newspapers, article writing for industrial, trade and general circulation magazines, including assignments and a study of freelancing, readership, research, interviewing, organization, rewriting, style. Elements of magazine editing and production.
Prerequisite: Journalism 250
2 Hours, Lecture, Workshop, Half-course.

400. Newswriting and Reporting. For students registered in the Diploma Program in Journalism. Writing for the mass media, the forms and style of Journalistic prose; reporting methods; news evaluation; interpretative reporting. This course is the equivalent of Journalism 250, 350.
8 Hours, Lecture, Workshop, Double course.

451. Communication Problems. Nature, function, process and effects of Communication, aspects of the mass media (newspaper, magazine, radio, film and TV), historic development, general semantics, public opinion, propaganda. Papers and projects on mass communication.
Prerequisite: Journalism 350
3 Hours, Lectures, Seminar.

455. Radio Documentaries, Television News and Documentaries. Research, interviewing, tape-recording, writing, TV-scripting; editing and producing programs with use of University closed circuit television facilities; commentary, history of Canadian broadcasting; lectures; workshops. Use of TV film camera.
Prerequisite: Journalism 356
3 Hours, Lecture, Workshop, Field Trip.

LINGUISTICS

For courses offered in the field of Linguistics see entries under the Departments of Anthropology and Psychology and a listing of all linguistics and associated language courses under the Faculty of Arts. Interested students should obtain a copy of the booklet "Course Offerings in Linguistics" from the Department of Anthropology Office, Room 3324, Social Science Centre.

DEPARTMENT OF POLITICAL SCIENCE

Chairman and Associate Professor:
B. B. Kymlicka, BA British Columbia, MA, PhD Columbia
Telephone: 3264
Department Office: Room 4114, Social Science Centre

PROFESSORS: Barnard, Beecroft, Dawson, Hossé, Pearson ASSOCIATE PROFESSORS: Cartwright, Dobell, Kymlicka, Melvin, Noel, Sansom ASSISTANT PROFESSORS: Cohn, Craig, Khanh, Hrabik-Samal, McDougall, Vernon, Westmacott LECTURERS: Murray, Bayer SPECIAL LECTURER: O'Brien LECTURERS (Part-time): Chambers, H. J. Dawson, T. Bahcheli.

*GENERAL PROGRAM

Politics 020 or two half-year courses in the Politics 021-026 range is prerequisite for all courses in Politics except Politics 130, 131, 136 and 140. Two half-year courses in the Politics 021-026 range, one in each term, fulfills the first-year requirement in Politics leading to a General or Honors Politics program. Not more than two half-year courses in the Politics 021-026 range may be taken for credit: no particular Politics 021-026 half-year course is a prerequisite for any particular senior Politics course.

Students who have earned credit for Politics 20 cannot receive credit for any of the 20-level half-year courses.

General BA students wishing to elect an area of concentration in Political Science must consult with the Department before enrolling.

GENERAL COURSES

020. Introduction to Political Science. A study of principal concepts, ideas and analytical methods of modern political science, with emphasis on the political systems of Canada, the United States and Britain.
Antirequisites: 021a-026b.
3 hours.

021a. War and Politics. An introduction to the study of politics with particular reference to the character, extent and control of international conflict.
Antirequisites: 020, 022a, 023a.
Half course (first term); 3 hours.

022a. Capitalism and Democracy. An examination of the changing patterns of industrial society in their relevance to the meaning (or change, or loss of meaning) of the concepts of capitalism and liberal democracy.
Antirequisites: 020, 021a, 023a.
Half course (first term); 3 hours.

023a. Managing the City. An examination of the roles, functions and duties of elected representatives and civic staffs with particular reference to administrative co-ordination and the planning of land use, services and utilities.
Antirequisites: 020, 021a, 022a.
Half course (first term); 3 hours.

024b. Revolution and Political Change. An examination of revolution and violence and their relationships to other methods of social and political change.
Antirequisites: 020, 025b, 026b.
Half course (second term); 3 hours.

025b. Canadian Political Issues. An introduction to political analysis through the examination of selected contemporary issues in Canadian politics.
Antirequisites: 020, 024b, 026b.
Half course (second term); 3 hours.

026b. Citizen Participation. Contemporary problems of community input into political decision-making; citizen participation in planning, policy-making and the provision of community facilities and services.
Antirequisites: 020, 024b, 025b.
Half course (second term); 3 hours.

130. Canadian Government and Politics. A survey of the government institutions and political processes of Canada.
Antirequisite: 230.
3 hours.

131. International Politics. A study of the factors governing international relations: the United Nations; the foreign policies of such countries as the USA, USSR, UK, France, China and Canada.
Antirequisite: 231.
3 hours.

136. Provincial and Local Government. The structure and processes of provincial and local government, including such subjects as provincial-municipal relations, finance, administration and principles of urban and regional planning.
Antirequisite: 236 (formerly 336).
3 hours.

138. Political Parties and Pressure Groups. An analytical and comparative study of political parties and pressure groups.
Antirequisite: 238 (formerly 338).
Prerequisite: 020 or two 020-level half courses.
3 hours.

140. The Politics of Developing Areas. A comparative analysis of social change and political process in developing areas.
Antirequisites: 239, 240, 241.
3 hours.

142. The British Political System. A study of the nature and operation of the British political system, with particular attention to the social context within which the institutions of parliamentary government function.
Antirequisite: 242.
Prerequisite: 020 or two 020-level half courses.
3 hours.

144. American Government and Politics. A study of the American Constitution, institutions of government and political processes.
Antirequisite: 244.
Prerequisite: 020 or two 020-level half courses.
3 hours.

146. Public Administration. The basic principles of public administra-

tion in the modern state, including organization, procedures and the relation of administration to policy making.
Antirequisite: 246 (formerly 346).
Prerequisite: 020 or two 020-level half courses.
3 hours.

147. History of Western Political Thought. A study of the major political thinkers from Plato to Mill and Marx.
Antirequisite: 237.
Prerequisite: 020 or two 020-level half courses.
3 hours.

148. Western European Political Systems. A comparative study of political institutions and processes in Western European democratic states.
Antirequisite: 248 (formerly 348).
Prerequisite: 020 or two 020-level half courses.
3 hours.

149. European Communist Systems. An analysis of political governmental processes in the Soviet Union and East European People's Republics.
Antirequisite: 249 (formerly 349).
Prerequisite: 020 or two 020-level half courses.
3 hours.

HONORS PROGRAM

Requirements for Admission. First Year General Program (Arts, Science or Social Science) including Politics 020 or two one-half year courses in the Politics 021-026 range. All courses will be considered principal courses in first year. Honors students must consult with the Department to ensure that their program includes a well balanced distribution of courses in the following five areas: Canadian Government, Comparative Government, International Relations, Urban and Regional Government and Political Theory .

SECOND YEAR

Principal Courses

Politics 237 and two additional honors politics courses

Two options

THIRD AND FOURTH YEARS

Five senior honors politics courses and five options

HONORS POLITICAL SCIENCE WITH FRENCH OPTIONS

Requirements for Admission. First year program (Arts, Science, or Social Science) with Politics 020 or two one-half year courses in the Politics 021-026 range, French 020 and one other course as principal courses.

SECOND YEAR

Political Science: two courses from the 200 series with 248 being strongly recommended.

French: French 271, 290

One option

THIRD AND FOURTH YEARS

Political Science: Politics 351 and five other courses, including 237 if not already taken and the balance drawn from the 300 and 400 series; with 434 being strongly recommended.

French: Two courses drawn from French 232, 338, 360, 370, 380, 381 (strongly recommended), 390, 396, Two options, one of which is to be taken each year.

HONORS COURSES

230. Canadian Government and Politics. An examination of selected problems in Canadian government and politics, such as federalism, political parties and pressure groups.
Antirequisite: 130 (formerly 30).
3 hours.

231. International Politics. A study of the factors governing international relations; the United Nations; the foreign policies of such countries as the USA, USSR, UK, France, China and Canada.
Antirequisite: 131 (formerly 31).
3 hours.

232. Political Analysis. An introduction to the use of quantitative methods in political science; elementary statistical method, research design, and basic techniques for the measurement of political variables. Topics for consideration include the use of measurement in the explanation of political behaviour, and the application of survey research to the understanding of political attitudes and ideologies.
3 hours.

237. History of Western Political Thought. A study of the major political thinkers from Plato to Mill and Marx.
Antirequisite: 147 (formerly 47).
3 hours.

239. The Politics of Africa. A comparative analysis of social and political change in African states. Topics covered will include the formation of elites, problems of conflicting identities, and relations between African states and the industrialized nations.
Antirequisite: 140 (formerly 40).
3 hours.

240. The Politics of Asia. A critical examination of the relationships between European imperialism, nationalism and revolutionary movements in Asia, and of theories of "modernization" and "political development".
Antirequisite: 140 (formerly 40).
3 hours.
Not offered 1974-75

241. The Politics of Latin America. A comparative analysis of the formal and informal institutions of government, with emphasis also on such themes as nationalism, revolution, democracy, dictatorship, legitimacy and the left.
Antirequisite: 140 (formerly 40).
3 hours.

242. The British Political System. A study of the nature and operation of the British political system, with particular attention to the social context within which the institutions of parliamentary government function.
Antirequisite: 142 (formerly 42).
3 hours.

244. American Government and Politics. A study of the American Constitution, institutions of government and political processes.
Antirequisite: 144 (formerly 44).
3 hours.

233 (Former 333). Canadian Foreign Policy. An examination of the development and character of Canadian external policy.
3 hours.

236 (Former 336). Provincial and Local Government. The structure and political processes of provincial and local government, including such subjects as provincial-municipal relations, finance, administration, and principles of urban and regional planning.
Antirequisite: 136 (formerly 36).
3 hours.

238 (Former 338). Political Parties and Pressure Groups. An analytical and comparative study of political parties and pressure groups.
Antirequisite: 138 (formerly 38).
3 hours.

246 (Former 346). Public Administration. The basic principles of public administration in the modern state,

including organization, procedures and the relation of administration to policy making.
Antirequisite: 146 (formerly 46).
3 hours.

248 (Former 348). Western European Political Systems. A comparative study of political institutions and processes in Western European democratic states.
Antirequisite: 148 (formerly 48).
3 hours.

249 (Former 349). European Communist Systems. An analysis of political and governmental processes in the Soviet Union and East European People's Republics.
Antirequisite: 149 (formerly 49).
3 hours.

253 (Former 353). Political Theory and Industrial Society. An approach to political theory which, while focusing on contemporary links between industrialization, society and politics, also takes note of the insights of socio-political thinkers since the emergence of industrialization.
No prerequisites
3 hours.

345. International Law and Organization. A study of the principles and operations of international and regional associations such as the UN and NATO. An introduction to international law, emphasizing its relevance to the resolution of conflicts between nations.
Prerequisite: 231 or permission of the instructor.
2 hours.

350. The Government and Politics of a Selected Region of Canada. A detailed analysis of the policy and politics related to a specific region of Canada.
Prerequisite: 230 or permission of instructor.
3 hours.

351. Quebec Politics. An analysis of current political trends in Quebec in the context of comparative government theory.
Prerequisite: 230 or permission of instructor.
3 hours.

334 (Former 434). Contemporary Political Theory. A study of the chief political doctrines of the present day, such as communism, socialism, fascism and the theories associated with democracy; an analysis of concepts such as the state, liberty, authority, and theories of political behavior.
Prerequisite: 237 or permission of instructor.
3 hours.

347 (Former 447). Intergovernment Relations. A description, analysis and evaluation of the working relationships between federal, provincial and local governments in Canada. The course will focus on both the processes of interaction and the policy impact of these relationships.
Prerequisite: Politics 230 or 236.
3 hours.

352 (Former 452). Advanced International Politics. A seminar course treating theoretical aspects of international politics in the light of substantive material. Consideration will be given to a selection of normative doctrines and ideologies, conceptual frameworks and theoretical propositions as well as to epistemological and methodological questions with reference to the various modes of international action and interaction, organization and integration.
Prerequisite: Politics 231 or permission of instructor.
2 hours.

362 (Former 462). Metropolitan and Regional Government. An advanced study of the governmental structure, administration, politics, planning and financing of metropolitan and regional communities.
2 hours.

389 (Former 489). Political Psychology. An examination of selected topics in the area of political psychology including: the role of attitudes in political behaviour; political

ideology; personality and politics; political alienation; political socialization; and individual decision-making.
Prerequisite: permission of instructor.
2 hours.

481. Selected Topics in Canadian Government.
Prerequisite: a course in Canadian government or permission of instructor.
Not offered 1974-75

485. Selected Topics in Political Science
Not offered 1974-75

490. Thesis. With permission of the Department.
Thesis to be submitted by April 15 of the Fourth Year.

DEPARTMENT OF PSYCHOLOGY

Chairman and Professor:
W. J. McClelland, BA, MA Toronto; PhD London
Telephone: 3496
Departmental Office: Room 7418, Social Science Centre

PROFESSORS: Gardner, Jackson, McClelland, Mogenson, Neal, Paivio, Turner, Vanderwolf, Williams, Wright. ASSOCIATE PROFESSORS: Bucher, Chambers, Denny, Kendall, Kimura, Murray, Pederson, Pylyshyn, Reitz, Roberts, Rollman, Schnore, Siess, Simner, Taylor, Vidmar, Wilkinson. ASSISTANT PROFESSORS: Baran, Boles, Carlson, Chamberlain, Evans, Fay, Murphy, Neufeld, Norman, Pepper, Prytulak, Reberg, Siegel, J., Siegel, W., Smeriglio, Sorrentino, Spence, Stone, Uhlemann. LECTURER: Frisch.

GENERAL PROGRAM

Students in the Fifteen-Course Program who wish to graduate with an area of concentration in Psychology must receive a grade of at least 60% in Psychology 020 and earn credit in at least four Honors Psychology courses, or the equivalent in half courses. The four Honors courses must include Psychology 281; at least one laboratory course (i.e., Psychology 201a-202b or 201a-203b or 211 or 239 or any combination of 222a or 222b with one of 221a, 223b, 224b, 225a, 226b or 227b); and at least one full course (or two half courses) from the series numbered 240-279 or 340-379. General courses in Psychology may be taken as options but may not be substituted for Honors courses.

For students who officially confirmed Psychology as their area of concentration or earned credit in two or more senior Psychology courses prior to July 1, 1972, the minimum requirements for an area of concentration in Psychology are credit in Psychology 020, Psychology 281, and in any three other senior Honors or General courses in Psychology. For students who officially confirmed their area of concentration or earned credit in two or more Psychology courses prior to July 1, 1971, the minimum requirements for an area of concentration are credit in Psychology 020 plus any four senior General or Honors courses in Psychology.

HONORS PROGRAMS

HONORS PSYCHOLOGY

Requirements for Admission, Transfer, and Progression

(a) To Second Year: First Year General Program in Arts, Science, or Social Science including Psychology 020 as one course. Principal courses will include Psychology 020 plus any three other First Year courses. In addition to the above, students entering the Honors Psychology program must have credit in Grade 13 Mathematics (any two of Calculus, Algebra, or Relations and Functions); or Mathematics 010; or Applied Mathematics 022; or an equivalent mathematics course.

(b) To Third Year: A Mathematics course (as above), plus two years in any Honors or General Program which includes Psychology 020. Principal courses for second year will include all Psychology courses plus other courses to a total of four.

(c) To Fourth Year: A Mathematics course (as above), plus three years in any Honors or General Program which includes Psychology 020 and at least four Honors Psychology courses, or the equivalent in half courses. The Honors Psychology courses must include Psychology 281; at least one of Psychology 201a-202b, 201a-203b, 211, 239, or any combination of 222a or 222b with one of 221a, 223b, 224b, 225a, 226b or 227b; and at least one course from the 240-279 or 340-379 series.

(d) To achieve and maintain Honors status, a student must achieve at least a 70% average in all Honors Psychology courses taken in a given year, and a 70% average in all principal courses, with a grade no lower than 60% in any principal course. (See Faculty of Social Science General Regulations)

Second and Third Years

Principal Courses

Honors Psychology students must take five courses per year in the Second and Third Years. At least two courses per year must be Honors Psychology courses. To be eligible for admission to the Fourth Year, a student must complete Psychology 281; at least one laboratory course (Psychology 201a-202b or 201a-203b or Psychology 211 or Psychology 239 or Psychology 222a or 222b in combination with one of Psychology 221a, 223b, 224b, 225a, 226b, or 227b); and at least one full course (or two half courses) from the series numbered 240-279 or 340-379.

Fourth Year

Principal Courses

Psychology 485

Two Fourth Year level Special Topics half courses

Three additional Honors Psychology courses, including Psychology 282, if not taken previously.

A student who has previously completed Psychology 282, or who has earned credit in more than four Honors Psychology courses prior to Fourth Year, may substitute other courses for the three additional Honors courses required in Fourth Year. The total number of Honors Psychology courses for Second, Third, and Fourth Years combined must be at least nine.

HONORS PSYCHOLOGY AND PHYSIOLOGY

Requirements for Admission

First year general program (Science) with Psychology 020, Biology 020, Chemistry 020, and Physics 020 as principal courses. Applied Mathematics 020 or Mathematics 024 or 027 is recommended as an option.

Second, Third, and Fourth Years

After the first year, this program requires six full honors courses (or half course equivalents) in Psychology, seven full honors courses (or half course equivalents) in Biology/Physiology, and two full courses in other departments. The normal load is five full courses (or half course equivalents) per year. All courses taken in any year will be considered principal courses.

Second Year: Required Courses

Psychology 221a and 222a or 222b

Psychology 281

Chemistry 203

Biology 200 or 220a-221b

One of: Physics 204, 256; Applied Mathematics 020, 200; Mathematics 020, 024, 027, 250; or other course selected in consultation with program advisors.

Third Year: Required Courses

Biology 310

Biology 311

Biology 301 or 309

One full (or two half courses) from: Psychology 240 through 279 or 340 through 379

Two of: Psychology 223b, 224b, 225a, 226b, 227b (all are half course)

Fourth Year: Required Courses

Physiology 480 (students in this program will undertake a project in behavioral physiology or sensory processes as part of their experimental work in the course).

Physiology 443 or 463 (both are half courses)

Three of: Physiology 461, 462, 464, 465, 466, 467, 469 (all are half courses)

Two full course equivalents from: Psychology 223b, 224b, 225a, 226b, 227b, 211, 201a/202b, or any other Honors Psychology courses selected in consultation with program advisors.

HONORS PSYCHOLOGY AND PHILOSOPHY

Requirements for Admission

First Year General Program in Arts, Science, or Social Science with Psychology 020 and Philosophy 020 and any two other courses as principal courses. If Psychology 020 was not taken in the First Year, it must be selected as an option in the Second Year. With the permission of the Departments, a student who has not taken Philosophy 020 may enter this program.

Second, Third, and Fourth Years

After the First Year, this program requires seven Honors Psychology courses, six Honors Philosophy courses, and two options. Some of the options may be additional Psychology and Philosophy courses, and probably should be in the case of a student contemplating graduate work. The normal load is five courses per year including at least two Honors Psychology and two Honors Philosophy courses. A

student must have his course selections approved by the Departmental Advisors to the Philosophy and Psychology program. The Advisors may approve the selection of additional courses if merited by the student's performance. All Honors Psychology and Honors Philosophy courses taken in any year will be considered principal courses.

Second and Third Year

Principal Courses:

Psychology 281

One of: Psychology 201a-202b, 201a-203b, 211, 239, or any combination of Psychology 222a or 222b with 221a, 223b, 224b, 225a, 226b, or 227b.

One full-year or two half-year courses from the Honors Psychology courses numbered 240-279 or 340-379

One additional Honors Psychology course

Philosophy 254

Fourth Year

Principal Courses:

Psychology 282, if not taken previously

Psychology 485

One additional Honors Psychology course, if needed to give total of seven

One 400 level Philosophy course, if not taken previously

SPECIAL STUDENTS

Students who have successfully completed a General (Three-Year) BA program, but are not eligible to transfer to Fourth Year of the Honors Psychology program (see Fourth Year Admission Requirements above) may pursue further studies in Psychology by registering as Special Students. Special Students may enrol in any General Psychology course, but will be automatically admitted to Honors Psychology courses only if they have a graduating-year academic average of 75% (upper B range) or higher. Special Students not meeting the latter requirement may be registered in Honors courses only if they obtain written permission from individual instructors. The following Honors courses are not open to Special Students, regardless of average, except with Departmental approval: Psychology 455, 485, 408a, 418a, 419a, 428a, 429b, 438a, 439b, 447a, 449b, 457a, 458b, 468a, 469b, 478a, 479b, 488a, 489b, 498a, 499b.

If the student's goal as a Special Student is qualification for graduate training in Psychology, he is strongly advised to complete at least five Honors Psychology courses including the following specific courses, if equivalent full-year Honors courses have not been taken previously:

Psychology 281

Psychology 282

One of: Psychology 201a-202b, 201a-203b, 211, 239, or any combination of Psychology 222a or 222b with one of 221a, 223b, 224b, 225a, 226b, 227b.

The remaining two Honors courses should be in areas where no previous courses have been taken. The following "core" courses are recommended as useful preparation for graduate school: Psychology 201a, 205, 213b, 221a, 231, 241, 251, 271, 351, 353.

GENERAL COURSES

General courses are normally scheduled for three lecture hours per week. These courses are for upperclassmen who may or may not have credit in Psychology 020 or 022. Also, General courses are intended primarily for students not majoring in Psychology. They may be taken as options by students in the General or Honors Psychology programs, but may not be substituted for the Honors courses required in these programs.

020. Introduction to Psychology. An introductory survey of the methods and findings of modern scientific psychology. The following topics will be covered: history and methodology, biological psychology, sensation and perception, learning and motivation, verbal and cognitive processes, developmental psychology, social psychology, individual differences (intelligence and personality), and clinical psychology.
3 hours (2 lecture, 1 laboratory).

140 (Former 56). Child Development. A general survey of developmental psychology with special emphasis on current social issues such as early childhood education, aggression and prejudice, and the implications of current research for child rearing practices. (Formerly Psychology 36).
Antirequisites: Psychology 36, 236 or 241.
3 hours (lecture).

150 (Former 71). Human Adjustment. Theories of human adjustment and maladjustment will be considered. Major approaches to understanding personality such as psychoanalytic, humanistic, and social learning will be discussed. The various forms of maladjusted behavior will be surveyed and explanatory models for such behavior examined.
Antirequisites: Psychology 48, 79, 251, 252, 351, or 448.
3 hours (lecture).

170 (Former 64). Social Psychology. An introduction to the theories, methods, findings, and problems encountered in the study of man as a social being.
Antirequisites: Psychology 172, 271, 374a.
3 hours (lecture).

160 (Former 76). Applied Psychology. A survey of applied psychology, emphasizing the techniques of assessment, methods of behavior change, and problems in evaluation of effectiveness that are encountered by psychologists working in educational, industrial, or hospital settings.
Antirequisites: Psychology 261a or 262b.
3 hours (lecture).

100 (Former 80). The Human Animal. A non-technical survey of the applications of physiological psychology, perception, learning and cognition to everyday human behavior. Topics may include biological basis of emotion, the influences of drugs on behavior, illusions, learning, memory, thinking, and problem solving.
3 hours (lecture).

151 (Former 81). Humanistic Psychology and its Applications. Emphasis is given to the psychologies of Maslow and Rogers and their implications for personal growth and interpersonal relationships in a wide range of practical settings.
Antirequisite: Psychology 46, 354, or 446.
3 hours (lecture).

191a. Special Topics in Psychology. This one-term course will deal with selected topics of current interest in Psychology. A list of topics and course descriptions will be available at the time of registration.
3 hours (lecture-seminar). Half course, first term.
Not offered 1974-75

192b. Special Topics in Psychology. See above.
3 hours (lecture-seminar). Half course, second term.
Not offered 1974-75

HONORS COURSES

All Honors courses are scheduled for four hours each week; however, in some cases, at the discretion of the instructor, other requirements such as participation in projects or individual meetings with the instructor may be substituted for part of the formal class time.

The basic prerequisite for all Honors Psychology courses is a grade of 60% or higher in Psychology 020. Additional prerequisites for specific courses are indicated below.

Honors courses numbered between 200 and 299 are open to qualified Second, Third, or Fourth Year students, whereas courses numbered between 300 and 399 are generally available only to qualified Third or Fourth Year students, and courses numbered between 400 and 499 are generally open only to Fourth Year Honors Psychology students. Also, it should be noted that the second digit of an Honors course number indicates the general content area of the course. For example, course numbers with 0 as the second digit are in the Learning and Motivation area; similarly 1 designates courses in Sensation and Perception; 2, Physiological and Comparative; 3, Cognitive and Verbal Processes; 4, Child Development; 5, Personality; 6, Applied; 7, Social; 8, General Theory and Research Methodology; and 9, Independent Study.

LEARNING AND MOTIVATION

201a. Basic Principles of Learning. An introduction to the fundamental phenomena of instrumental learning and classical conditioning, with primary emphasis on laboratory studies of simple learning processes in animals. Major learning theories will be evaluated with repect to how well they account for laboratory findings.
Antirequisites: Psychology 35, 51a, 95, 208, or 235.
(2 lecture), (2 laboratory), 4 hours, Half course, first term.

NOTE: Psychology 201a plus either Psychology 202b or 203b constitutes a laboratory course in learning.

202b. Comparative Psychology of Learning. A comparison of the learning abilities of animals at different levels on the phylogenetic scale. Both laboratory experiments and observations of animals in natural settings will be discussed.
Prerequisite: Psychology 201a
(2 lecture), (2 laboratory), 4 hours, Half course, second term.

203b. Human Learning: Basic Principles. An examination of basic principles of conditioning and learning with special reference to human behavior. Topics will include verbal associative learning; perceptual-motor learning; transfer of training; the role of awareness, intention and motivation in human learning; and the role of simple conditioning principles in language and thought. Primary emphasis will be placed on laboratory findings rather than on practical applications.
Antirequisites: Psychology 53b, 95 or 208 or 235.
Prerequisite: Psychology 201a
(2 lecture), (2 laboratory), 4 hours, Half course, second term.

204b. Operant conditioning and behaviour modification. This course will emphasize the study of the role of the consequences of responding in the modification of human and animal behaviour. Advanced topics in operant conditioning and clinical applica-

tions of principles of reinforcement will be covered. Attention will also be given to topics in the field of stimulus control of behaviour, including clinical applications.
Antirequisite: Psychology 54b.
Prerequisite: Psychology 201a
(2 lecture), (2 laboratory), 4 hours, Half course, second term.

205. Motivation. This course will entail a detailed examination of the activating and sustaining properties of such variables as drive, sensory input, learning, perception, etc. Attention will also be given to the history of motivational concepts, antecedent conditions of drive, instinct theory, and reinforcement and incentive theories of appetitive and aversive motivational states.
Antirequisite: Psychology 50.
(2 lectures), (2 tutorial), 4 hours.

308a. Special Topics in Learning. One-term course dealing with selected topics of current interest in learning. Topics and course description will be available at registration.
Prerequisite: Third or Fourth Year Honors status, or Third Year in General Psychology program, or Special Students.
4 hours (seminar), Half course, first term.
Not offered 1974-75

309b. Special Topics in Learning. See above.
Prerequisite: Third or Fourth Year Honors status, or Third Year in General Psychology program, or Special Students.
4 hours (seminar), Half course, second term.
Not offered 1974-75

408a. Special Topics in Learning. One-term course dealing with selected topics of current interest in learning. Topics and course description will be available at registration.
Prerequisite: Fourth Year Honors status
4 hours (seminar), Half course, first term.
Not offered 1974-75

409b. Special Topics in Learning. See above.
Prerequisite: Fourth Year Honors status
4 hours (seminar), Half course, first term.
Not offered 1974-75

SENSATION AND PERCEPTION

211. Principles of Sensation and Perception. An examination, in the classroom and laboratory, of the methods, findings, and theories of sensation and perception, based on behavioral research and studies of the nervous system. The course will review how the senses function, how they interpret simple and complex forms of stimulation, and how perception is influenced by higher-order processes.
Antirequisites: Psychology 38, 61, 212a, 213b, or 338.
(2 lecture), (2 laboratory), 4 hour.
NOTE: Psychology 211 meets the requirements for a laboratory course in sensation and perception.

212a. An Introduction to Sensory and Perceptual Processes. This course will introduce the student to recent findings concerning how organisms are able to interact with their environment through the senses. Lectures, discussions, and demonstrations will cover topics such as how to study the sensory systems, what psychological and physiological research has indicated about how they function, and how perceptual abilities are affected by genetic factors, experience, other elements in the environment, drugs, and expectations.
Antirequisites: Psychology 38, 61, 211, or 338.
(2 lecture), (2 tutorial), 4 hours, Half course, first term.

213b. Perception. Experiential, motivational, and cognitive influences on perception.

Antirequisites: Psychology 38, 61, 211, or 338.
(3 lecture), (1 tutorial), 4 hours, Half course, second term.
Not offered 1974-75

315a. Perceptual Development. Perceptual capacities of the newborn infant and modification of these abilities through experience; cultural influences on perception.
Prerequisites: Psychology 211 or 212a or permission of the instructor.
2 lecture, 2 tutorial, 4 hours, Half course, first term.

316b. Perceptual Disorders. This course will examine disorders of sensation and perception, their origins, and their possible consequences. Such topics as hearing loss, blindness, attentional deficits, and reading disabilities will be covered. Special emphasis will be placed on how the study of perceptual disorders can contribute to our understanding of normal perceptual function.
Prerequisites: Psychology 211 or 212a or permission of the instructor.
2 lecture, 2 tutorial, 4 hours, Half course, second term.

318a. Special Topics in Sensation and Perception. One-term course dealing with selected topics of current interest in the areas of sensation and perception. Topics and course description will be available at the time of registration.
Prerequisite: Third or Fourth Year Honors status, or Third Year in General Psychology program, or Special Students.
4 hours (seminar), Half course, first term.
Not offered 1974-75

319b. Special Topics in Sensation and Perception. See above.
Prerequisite: Third or Fourth Year Honors status, or Third Year in General Psychology program, or Special Students.
4 hours (seminar), Half course, second term; Not offered 1974-75.

418a. Special Topics in Sensation and Perception. One-term course dealing with selected topics of current interest in the areas of sensation and perception. Topics and course descriptions will be available at the time of registration.
Prerequisite: Fourth Year Honors status
4 hours (seminar), Half course, first term.
Not offered 1974-75

419b. Special Topics in Sensation and Perception. See above.
Prerequisite: Fourth Year Honors status
4 hours (seminar), Half course, second term.
Not offered 1974-75.

PHYSIOLOGICAL PSYCHOLOGY

221a. Biological Basis of Behavior. Structure and function of the nervous system in relation to behavior; an introduction to physiological psychology. (Formerly Psychology 343).
Antirequisite: Psychology 43a, 65a, or 343.
(2 lecture), (2 tutorial-demonstration), 4 hours, Half course, first term.

222a. Research Methods in Physiological Psychology. An introduction to techniques used to investigate the neural and endocrine foundations of behavior.
Antirequisites: Psychology 222b or 343.
Prerequisite: Psychology 020.
Corequisites: for laboratory credit, must be taken with 221a, 223b, 224b, 225a, 226b or 227b.
(1 lecture), (3 laboratory), 4 hours, Half course, first term.

222b. Research Methods in Physiological Psychology. Same as 222a, *but offered in second term.*
NOTE: Psychology 222a or 222b in combination with any one of psychology 221a, 223b, 224b, 225a, 226b, or 227b constitutes a laboratory course in Physiological Psychology.

223b. Sensory Psychophysiology. Lectures and discussions on the development of sensory systems, neural coding in sensory systems, mechanisms of selective attention, and implications for human brain damage.
Antirequisite: Psychology 43b.
Corequisite: see 222a.
(2 lecture), (2 tutorial-demonstration), 4 hours, Half course, second term.

224b. Neural Basis of Cognitive Processes. Neural mechanisms in perception, spatial orientation, memory and language.
Antirequisites: Psychology 43b or 67b.
Corequisite: see 222a.
(2 lecture), (2 tutorial), 4 hours, Half course, second term.
Not offered 1974-75

225a. Animal Behavior. The course will examine the social behavior of mammals, drawing from both field and laboratory studies of reproduction, aggression, and social organization and communication.
Antirequisites: Psychology 44a or 68a.
Corequisites: see 222a.
(2 lecture), (2 tutorial-demonstration), 4 hours, Half course, first term.

226b. Neural Basis of Learning. Study of experimental findings on the role of the central nervous system in learning and memory by techniques of ablation, electrical or chemical stimulation, electrical recording, electroconvulsive shock etc.
Antirequisites: Psychology 44b or 69b.
Corequisites: see 222a.
(2 lecture), (2 tutorial), 4 hours, Half course, second term.

227b. Biological Basis of Motivation. Neural and hormonal mechanisms of motivated and emotional behavior. Topics will include the mechanisms for sleep and wakefulness, hunger and thirst, fear and rage, sexual behavior.
Antirequisite: Psychology 44b.
Corequisite: see 222a.
(2 lecture), (2 tutorial), 4 hours, Half course, second term.

328a. Special Topics in Physiological Psychology. One-term course dealing with selected topics of current interest in physiological psychology. Topics and course description will be available at registration.
Prerequisite: Third or Fourth Year Honors status, or Third Year in General Program, or Special Students.
4 hours (seminar), Half course, first term.
Not offered 1974-75

329b. Special Topics in Physiological Psychology. See above.
Prerequisite: Third or Fourth Year Honors status, or Third Year in General Psychology program or Special Students.
4 hours (seminar), Half course, second term.
Not offered 1974-75

428a. Special Topics in Physiological Psychology. One-term course dealing with selected topics of current interest in physiological psychology. Topics and course description will be available at registration.
Prerequisite: Fourth Year Honors status
4 hours (seminar), Half course, first term.
Not offered 1974-75

429b. Special Topics in Physiological Psychology. See above.
Prerequisite: Fourth Year Honors status
4 hours (seminar), Half course, second term.
Not offered 1974-75

COGNITIVE AND VERBAL PROCESSES

231. Psychology of Thinking. Theoretical and empirical studies of problem solving, reasoning, concept formation, creative thinking and cross-cultural variations in thinking processes.
Antirequisite: Psychology 445. (Formerly Psychology 445).
(2 lecture), (2 tutorial), 4 hours.

232. Minds and Machines. A review of the importance of the computer metaphor in psychology using as examples the development of information processing approaches in selected areas such as perception, memory and cognition. An examination of the contribution of computer simulation and artificial intelligence research, including a detailed study of at least one example.
Antirequisite: Psychology 86.
Prerequisite: Psychology 20 and at least one course in Computer Science, or permission of the instructor.
4 hours, (2 lecture), (2 tutorial).

233. Psychology of Language. A survey of attempts to understand the *nature of linguistic competence* and performance. Theories of language acquisition and use. Empirical studies of syntax, semantics, and pragmatics of human language. Additional topics may include theoretical and empirical investigations of the relation between language and thought, language and communication, the biological basis of language, and topics of nonverbal and nonhuman communication.
Antirequisite: Psychology 88.
(2 lecture), (2 laboratory), 4 hours.

237a. Human Information Processing. A survey of research and theory covering such topics as attention, perception, decision making, communication, and skilled performance which emphasizes the information processing level of analysis.
Antirequisite: Psychology 86.
4 hours, (2 lecture), (2 tutorial), Half course, first term.
Not offered 1974-75

238b. Memory. This course will emphasize theories and data bearing on how information is encoded, stored and retrieved in the human memory system.
Antirequisite: Psychology 88.
(2 lecture), (2 tutorial), 4 hours, Half course, second term.
Not offered 1974-75

239. A Laboratory Introduction to Cognitive and Verbal Processes. An introduction to the laboratory investigation of cognitive processes. Empirical research in the areas of perception, attention, memory, language, and problem solving will be discussed, and an attempt will be made to show how these diverse psychological processes are related to and influence one another. Students will be expected to carry out several laboratory experiments in this course in order to gain firsthand experience with experimental techniques.
(2 lecture), (2 laboratory), 4 hours, Full course.

NOTE: Psychology 239 meets the requirements for a laboratory course *in cognitive and verbal* processes.

336a. Special Topics in Cognitive and Verbal Processes. One-term course dealing with selected topics in cognition and verbal processes. Topics and course description will be available at time of registration.
Prerequisite: Third or Fourth Year Honors status, or Third Year in General Psychology program, or Special Students.
4 hours (seminar), Half course, first term.
Not offered 1974-75

339b. Special Topics in Cognitive and Verbal Processes. See above.
Prerequisite: Third or Fourth Year Honors status, or Third Year in General Psychology program, or Special Students.

4 hours (seminar), Half course, second term.
Not offered 1974-75

438a. Special Topics in Cognitive and Verbal Processes. One-term course dealing with selected topics in cognition and verbal processes. Topics and course description will be available at the time of registration.
Prerequisite: Fourth Year Honors status

4 hours (seminar), Half course, first term.
Not offered 1974-75

439b. Special Topics in Cognitive and Verbal Processes. See above.
Prerequisite: Fourth Year Honors status
4 hours (seminar), Half course, second term.
Not offered 1974-75

DEVELOPMENTAL PSYCHOLOGY

241. Developmental Psychology: Basic Principles. A general survey of theory and research in developmental psychology including learning, cognition, perception, personality, and social development in infancy and early childhood. (Formerly Psychology 236).
Antirequisites: Psychology 36, 56, 140 or 236.
(2 lecture), (2 seminar), 4 hours.

342 (Former 242). Developmental Psychology: Exceptional Children. Problems and methods in work with mentally deficient, brain-damaged, and emotionally disturbed children with emphasis on behavior abnormalities and behavior change techniques.
Antirequisite: Psychology 39, 59, 141, 242 or 243b.
Prerequisite: Psychology 241.
(2 lecture), (2 seminar), 4 hours.

344a. Developmental Psychology: Social and Emotional. Consideration of processes of socialization in infants and young children. Topics may include analysis of infant-mother interaction systems, peer relations and imitation.
Prerequisite: Psychology 241 or 236
(2 lecture), (2 tutorial), 4 hours, Half course, first term.
Not offered 1974-75

345a. Developmental Psychology: Language and Cognition. An analysis of the development of the structure and function of language, the development of cognitive processes, and theories of intellectual development.
Prerequisite: Psychology 241 or 236
4 hours, (2 lecture), (2 tutorial), Half course, first term.

346. Early Childhood Education. A survey of various approaches to early education in nursery school and day care including infant group care and compensatory education programs. Factors that may determine the influence of early education on cognitive and social development.
Prerequisite: Psychology 241 or permission of instructor.
4 hours, (2 lecture), (2 seminar-practicum).

347a. Special Topics in Developmental Psychology. An in depth analysis of research in selected areas of developmental psychology. The topic in the 1974-75 academic year will be "The Psychology of Ageing," taught by Professor Schnore.
Prerequisite: Third or Fourth Year Honors status, or Third Year in General Psychology program or Special Students.
4 hours (seminar), Half course, first term.

348b. Special Topics in Developmental Psychology. See above. The

topic for 1974-75 will be "Theory and Research Methods in the Psychology of Ageing," taught by Professor Schnore.
Prerequisite: Third or Fourth Year Honors status, or Third Year in General Psychology program, or Special Students; and psychology 347a.
4 hours (seminar), Half course, second term.

447a. Special Topics in Developmental Psychology. An in depth analysis of research in selected areas of developmental psychology.
Prerequisite: Fourth Year Honors status
4 hours (seminar), Half course, first term.
Not offered 1974-75

449b. Special Topics in Developmental Psychology. See above. The topic for 1974-75 will be "Development of Social Responsiveness in Humans", taught by Professor Simner.
Prerequisite: Fourth Year Honors status
4 hours (seminar), Half course, second term.

PERSONALITY

251. Personality Theory and Research. Research-oriented analysis of representative personality theories; examination of typical personality assessment techniques; consideration of methods and findings of research on personality. (Formerly Psychology 331 and 450).
Antirequisites: Psychology 31, 71, 94, 150, 253, 254b, 77b, 78a, 331, or 450.
4 hours (lecture/demonstration).

351 (Former 252). Abnormal Psychology. An introduction to psychopathology. General principles such as description and classification, development and dynamics, causation, evaluation, treatment, research design. Application of these principles to the analysis of the main syndromes of abnormal behavior. (Formerly Psychology 448).
Antirequisites: Psychology 48, 71, 79, 150, 352, 450 or 448.
Prerequisite: Psychology 251
4 hours (lecture/discussion).

353. Tests and Measurements. Basic considerations in the measurement of human differences, the development and use of psychological tests, and description and evaluation of typical measuring instruments. Discussion of persistent problems in the field of measurement. (Formerly Psychology 337).
Antirequisites: Psychology 37, 62, 256b or 337.
Prerequisite: Psychology 281.
(2 lecture), (2 laboratory), 4 hours.

354. Applied Humanistic Psychology. Emphasis is given to the psychologies of Maslow and Rogers and their relevance to the understanding of personal growth, interpersonal relations and behavior in groups. The student is expected to be personally involved and to examine the material in relation to his own attitudes and behavior. Opportunities for encounter and other forms of practical experience are available. (Formerly Psychology 446).
Antirequisites: Psychology 46, 81, 151 or 446.
Prerequisite: Psychology 251, declared Honors status, and permission of instructor.
4 hours, (2 lecture), (2 laboratory).

455. Undergraduate Field Work. Practical experience in the application of psychological principles to behavioral problems.
Prerequisites: Psychology 252, 351,

and Fourth Year Honors status.
Corequisite: Psychology 351 may be taken concurrently.
4 hours, (3 field work), (1 seminar).

358a. Special Topics in Personality. One-term course covering selected topics of current interest in personality. Topics and course description will be available at time of registration.
Prerequisite: Third or Fourth Year Honors status, or Third Year in General Psychology program of Special Students.
4 hours (seminar), Half course, first term.
Not offered 1974-75

359b. Special Topics in Personality. See above.
Prerequisite: Third or Fourth Year Honors status, or Third Year in General Psychology program or Special Students.
4 hours (seminar), Half course, second term.
Not offered 1974-75

457a. Special Topics in Personality. One-term course covering selected topics of current interest in personality. The topic for 1974-75 will be "Sex Differences and Sex Roles" taught by Professor Fay.
Prerequisite: Psychology 251 and Fourth Year Honors status, or permission of instructor.
4 hours (seminar), Half course, first term.

458b. Special Topics in Personality. See above. The topic for 1974-75 will be "Person Perception", taught by Professor Pepper.
Prerequisite: Fourth Year Honors status
4 hours (seminar), Half course, second term.

APPLIED PSYCHOLOGY

261a. Educational Psychology. Theories of instruction and learning. Changes in instruction relative to age, ability, motivation, and sociocultural factors. Behavioral principles applied to the educational process. Using research in modifying education.
Antirequisites: Psychology 76 or 160.
(2 lecture), (2 tutorial), 4 hour, Half course, first term.

262a. Industrial Psychology. The use of behavioral principles in industry. Problems in personnel selection, employee morale, human engineering, and organizational psychology.
Antirequisites: Psychology 76 or 160.
(2 lecture), (2 tutorial), 4 hours, Half course, first term.

Not offered 1974-75.

263b. Occupational Psychology. An appraisal of the relationship between human abilities and personality and occupational choice, performance and tenure.
(2 lecture), (2 tutorial), 4 hours, Half course, second term.
Not offered 1974-75

368a. Special Topics in Applied Psychology. Selected topics of current interest in applied psychology. The topic for 1974-75 will be "Human Stress and Anxiety", taught by Professor Neufeld. Note: this course may be counted as a fourth-year Special Topics Seminar in 1974-75 only. registration.
Prerequisite: Third or Fourth Year Honors status, or Third Year in General Psychology program, or Special Students.
4 hours (seminar), Half course, first term.

369b. Special Topics in Applied Psychology. See above.
Prerequisite: Third or Fourth Year Honors status, or Third Year in General Psychology program, or Special Students.
4 hours (seminar), Half course, second term.
Not offered in 1974-75

468a. Special Topics in Applied Psychology. Selected topics of current interest in applied psychology. The topic in the 1974-75 academic year will be "An Introduction to Counselling", taught by Professor G. Stone.
Prerequisite: Fourth Year Honors status
4 hour (seminar), Half course, first term.

469b. Special Topics in Applied Psychology. See above. The topic for 1974-75 will be "Evaluating Education-Teachers, Methods, Materials, and Students", taught by Professor Frisch.
Prerequisite: Fourth Year Honors status
4 hours (seminar), Half course, second term.

SOCIAL PSYCHOLOGY

271. Social Psychology. An introduction to the theories, methods, findings, and problems encountered in the study of man as a social being. Emphasis will be placed on laboratory and field research. Substantive areas to be covered include the following: socialization; social factors in perceptual-cognitive processes; attitudes, prejudice, and propaganda; social influence; group dynamics; leadership; intergroup relations.
Antirequisites: Psychology 49, 64, 72, 97, 170, 172, 275, or 349.
(2 lecture), (2 tutorial), 4 hours.

372a. The Psychology of Prosocial and Antisocial Behavior. The course will consider the social, situational and personality factors responsible for the occurrence of violence, aggression, and several forms of prosocial behavior. Consideration will be made of the role of frustration, social norms, the mass-media and other possible instigators of violence. Prosocial behavior will be examined with special attention being given to altruism, helping, responses to emergencies and disasters, and the socialization of children with respect to prosocial behavior. Emphasis will be placed on experimental data where this is available.
Antirequisites: Psychology 73a, 170, 172, 275, or 273a.
Prerequisites: Psychology 271.
4 hours, (2 lecture), (2 tutorial), Half course, first term.
Not offered 1974-75

373b. The Psychology of Persuasion. An examination of the many aspects of attempts to persuade others to change their attitudes and behavior. Consideration of the importance of the form of the communication, the media, the target of the communication as well as the problems of experimental control and measurement. Different persuasion contexts will be considered including advertising, brainwashing, psychotherapy, race relations and conversions. The problem of the ethics and social responsibility of persuasion attempts will also be examined. Emphasis will be placed on experimental data where these are available.
Antirequisites: Psychology 74b, 170, 172, or 273b.
Prerequisite: Psychology 271.
(2 lecture), (2 tutorial), 4 hours, Half course, second term.

374a. Social Issues (seminar). Analysis of social issues which may include such topics as urbanization, minority group relations, drug abuse, psychology and the law, and violence. Enrolment will be limited, and a major project will be required of each student.
Antirequisites: Psychology 75a, 170, 275.
Prerequisite: Third or Fourth Year

Honors status, or Third Year in General Psychology program, or Special Students.
4 hours (seminar), Half course, first term.
Not offered 1974-75

378a. Special Topics in Social Psychology. One-term course dealing with selected topics of current interest in the area of social psychology. Topics and course description will be available at time of registration.
Prerequisite: Third or Fourth Year Honors status, or Third Year in General Psychology program, or Special Students.
4 hours (seminar), Half course, first term.
Not offered 1974-75

379b. Special Topics in Social Psychology. See above.
Prerequisite: Third or Fourth Year Honors status, or Third Year in General Psychology program, or Special Students.
4 hours (seminar), Half course, second term.
Not offered 1974-75

478a. Special Topics in Social Psychology. One-term course dealing with selected topics of current interest in the area of social psychology. The topic for 1974-75 will be "An In-depth Analysis of Selected Theories in Social Psychology", taught by Professor Sorrentino.
4 hours (seminar), Half course, first term.

479b. Special Topics in Social Psychology. See above.
Prerequisite: Fourth Year Honors status
4 hours (seminar), Half course, second term.
Not offered 1974-75

THEORY AND RESEARCH METHODOLOGY

281. Research Methods and Statistics. Characteristics of science, with particular reference to psychology; research methodology and design; theory and explanation; statistical treatment of psychological data.
Antirequisites: Psychology 63, 283a, or 255. See also Statistics pages in Academic Programs and Policy section of calendar.
(2 lecture), (2 laboratory), 4 hours.

485. Advanced Research Methods. Advanced statistics and research design; discussion, preparation, and completion of Honors Thesis. (Formerly Psychology 459).
Antirequisite: Psychology 459. See 281.
Prerequisites: Psychology 281; one of Psychology 201a-202b, 201a-203b, 211, 239, or any combination of 222a or 222b with 221a, 223b, 224b, 225a, 226b, or 227b; and fourth year Honors Status.
4 hours (seminar).

282. History and Systems. A study of persistent problems in the history of psychology and an introduction to traditional systems in psychology, such as Structuralism, Functionalism, Behaviorism, Gestalt Psychology and Psychoanalysis.
Antirequisite: Psychology 234.
(2 lecture), (2 tutorial), 4 hours.

383a. Mathematical Psychology I. Topics in measurement theory, scaling, and decision theory (including signal detection theory and game theory). Applications to psychophysics and other areas of individual and group behavior.
Prerequisite: Permission of instructor; generally Psychology 281 plus one university level mathematics course.
(2 lecture), (2 tutorial), 4 hours, Half course, first term.
Not offered 1974-75

384b. Mathematical Psychology II. More specialized topics in mathematical modelling. Topics will vary from year to year and may include mathematical learning theory, information theory and human operator models, deterministic theories, including graph theoretic and set theoretic models.
Prerequisite: Permission of instructor; generally Psychology 281 plus one university level mathematics course.
(2 lecture), (2 tutorial), 4 hours, Half course, second term.
Not offered 1974-75

388a. Special Topics in Theory and Research. One-term course dealing with selected topics of current interest in the area of theory, research, and statistics in Psychology. Topics and course description will be available at time of registration.
Prerequisite: Third or Fourth Year Honors status, or Third Year in General Psychology program, or Special Students.
4 hours (seminar), Half course, first term.
Not offered 1974-75

389b. Special Topics in Theory and Research. See above.
Prerequisite: Third or Fourth Year Honors status, or Third Year in General Psychology program, or Special Students.
4 hours (seminar), Half course, second term.
Not offered 1974-75

488a. Special Topics in Theory and Research. One-term course dealing with selected topics of current interest in the areas of theory, research, and statistics in Psychology. Topics and course description will be available at time of registration.
Prerequisite: Fourth Year Honors status
4 hour (seminar), Half course, first term.
Not offered 1974-75

489b. Special Topics in Theory and Research. See above.
Prerequisite: Fourth Year Honors status
4 hours (seminar), Half course, second term.
Not offered 1974-75

INDEPENDENT STUDY

398a. Independent Study. Individual reading and research at an advanced level under faculty supervision. The student is responsible for arranging independent study credit with an individual faculty member of his choice.
Prerequisite: Written permission of instructor and an "A" average the previous year.
Half course, first term.

399b. Independent Study. Individual reading and research at an advanced level under faculty supervision. The student is responsible for arranging independent study credit with an individual faculty member of his choice.
Prerequisite: Written permission of instructor and an "A" average the previous year.
Half course, second term.

498a. Independent Study. Individual reading and research at an advanced level under faculty supervision. The student is responsible for arranging independent study credit with an individual faculty member of his choice.
Prerequisite: Written permission of instructor and an "A" average the previous year.
Half course, first term.

499b. Independent Study. Individual reading and research at an advanced level under faculty supervision. The student is responsible for arranging independent study credit with an individual faculty member of his choice.
Prerequisite: Written permission of instructor and an "A" average the previous year.
Half course, second term.

DEPARTMENT OF SECRETARIAL SCIENCE

Chairman and Associate Professor:
I. P. Suttie, MSc
Telephone: 3731
Departmental Office: Room 319, Middlesex College

Secretarial Science:

ASSOCIATE PROFESSORS: Suttie, Waller ASSISTANT PROFESSORS: Davis, Hartry, Seldon LECTURERS: Hay, St. John, Stevenson

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REQUIREMENTS FOR ADMISSION: Grade 13 standing (with a minimum average of 60%) in English and five other credits.

Effective May 1, 1975, a prerequisite of an introductory course in typewriting will be required for admission to the Secretarial Science program. An introductory course is one consisting of a knowledge of the keyboard, elementary practice in the business letter and tabulation and a straight copy speed of approximately 20-30 words per minute.

Written proof in the form of a certificate, letter of standing, secondary school transcript or proof of equivalent proficiency will be required.

The Ministry of Education of Ontario accepts a degree in this program as the academic qualification for entry into a college of education. Upon successful completion of a one-year program at a college of education the student receives the High School Assistant's Certificate, Type B, for teaching in the Secondary Schools of Ontario.

FIRST YEAR

Secretarial Science 025

Business 020

English 020, 024 or 026

Two Options

SECOND YEAR

Secretarial Science 135

Secretarial Science 137

Economics 020

A Senior English

Two Options

THIRD YEAR

Secretarial Science 130

Secretarial Science 145

Secretarial Science 147

A Senior English

Two Senior Options

COURSES

025. Shorthand and Typewriting.
Shorthand. An introductory course in theory and transcription: thorough training in the principles of Pitman Shorthand with emphasis on the theoretical accuracy of outlines. Use of multiple-channel dictation lab.
Typewriting. An introductory course in learning to use the typewriter as a means of communication: training in speed and accuracy; concentration on efficiency in performance and quality production; emphasis on production typing of letter styles, display, introductory tabulation, manuscripts and business reports.
10 hours, Lecture

130. Accounting. An introductory course prescribed for Secretarial Science students, emphasizing how accounting data are accumulated and the effective use of data in corporate partnership and sole proprietorship forms of enterprise.
3 hours, Lecture

135. Shorthand and Typewriting.
Shorthand. Intermediate course in speed and vocabulary development: increasing syllabic intensity of vocabulary and length of dictation time. Emphasis on accuracy of transcription, and on office style dictation of business and professional communications. Use of dictation lab.
Typewriting. Further emphasis on speed and accuracy development: arranging and typing statistical information in table, chart and graph forms; dictation at the typewriter and production timing of class assignments.
Prerequisite: Secretarial Science 025
8 hours, Lecture

137. Office Procedures. An examination of the secretary's role as a creative member of the business team; projects on telecommunications, office equipment and records management. Simulated office experience stressing the production of mailable material within time limitations.
Prerequisite: Secretarial Science 025
1 hour Lecture, 2 hours Lab, 3 hours.

145. Shorthand and Typewriting. Senior course with emphasis on achieving maximum potential in speed and accuracy in both areas. Varied and extensive copy for reading, writing and dictation practice in shorthand. Range of dictation, 3-5 minutes at rates increasing to 130 wpm. Use of electronic lab for practice.
Prerequisite: Secretarial Science 135
6 hours, Lecture

147. Secretarial Administration. Practical experience in administrative secretarial duties in an office atmosphere. Students apply their skills and knowledge to realistic office situations both in University offices and in their own student office. The practical training is supplemented by lectures and discussions in law, computer applications and administrative topics given by visiting professors and members of the business community.
Prerequisite: Secretarial Science 135 and 137
2 hours Lecture, 7 hours Lab. 9 hours.

DEPARTMENT OF SOCIOLOGY

Chairman and Professor:
J. H. Kunkel, BA Pomona; MA, PhD Michigan
Telephone: 3607
Departmental Office: Room 5306, Social Science Centre

PROFESSORS: Balakrishnan, Klapp, Singer ASSOCIATE PROFESSORS: Basavarajappa, Ebanks, George, Henshel, Rinehart, Turner, Westhues, Whitehead ASSISTANT PROFESSORS: Archibald, Boydell, Clark, Gartrell, Grindstaff, Jarvis, Silverman, Stelling, Teevan, Veevers, Williams, Zuzanek LECTURER: McKie.

FIFTEEN COURSE (GENERAL) PROGRAM

General BA students wishing to elect an area of concentration in Sociology must earn credit in Sociology 020, 230 and 231 plus at least one of Sociology 232, 233 and 236, plus one other Sociology course. No general BA student may take more than eight courses in Sociology. For courses listed a and b, consult the Sociology Department to determine in which term(s) these courses are offered. General students will be admitted to all honours courses below the 400 level.

Note: Some courses listed may not be offered in 1974-75. Check with the Department of Sociology before registration.

020. Introduction to Sociology. An examination of the major theoretical perspectives in the field of Sociology, methods of empirical investigation of social phenomena, socialization, group structure, principles of social organization, community structure, population and social change.
2 lecture, 1 tutorial, 3 hours.

134. Community Structure. A general introduction to human community from the perspective of sociology, demography, ecology and history, with an emphasis on city planning.
Antirequisite: 334.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture.

135. Social Stratification. An analysis of social ranking systems of class, status and power. Topics will include: theoretical and methodological problems in ranking, political and sociological perspectives on community and national power structures, and social mobility in industrialized societies. Emphasis will be placed on the comparison of alternative stratification systems.
Antirequisite: 335.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture.

138 (Former 438a). Canadian Society. The structure and functioning of Canadian society. An examination of the political, economic, cultural and value structures and processes.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture.

139. The Family. Sociological, psychological, and other research perspectives on family structure and functioning.
Antirequisite: 339.
Prerequisite: Sociology 020 or permission of the Instructor.
2 hours Lecture, 1 Tutorial.

140. Social Problems. Study of theories of deviant behaviour and of social disorganizations, with particular attention to certain specific problems of the contemporary period.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture.

143. Minority Groups. The analysis of racial, ethnic, political and religious minority groups in terms of their relationship to each other and to society at large. Pluralism, assimilation, competition, conflict, prejudice and discrimination are among the concepts to be studied.
Antirequisite: 343.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture.

HONORS PROGRAM

Requirements for Admission

First Year General Program (Arts, Science or Social Science) including Sociology 020. At the end of the first year, the student must have an overall average of 70% and at least 70% in Sociology 020. Students may be admitted to the Honors Sociology program after their second year provided they have at least an overall average of 70% in their second year and 70% in all Sociology courses beyond Sociology 020. Students are encouraged to enrol as Honors students as soon as they are eligible.

SECOND AND THIRD YEARS

Sociology 230; Sociology 231; Two of: Sociology 232, 233, 236; One other Sociology course numbered 200 and above (full course or equivalent); five options (full course or equivalent)

FOURTH YEAR

Sociology 400, 402 and 404 (half courses); three other half-courses (or equivalent) in Sociology at the 400 level; Two options (full courses or equivalent).

The programs of all Honours students must be approved by the Honours Program Advisor.

Note: Some courses listed may not be offered in 1974-75. Check with the Department of Sociology before registration.

230. Sociological Theory. The analysis of the major contributions of sociological theorists with particular attention paid to the works of Marx, Weber, Durkheim, Simmel, Parsons and Homans.
Antirequisite: former 30.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture.

231. Methodology and Statistics. A survey of basic procedures used in the collection, reduction and statistical analysis of data.
Antirequisite: former 31: see also Statistics page in Academic Programs and Policy section of Calendar.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture.

232. Population Studies. A study of the major population trends and their impact upon industrialized and developing societies.
Antirequisite: former 32.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture.

233. Social Psychology. An analysis of the theories and research of human conduct in social settings.
Antirequisite: former 33.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture.

234 (Former 346). Medical Sociology. The study of the social components of health, illness, and patienthood with an emphasis on the nature of health institutions and professions

and current issues of lay or professional concern.
Antirequisite: former 46.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture.

235 (Former 340). Sociology of Deviance. An examination of some basic approaches to the study of deviant behaviour with special emphasis on problems in concept formation, measurement and theory construction.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture.

236. Social Organization. A comparative analysis of social organization, resources, structures, processes and goals.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture.

237a (Former 434b). Human Ecology. The consideration of the concepts of human ecology as applicable to the interrelationships of population, environment, technology and organization in society.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture, Half course, first term.

238a,b (Former 38b). Social Change. A study of the sources, pattern and consequences of social change. The views of classical and modern theorists will be evaluated in relation to patterns of change exhibited at group, community and cultural levels. Problems encountered in attempts to induce change with respect to economic development, urban planning, population policy, etc. will be surveyed.
Antirequisite: either a or b.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture, Half course, first and/or second term.

241a,b (Former 41a). Communication. Analysis of attitude formation and the role of symbolic systems on social character and collective behaviour. Utilizes sociological, communication and general social psychological theory dealing with the function of communication's media in society and the effects of patterns of communication upon members of different social groups. Considers research findings on media content, opinion formation, change, and other topics.
Antirequisite: either a or b.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture, Half course, first and/or second term.

242a (Former 441a). Small Groups. Empirical study of social psychological phenomena with an introduction to empirical laboratory and field methods used in social psychology.
Prerequisite: Sociology 020 or the permission of the Instructor.
3 hours Lecture, Half course, first term.

244a,b (Former 44b). Collective Behaviour. Basic forms of collective behaviour including social crowds, publics, and the mass society will be examined in terms of their structural and social psychological consequences. The focus of the course will be the analysis of the relationship between human problems and collective attempts to resolve them.
Antirequisite: either a or b.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture, Half course, first and/or second term.

245b (Former 45b). Applied Sociology. The application of sociological theory and method to selected problems in urban society.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture, Half course, second term.

248a,b. Mass Communication and Public Opinion. The study of mass communications media and institutions, mass media feedback. Public opinion and attitude surveys and methods.
Antirequisite: either a or b.
Prerequisite: Sociology 020 or permission of instructor.
3 hours Lecture, Half course, first and/or second term..

249a,b (Former 49a). Criminology. The theoretical and empirical study of Canadian crime and delinquency with emphasis on measurement problems and the theories and research on crime.
Antirequisite: either a or b.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture, Half course, first and/or second term.

250b (Former 50b). Bureaucracy in Modern Society. An examination of alternative theories of complex organizations, the nature and types of organizations, their relationships to modern society, aspects of their internal differentiation, and processes of organizational change.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture, Half course, second term.

251a (Former 51a). Industrial Sociology. An analysis of the development, structure, and operation of industrial organization including a discussion of the sociological aspects of labour unions a and management-labour relations.

Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture, Half course, first term.

252a (Former 452a). Political Sociology. An analysis of social stratification research and theory as related to the role of power and politics in contemporary society.

Prerequisite: Sociology 020 or permission of the Instructor.

3 hours Lecture, Half course, first term.

253a,b (Former 53b). Sociology of Corrections. An analysis of the criminal justice system, prisons, other correctional institutions and prediction techniques.
Antirequisite: either a or b.
Prerequisite: Sociology 020 and 249a or b or permission of the Instructor.
3 hours Lecture, Half course, first and/or second term.

255b (Former 451b). French Canadian Society. An analysis of the structure and functioning of French Canadian society with emphasis on politics, religion, social structure and values.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture, Half course, second term.

256b (Former 456b). Sociology of Religion. An analysis of the interactions between religious belief systems and institutions and the major institutional areas of society.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture, Half course, second term.

257b (Former 457b). Sociology of Education. A comprehensive study of educational institutions in modern society.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture, Half course, second term.

260a (Former 450a). Sociology of Law. An analysis of the legal institutions and processes in contemporary society.
Prerequisite: Sociology 020 or permission of the Instructor.
3 hours Lecture, Half course, first term.

263a (Former 453a). Sociology of Occupations and Professions. An analysis of the development and structure of occupations and professions.

Prerequisite: Sociology 020 or permission of the Instructor.

3 hours Lecture, Half course, first term.

264b. Social Movements. An analysis of types of social movements and an introductory examination of their origin, emergence and organization. Both support for and opposition to selected examples of social movements will be discussed in relation to the conditions under which they arose.

Prerequisite: Sociology 020 or permission of instructor.

3 hours Lecture, Half course, second term..

398a. Selected Topics in Sociology. Reading and discussion in selected topics in Sociology.

Prerequisite: Sociology 020 and permission of the Instructor.

3 hours Reading course, Half course, First term..

399b. Selected Topics in Sociology. Reading and discussion in selected topics in Sociology.

Prerequisite: Sociology 020 and permission of the instructor.

3 hours reading course, Half course, second term..

400a,b. Advanced Statistics. mandatory for 4th year honours sociology students.

Parametric and non-parametric social statistics. Tests of significance and measures of association, analysis of variance, correlation, regression and probability will be studied extensively.

Antirequisite: either a or b.

Prerequisite: Sociology 231 or permission of instructor.

3 hours Seminar, Half course, first and/or second term..

402a,b. Research Methodology in Empirical Sociology. Mandatory for 4th year honours Sociology students. A comprehensive study of the problems of methodology and research design. The methodology of major studies in sociology will be critically examined.

Antirequisite: either a or b.

Prerequisite: Sociology 231 or permission of instructor.

3 hours Seminar, Half course, first and/or second term.

404a,b. Advanced Sociological Theory. Mandatory for 4th year honours sociology students

A survey of sociological theory.

Antirequisite: either a or b.

Prerequisite: Sociology 230 or permission of instructor.

3 hours Seminar, Half course, first and/or second term..

406a. Social Demography. The relevance of demographic processes to social organization and the interrelation of fertility, mortality and migration with social psychological and structural variables.

Prerequisite: Sociology 232 and enrolment in 4th year Sociology, or permission of the Instructor.

3 hours Seminar, Half course, first term.

407a. Advanced Social Organization. Current theory and methods of research in social organization.

Prerequisite: Sociology 236 and enrolment in 4th year Sociology, or permission of instructor.

3 hours lecture, Half course, first term.

408b. Advanced Medical Sociology. Current theory and research in medical sociology.

Prerequisite: Sociology 234 and enrolment in 4th year Sociology, or permission of instructor.

3 hours Lecture, Half course, second term.

436b. Advanced Social Psychology. Current theory and research in Social Psychology

Prerequisite: Sociology 233 and en-

rolment in 4th year Sociology, or permission of the Instructor.
3 hours Seminar, Half course, second term.

437a. Advanced Sociology of Deviance. Current theory and research in the Sociology of Deviance.
Prerequisite: Sociology 235 and enrolment in 4th year Sociology, or permission of the Instructor.
3 hours Seminar, Half course, first term.

461b. Advanced Communications. Current theory and research in communications.
Prerequisite: Sociology 241a or b and enrolment in 4th year Sociology, or permission of instructor.
3 hours Seminar, Half course, second term.

497. Senior Tutorial. Discussion of reading and research in sociology.
Prerequisite: Enrolment in 4th year Sociology.
3 hours Tutorial.

498a. Independent Study. Individual research and reading at an advanced level under faculty instruction.
Prerequisite: Enrolment in 4th year Sociology.
3 hours Reading course, Half course, first term.

499b. Independent Study. Individual research and reading at an advanced level under faculty instruction.
Prerequisite: Enrolment in 4th year Sociology.
3 hours Reading course, Half course, second term.

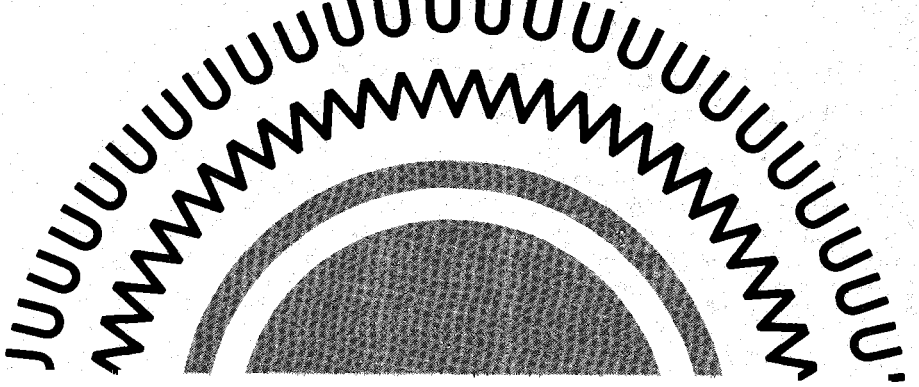
Special Student Year

The admission requirement for the Special Student with Area of Concentration in Sociology is an overall average of 70% in Sociology courses taken, except under unusual circumstances, where the student may petition the Undergraduate Committee of the Department for a review of his/her case.

The programs of all special students must be approved by the Special Student Advisor. The Special Student must achieve an overall average of 70% in the fourth year to be recommended for a Certificate of Honours Standing. Admission to the Special Student year in no way guarantees admission into the M.A. program.

For further information on the Special Student year, please contact the Department of Sociology.

Faculty of Physical Education



Faculty of Physical Education

OFFICERS OF ADMINISTRATION

Dean
Zeigler, E. F., BA Bates College; MA, PhD Yale, Professor of Physical Education
Assistant Dean
Paton, G. A., BA UWO; MA Michigan; PhD Illinois, Associate Professor of Physical Education
Chairman, Undergraduate Program:
Stothart, J. P., BPE, MSc Alberta; PhD Pennsylvania State, Associate Professor of Physical Education
Chairman, Graduate Program:
Hayden, F. J., BA UWO: MS PhD Illinois, Professor of Physical Education
Chairman, Physical Recreation & Intramurals Program:
Zeisner, R. E., BA UWO: MA Michigan, Assistant Professor of Physical Education
Chairman, Intercollegiate Athletics:
Barney, R. K., BSc, MSc, PhD New Mexico, Associate Professor of Physical Education

UNDERGRADUATE PROGRAM

Undergraduate Office: Room 103 Thames Hall Phone 679-2444

PROFESSORS: Fairs, Hayden, L'Heureux, Yuhasz, Zeigler. ASSOCIATE PROFESSORS: Barney, Carron, Cunningham, Eynon, Leyshon, Paton, Richardson, Stothart, Wearring ASSISTANT PROFESSORS: Bennett, Cosentino, Gonser, Hayes, Hill, Milne, Peterson, Petrie, Semotiuk, Staples, Stothart, Vigars, Watson, Wise, Zeisner LECTURERS: Chelladurai, Decker, Funston, Singh, INSTRUCTOR: Stewart

GENERAL PROGRAM

Students in the fifteen-course three year B.A. Program who wish to graduate with an area of concentration in Physical Education must receive a grade of at least 60% in Physical Education 020 and, in addition, must earn credit in a minimum of four Honors Physical Education courses or the equivalent in half courses. Those students who elect this program are limited to a maximum of seven Physical Education courses (including Physical Education 020).

Typically a three year sequence of courses will follow this pattern:-

YEAR I (Five courses)

Physical Education 020; four courses numbered from 001 - 099 and including courses from at least two of the Faculties of Arts, Science and Social Science.

YEAR II (Five courses)

Three courses in Physical Education

- P.E. 251
- one from PE 241a, 242b, 245a, 246b, 253, Anatomy 264
- one from PE 256a, 260, 270a, 358, 360

Two options

YEAR III (Five courses)

One course in Physical Education

Four options (two of which may be in Physical Education)

N.B. It is Undergraduate Program policy that credit for PE 31 obtained prior to the start of the 1973-74 academic year will be accepted in lieu of PE 251 in order to satisfy the requirement for the three year area of concentration program.

Physical Education 020 or the permission of the instructor is a prerequisite for all Honors courses offered in the undergraduate program. Physical Education 020 may not be taken concurrently with any Honors course.

General Courses

020. Introduction to Physical Education. An examination of man's involvement in sport, play, dance and exercise from a variety of vantage points, (historical, philosophical, psychological, sociological, biomechanical, anatomical, physiological). Physical fitness, leisure and aquatic skills. 2 lectures, 2 laboratory hours.

HONORS PROGRAM

Requirements for Admission. A student must complete a first year general program (in Arts, Science or Social Science) including Physical Education 020 and any three others as principal courses to qualify for admission to Honors Physical Education. Biology is also required if Grade 13 Biology has not been successfully completed.

A minimum average of 70% in the principal First Year courses (Physical Education 020 and any three others) is required for "automatic" admission to the Honors program. To maintain Honors status a student must achieve at least a 70%

average in all principal courses taken in a given year with no principal course grade lower than 60%.

SECOND YEAR

Principal Courses: PE 251 and three courses from the 200 and 300 PE series. (Anatomy 264 and Physiology 342 are included in this series but are not required.)

Subsidiary Courses: Two options approved by the Department.

THIRD YEAR

Principal Courses: PE 351 and three courses from the 200, 300 and 400 PE series. (Anatomy 264, Physiology 342 and 442a are included in this series but are not required.) Permission of the instructor is required for entry into a 400 course.

Subsidiary Courses: Two options approved by the Department.

FOURTH YEAR

Principal Courses: PE 451 and three courses from the 200, 300 and 400 PE series. (Anatomy 264, Physiology 342 and 442a are included in this series but are not required.)

Subsidiary Courses: Two options approved by the Department.

HONORS COURSES

241a. Biomechanics. An analysis of the mechanical principles underlying efficient movement and the application of the principles to motor skills.
2 lecture hours, 1 laboratory hour, Half course.

242b. Biomechanical Analysis of Physical Activity. A second course in quantitative mechanical analysis of human activity with special emphasis on advanced techniques and applied to specific activities.
Prerequisites: Anatomy 264 and PE 241a.
2 lecture hours, 1 laboratory hour, Half course.

245a. A Survey of Physical Growth and Motor Development. Part I of this course will be the external description of physical growth and Part II will be motor development.
3 lecture hours, Half course.

246b. Motor Development. Motor development; infant to adolescent; motor physical and intellectual abilities; perceptual motor skills; motor development in early childhood education; learning disabilities (motor deficiencies); physical education for the handicapped.
2 lecture hours, 1 laboratory hour, Half course.

251. Team Games and Individual Activities. The theory and mechanics of activities; the development of personal performance skills.
2 lecture hours, 4 laboratory hours.

253. Scientific Foundations of Health Education. An approach to intelligent planning for healthful living. The study of personal and community health to equip students with a scientific background in health in order to understand and deal with current health areas.
1 lecture, 2 seminars.

255b. Statistics. The methods of statistical analysis from the application of measures of central tendency to simple models of analysis of variance.
3 lecture hours, Half course.

256a. Sport and Physical Education Philosophy. An introduction to the philosophy of sport and physical activity as aspects of man and his culture. Physical education and sport are viewed in the light of leading philosophical positions. An examination of a number of persistent prob-

lems in the profession and in society. Prerequisite: One course in philosophy or permission of the instructor.
1 lecture hour, 2 seminars. Half course.

260. A History of Physical Education. A survey course in historical developments of Physical Education with special emphasis on Canadian content.
3 lecture hours.

270a. A Survey of Dance. A course that provides an understanding of various dance forms and their ability to reflect various trends in history and modern day.
2 lecture hours, 2 laboratory hours, Half course.

351. Team Games and Individual Activities. The theory and mechanics of activities in addition to those studied in PE 251.
2 lecture hours, 4 laboratory hours.

352. Organization and Administration of Physical and Health Education. The function of administration with respect to curriculum planning, budget, finance, staff, public relations; principles and organization of intramural and interschool programs; scheduling and management of athletic contests.
Prerequisite: Completion of Second Year or permission of the instructor.
1 lecture hour, 2 seminars.

358. Sociology of Leisure. The determinants of social attitudes and behavior toward leisure. The study of the variability in leisure patterns associated with members of particular age groups, social class groups, ethnic and racial groups, resident groups and sub-cultures.
3 lecture hours.

360. Historical-Cultural Foundations of Physical Education. An examination of philosophical, theological and scientific anthropologies with emphasis on their doctrines of the body and their respective influences on education and physical education: concepts of play in historical perspective; culture and the body.
3 lecture hours.

364b. Principles of Athletic Injuries. An interdisciplinary study of human limits to physical stress during athletics and factors which affect those limits. The study of minimization theory, alleviation and prevention of athletic injury. (This course is open to students in Medicine, Physical Therapy and Physical Education).
Prerequisites: Anatomy 264, Physiology 342, and PE 241a or equivalents.
2 lecture hours, 2 laboratory hours, Half course.

371b. Beginning Dance Composition & Production. Individual creative movement exploration and problem solving, using the elements of dance to express ideas, feelings and/or images in the finished product of a dance composition.
Prerequisites: 251 (Modern Dance I & II) or permission of instructor.
2 hour lecture, 2 hour laboratory, Half course.

388a. The Psychology of Sport. The central purpose of this course is to explore individual human behavior in a physical activity and sports context. Emphasis will be placed on understanding psychological concepts which are pertinent to the field of sport and physical activity (e.g. social motivation, personality development and behavior modification in sports).
1 lecture hour, 2 seminar hours, Half course.

402b. Physical Activity and Health. An examination of the effect of physical activity on selected aspects of health (obesity, longevity, the aging process, coronary heart disease, rehabilitation, mental health); a theoretical and practical approach to exercise prescription.
3 lecture hours, Half course.

443a. Scientific Training Techniques. The investigation of modern

athletic training methods with emphasis on interval training, weight training, isometric exercises and nutrition.
2 lecture hours, 2 laboratory hours, Half course.

445b. Physical Activity and Growth. The purpose of this course is to study the impact of chronic exercise upon the growth processes of bone, muscle and nerve tissues throughout the human life span.
Prerequisites: Biology 021 or 022 and Anatomy 264, and the permission of the instructor.
3 lecture hours, Half course.

451. Team Games and Individual Activities. The study of team games with particular reference to coaching responsibilities in planning, methodology, skill analysis, and personnel management.
Prerequisite: PE 251, 351.
6 hours (lecture or laboratory as required).

453. Motor Learning. First term - Descriptive systems of motor learning and skilled performance; principles of motivation and performance; component processes and performance capacities; information processes in motor learning; human capacities in perceptual motor skills; measurement and prediction of learning and performance.
2 lecture hours, 2 laboratory hours.
Second term - choice of: Applications and implications of the principles of motor learning or advanced topics in motor skill learning.
3 lectures (seminars).

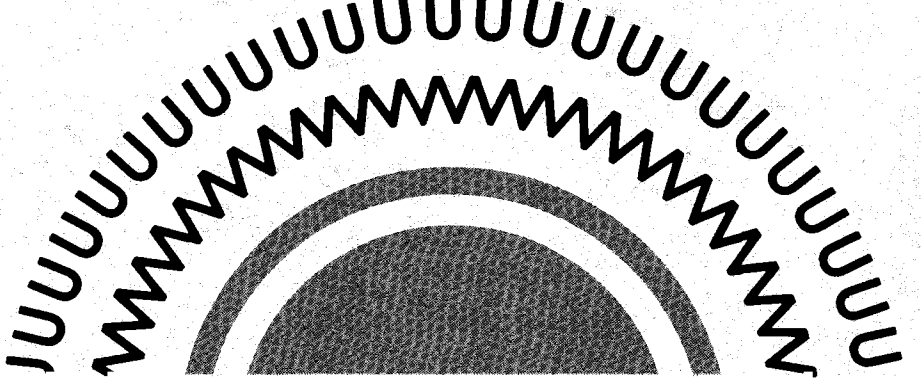
456. Seminar. The interpretation of physical education in its relationship to education; principles underlying programs; presentation of senior thesis.
3 hours.

457. Physical Fitness Appraisal and Guidance. The scientific basis of physical fitness appraisal; the construction and administration of fitness and sports skill tests; descriptive statistics in the handling of data for evaluation, grading, and classification.
2 lecture hours, 2 laboratory hours.

458. Sport and Culture. An analysis of the social and cultural nature of sport in contemporary society.
3 lecture hours.

471a. Intermediate Dance Composition and Production. Group creative movement exploration and problem solving using form and structure of movement to express ideas, feelings and/or images in the finished product of a dance composition.
Prerequisite: 371b or permission of instructor.
2 hour lecture, 2 hour laboratory, Half course.

School of Business Administration



ADMINISTRATION OF THE UNDERGRADUATE PROGRAM AT THE SCHOOL OF BUSINESS ADMINISTRATION

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J. N. Fry, Associate Dean (Academic) and Professor, BScEng (Alberta), MBA (UWO), PhD (Stanford)

J. R. Kennedy, Program Chairman and Associate Professor, BComm (Manitoba), MBA (UWO), PhD (Stanford)

J. F. Graham, Assistant Dean (Administration) and Assistant Professor, BA (Assumption), MBA (UWO)

R. C. Malanchuk, Undergraduate Program Manager and Lecturer, BA, MBA (UWO)

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E. Osborn, BA, LLB (Saskatchewan), MBA (UWO) P. A. Smith, BSc (Liverpool), MBA (UWO)

INSTRUCTORS

R. A. Lefebvre, BA, MBA (UWO) O. Richardson, BSc (UBC), MBA (UWO)

ADVISORY COMMITTEE
TO THE SCHOOL OF BUSINESS ADMINISTRATION

(September 1, 1973)

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J. F. Graham, Assistant Dean (Administration), School of Business Administration, The University of Western Ontario
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THE UNDERGRADUATE PROGRAM IN BUSINESS ADMINISTRATION

FOCUS

The focus of Western's Undergraduate Program in Business Administration is unique. Whereas most programs prepare students for distinct functional duties, Western is concerned with the preparation of generalists: individuals who are prepared to launch into their immediate environment and, at the same time, are building a foundation to become managers in top executive positions. While most of Western's graduates enter business careers, a significant number are attracted to positions in non-profit-centered operations such as governments, labour unions, health and charitable organizations, colleges and universities.

Western's program is keyed toward the concurrent development of decision-making skills and the ability to make things happen. Toward these ends we provide extensive knowledge in specialized fields such as finance, marketing, operations management, management science, planning information and control systems, economics and organizational behaviour. However this knowledge is acquired in the context of how these specialities fit into a multifaceted, dynamic organization with a distinct role and responsibility in the surrounding society. We are always mindful that the most successful managers possess knowledge that extends well beyond the organization itself.

THE PROGRAM

The program leading to the degree of Bachelor of Arts in Honors Business Administration has three objectives: to contribute to the liberal education of the student; to help the student acquire an administrative point of view; and to acquaint the student with the modern body of knowledge and techniques for management.

The successful manager must know people, must see events in perspective, must develop flexibility in thinking; in short, he requires a general education. Accordingly, the first two years of the four year program, in which the student is enrolled in a general program, are designed to give a broad education in the humanities as well as the social and natural sciences. The last two years, in the School of Business Administration, are a rigorous period in which the student becomes acquainted with each of the major fields of business and is prepared for positions of eventual responsibility in management.

FACULTY AND TEACHING APPROACH

Western's greatest faculty strength lies in teaching ability. Faculty members act both as colleagues and mentors, regularly challenging and stimulating students to

analyze situations, to consider action circumstances, recognizing that they must set clear goals but retain sufficient flexibility to change goals when appropriate.

Our approach to management education runs the gamut of teaching techniques. There is a considerable emphasis on the use of cases, where students are faced with actual situations taken from various types of enterprises and describing the managerial problems which require action. Most cases are written in advance; however, many are developed by students from live managerial situations requiring accumulation of information from which an analysis can commence. Students are required to identify problems, develop a plan of action for solving them and present their solution before fellow students, professors, and sometimes, before the managers themselves. This requires expertise in the techniques and approaches of modern management, but also in the problem-solving and decision-making skills without which the techniques and approaches are useless. It also requires confidence in one's own abilities not only to select a viable course of action but to defend it effectively — both verbally and in writing.

Western's approach to management education requires extensive and continuous contact with the practicing managerial community. This is where we gather our teaching material and where we constantly test the relevance of what we teach. Most faculty members possess actual managerial experience and combine teaching with concurrent management consulting work. Most faculty research is concerned with practical, current managerial problems. It is not sufficient for the Western faculty to be merely aware of what is happening in the field of management. Rather, we are constantly learning from practicing managers. However, this is a two-way street. We believe we have a responsibility to assert leadership in the management community: to keep practitioners up to date on new developments and to stimulate them to explore new approaches.

PHYSICAL FACILITIES

The School's teaching approach was at the forefront in the designing of Western's School of Business Administration Building. Case discussion being enriched when participants can see one another, the fourteen main classrooms were built in the shape of amphitheatres. Students make extensive use of the many seminar rooms for small group study, an important component of the School's programs. The student lounges and extra-wide corridors outside classrooms are convenient places to continue discussions long after class end. The 475-seat theatre, equipped with a full range of audio-visual educational media, is utilized in a multitude of ways, but particularly to accommodate guest lecturers whose subjects have wide appeal to students of the School.

The School has its own computing centre containing an IBM 1130 computer and a Hewlett-Packard 2000A time-sharing system. Students are given unlimited access to the computers in the School. In addition, the School has on-line computing facilities directly connected to various large remote electronic processing units, including the PDP-10 in the University of Western Ontario Computing Centre and the financial data bank at McGill University. For batch processing students may use the University's Cyber 73/14 computer. These facilities have proven to be of immeasurable usefulness to both students and faculty.

One of the major Canadian libraries of business related books, journals, government documents, and company and industry information is located in the building. The literature of management is fully represented in the collection of 34,000 volumes of books and bound journals. The Library also has a Business Information Centre containing an estimated 100,000 items including annual

reports of companies, prospectuses, Statistics Canada data and investment research studies. Students have free access to this material and are given instruction and assistance in its use by Library staff. There is study space for 230 students at tables arranged for case discussion, carrels or lounge chairs.

THE SCHOOL AND CANADIAN BUSINESS

Of great value to the student is the keen interest which large and small corporations, across the country, show in the School's programs. Since the inception of the School their generous financial contributions have made it possible to have a modern building designed to facilitate learning, to build a highly competent and diversified faculty, and to keep the library up to date on developments and happenings in industry.

The interest of Canadian business has been demonstrated through their willingness to share their knowledge and experience with the School. Without this the vital cases which so enrich the learning experience in the School would not be possible. Canadian businessmen have welcomed students into their plants and offices for field trips so that they might gain a working knowledge of assorted types of operations. Students involved in special project work have called upon, and been greatly assisted by, members of the business community, thus gaining first-hand knowledge of the challenge facing modern-day managers. Many senior executives and administrators visit the School to speak, lecture, take part in seminar discussions, and to head panels on Canadian problems of management and administration. In addition Canadian corporations offer students the opportunity to acquire meaningful business experience between their Junior and Senior years at the School.

ADMISSION TO THE HONORS PROGRAM IN BUSINESS ADMINISTRATION

1. PRELIMINARY EDUCATION

An applicant desiring admission to the Honors Program in Business Administration must have successfully completed not less than two full years of university study beyond the level of Ontario 13, or its equivalent. Three required courses, or their equivalents, must be completed in this program of studies. These courses are ONE of Applied Mathematics 020 or Mathematics 020, 021, 024, or 027; ONE of Economics 020 or 021; and Business 250. In their choice of options, students are encouraged to seek a broad background of education through courses which they find challenging intellectually and which assist the development of sound work habits.

2. ADMISSION TO THE UNIVERSITY

a) From Grade 13

Students entering The University of Western Ontario, and who are interested in pursuing studies in Business Administration, will generally be registered in a general or honors program in Arts, Social Science, or Science during their first two years at Western. A suitable Grade 13 program should include two Mathematics credits, one of which is Calculus, together with other credits to meet the requirement for first year admission. Information as to those requirements are available from the Registrar's Office. Students registered in Ontario Grade 13 can apply to The University of Western Ontario by completing the General Application Form supplied by their high school guidance counsellor.

b) As a Mature Applicant

Mature applicants desiring to enter a program leading to studies in Business Administration must be 21 years of age. They must have standing in Mathematics at least at the Ontario Grade 12 level. Complete details concerning mature applicant admission may be obtained from the Registrar's Office. Application to the University can be made through the form provided by that office.

c) As a Transfer Student

Students from other universities and colleges may be admitted to programs at The University of Western Ontario with advanced standing if they are eligible to continue and advance at the institution from which they wish to transfer. Credits obtained at another institution will be assessed by the Admissions Committee.

Students interested in transferring to The University of Western Ontario on completion of first year studies must complete the application form provided by the Registrar's Office.

Students interested in transferring to The University of Western Ontario on completion of their second year studies to enter the Honors Program in Business Administration must complete the application form provided by the Admissions Office, School of Business Administration.

3. APPLICATION PROCEDURE

Students desiring to apply to the Third year of the Honors Program in Business Administration may do so by completing the application form supplied by the Admissions Office, School of Business Administration. The deadline for submission of applications is May 1st of the year in which the student wishes to enter the program. With the exception of academic transcripts, all application information must be completed by this date.

4. ADMISSION CRITERIA

Applicants who have completed the first two years with an overall average of 70% or better, and no grade below 60%, will generally be admitted to the Honors Program in Business Administration. Success in the Program is based on intellectual ability, personal motivation, ability to contribute to the Program and ability to carry a substantial workload. All students with a strong interest in a management career, and with an anticipated two-year average of 65% or higher, are encouraged to apply.

PLACES TO CONTACT TO GET MORE INFORMATION

a)

The Registrar's Office
Stevenson Hall
The University of Western Ontario
London, Canada N6A 3K7

b)

The Admissions Office
School of Business Administration
The University of Western Ontario
London, Canada N6A 3K7
Telephone: (519)679-3254

The Third Year

The Third, or Junior, Year of the Undergraduate Program in Business Administration consists of an integrated set of required courses designed to give all students a basic understanding of the functions and the interrelationships of the major areas of business management as well as a basic level of skill in problem-solving techniques. These courses are:

Business 301 Marketing

Business 303 Business Finance

Business 304 Operations Management

Business 306 Management Science

Business 307 Planning Information and Control Systems

Business 308 Managing Human Resources

Neither a seventh course nor a substitute for any of the above courses is permitted under any circumstances.

The learning process is based on individual study and preparation, group discussion and projects, classroom discussion, lectures, use of audio-visual aids, report writing, field trips, and in most courses considerable emphasis on the use of case studies as a means of acquiring management decision-making skills and attitudes.

The acquisition of communication skills is considered an integral part of the first year. Clear, confident public speaking, and lucid, concise writing are the goals of the Communications Program. Students learn to tailor their oral and written messages to their specific audience. The writing program deals with the preparation of reports, memos, letters and papers. Students receive guidance on composition, style, clarity, and presentation method. Oral communication classes stress public speaking in both formal and informal situations. Videotape recording and playback facilities are available for self-critique and analysis of oral messages.

The first few weeks after registration are planned with the objective of giving students entering the Program an opportunity to acclimatize themselves to the School and the teaching approach. Small group study of cases is organized on a formal basis in hopes that students, upon becoming oriented to working in this way and recognizing the value therein, will continue to take advantage of this tool after the orientation period. During the introductory weeks professors give students an outline of the subject matter to be covered during the year, as well as their basis for evaluation of students' performance. Just as important is the opportunity to meet members of faculty informally during discussion groups and social activities held during this period.

COURSE DESCRIPTIONS

301. Marketing. The desires and needs of the buyer are of paramount importance to the manufacturer, wholesaler and retailer. Marketing managers are becoming increasingly conscious that, in order to influence the flow of goods and services, they must constantly study the consumer — why he buys, how he buys, where he buys, when he buys, and so on. Students learn to analyze buyer decision processes, as well as the surrounding economic, social, political, technological, and competitive environment; and to convert this analysis into a reasonable marketing strategy. A vital aspect of this strategy development is a realistic assessment of the firm's resources and goals.

The course covers the topics of product policy, distribution, communication, pricing, and research. Through

discussion of cases and readings students learn approaches to marketing problems and acquire some knowledge of the tools and methods available. They also learn to make decisions in the face of considerable uncertainty. The course attempts to foster the entrepreneurial spirit in management.
one course.

303. Business Finance. The Business Finance course covers the problems involved in determining the need for, acquiring, and administering the financial resources of a business enterprise. One objective of the course is that students grasp the relationship of financial decisions to company policies and thereby understand the relationship of the financial officer to the other functional managers.
The course deals with the need for short-term and intermediate funds in the daily operation of a business organization and the use of such analytical devices as cash budgets and forecasted statements. In addition, the relationship of borrowers to lenders, the evaluation of credit risks and the types of collateral that can be used in the various forms of loan arrangements are covered.
The subject of long-term financing is treated quite extensively. The different types of securities and the methods and institutions used in their sale are considered through the medium of case studies. Additional areas covered include capital budgeting, planning the capital structure of the company, dividend policy, the relationship of the various classes of security holders, management-shareholder relations, the valuation of the firm, mergers and acquisitions, and the legalistic side of finance.
one course.

304. Operations Management. Operations Management is a course which emphasizes the management of activities. The activities may be those involved in manufacturing, the provision of services, or, generally speaking, any task that necessitates moving or operating on materials and/or information. The course has an operations focus and is concerned with the development of a systematic way of thinking about the structure and interrelationships of production situations within an organization.
Students are exposed to relevant knowledge about the economic, organizational and technical aspects of operations management and decision-making. Thus, they deal with problems ranging from job design through to the planning and operation of production systems within the company organization. Certain concepts and techniques are taught and applied so that students may effectively analyze specific types of problems. Methods of work measurement, facilities planning and production control are discussed and utilized. However, the emphasis in the course is not on the techniques themselves, but rather, on their application to improve the firm's competitive performance.
one course.

306. Management Science. The course in Management Science introduces some of the mathematical and statistical techniques available to the decision maker. It is designed to provide a level of understanding which will help students follow developments in his own field of specialization and to make use of the techniques in his analysis of business problems.
The course covers decision analysis under uncertainty, preference theory, linear programming, classical statistics, regression analysis, model building and simulation.
A portion of the class time is devoted to teaching students FORTRAN and BASIC programming. They are required to write benchmark programs in FORTRAN on the School's 1130 and in BASIC on the School's time-sharing terminals.
one course.

307. Planning Information and Control Systems. The course in Planning, Information and Control Systems emphasizes the use of control information in the administration of a business enterprise. It deals predominately with the organization's control system the purpose of which is to facilitate efficient decision-making. To this end, the course is concerned with data collection, its processing and interpretation as related to the management cycle of planning.

To provide a realistic basis for discussing the planning and directing activities of the administrator, the methodology of the accountant is looked at intensively but students are not to acquire the skills of the staff specialist in this area. Rather, accent is on the relevance of an orderly analysis of business transactions, and the accounting classification devices by which the financial effects of masses of transactions are summarized, so that interrelationships may be more easily discerned. By investigating the value of figure data to the businessman, students become facile users of control information and understand the value of figure data, but also the limitations in the use of any figure data. Most certainly, students come to recognize the relevance of both the quantifiable and the nonquantifiable factors in the different business decisions. Thus, they gain an enquiring attitude towards all figure data which comes to their attention.

one course.

308. Managing Human Resources. The course in Organizational Behaviour is designed to increase the students' awareness of, and skill in acting on, the many complex situations that arise in business organizations as a result of the relationships people develop with one another. The course is concerned with the structure and dynamics of organizational systems. It highlights the concrete behaviour of individuals and groups within organizations. It addresses the action that managers must take to insure that behaviour within the organization aids rather than impedes the achievement of overall organizational goals. Course material consists of readings, cases, involvement exercises and other methods or materials that serve the primary objective of the course.

The objective of the course is to produce effective administrators. The behavioural science foundations of the course are designed to serve this objective by providing the knowledge basic to the skill or ability to work effectively with and through others in the achievement of corporate objectives. In the attempt to apply behavioural science knowledge to the analysis of case situations, and in the process of working and talking with other students, participants are expected to develop a way of thinking about purposive human organization, and about themselves as administrators, that will lead them toward increasingly productive work as members of an organization.

one course.

THE SENIOR YEAR

In the Senior Year, students are required to complete the equivalent of five full courses. Only one of these courses, Executive Problems, is compulsory. The balance of the courses may be chosen from those offered in various fields. Students may substitute for a Business option the equivalent of two full courses offered by the Faculty of Arts, of Science, or of Social Science. They also have the option of taking up to the equivalent of one half course each term in The Faculty of Law. However, the permission of the Undergraduate Program Chairman and the Dean of the appropriate Faculty is required.

400. Executive Problems. The Executive Problems course is required of all students proceeding to the degree of Bachelor of Arts in Honors Business Administration. It covers the fields of policy making and administration, building upon and integrating the other work taken in the Business School. The approach is from the level of top management where company-wide objectives are set and departmental policies and activities are coordinated. This viewpoint is taken in order that management problems may be studied from an overall, rather than from a departmental point of view.

The course emphasizes (1) diagnosing a company's situation with regard to both internal and external conditions; (2) determining objectives; (3) planning administrative, financial, production, and marketing strategies and tactics for achieving objectives; (4) operating the organization according to the plan; (5) appraising and controlling operations; and (6) making the changes in objectives, strategy, tactics and controls that are necessary in a continuing operation.

During the course, students will deal with a wide variety of management problems in many different industries and types of companies. They thereby become involved in and develop their ability to understand and deal with situations concerning the formulation of corporate policies and requiring administrative skills.

A major objective of the course is to develop the habit of thinking about business problems comprehensively so that the graduates, regardless of the management level in which they are located, may guide their own and their department's thinking in such a way as to make the most effective contribution to the business as a whole.

one course.

407b. Industrial Accounting. The course in Industrial Accounting is designed to develop students' understanding of the problems of controlling production and distribution through the use of budgets, accounting procedures and reports. It is a further exploration of the management accounting area introduced by the Planning, Information and Control Systems course. Problems concerning cost accumulation for recurring analysis and evaluations — i.e., inventory valuations, joint and by-product costing, and process job and marginal costing — are dealt with. In addition, problems concerning the relevant costs involved in decisions of alternative choices such as make or buy, pricing decisions and various aspects of capital budgeting are discussed. Attention is further paid to the methods of evaluating performance by means of budgetary control and problems related thereto. The course is designed to meet the needs of those who are interested primarily in the use of accounting data in handling management problems.

half course.

408b. Problems in Cross-Cultural Management. The basic premise of the Problems in Cross-Cultural Management course is that it is possible and desirable to teach both intellectual understanding and behavioural skills relevant to cross-cultural management problems. It is designed to deal with cross-cultural issues that arise in both multi-national settings and multi-cultural situations within nations (with special emphasis on Canada.)

The four objectives of the course are (1) to develop awareness of the pervasive influence of culture on behaviour, particularly on management practices, (2) to provide a conceptual framework with which to analyze problems and organize experiences in other cultures, (3) to provide opportunity for individual in-depth study of management practices in specific cultures with particular emphasis on the

cultural determinants of those practices different from North America, (4) to develop ability to respond to management practices of different cultures including practice in coping with the stress of adapting one's behaviour to foreign patterns. A variety of teaching methods in and out of the classroom are employed, including case discussions, readings, films, field work, involvement exercises, and individual study. All students are required to complete a project with implications for cross-cultural management.
half course.

416a. Operations Research I — Methodology. The objective of the Operations Research I course is to develop students' understanding of the more frequently used concepts of operations research. The course is designed to achieve this in the following way: first, the theoretical background and important assumption of operations research concepts are discussed. Then the basic models and solution procedures are developed. Second, with this background, the developed model will be applied to various administrative problems in which decision-making is required. In many situations elaboration of the basic model is necessary in order to cope with the problem. In all situations high emphasis is placed on the interpretation and reliability of the solution.
The subject areas covered are competitive bidding, linear programming, dynamic programming, queueing theory and Markov chains. Students will be expected to use the computing facilities in solving some of these problems.
half course.

417a. Financial Accounting. The Financial Accounting course is designed to improve students' decision-making skills both internally as managers in the preparation of financial statements, and externally in the interpretation and use of these financial statements. The emphasis is pragmatic and directed towards financial disclosure in Canada. A second focus of the course is on the further development of students' knowledge of certain accounting techniques and principles which were introduced in the Planning Information and Control Systems course.
After a review of some fundamental accounting techniques and a critical examination of some company annual reports, several cases concerned with the measurement of business income are discussed. These cases are selected with the objective of illustrating the variety of ways in which the computation of business income may be made, all within the framework of generally accepted accounting principles. Subsequent cases are concerned with the special problems of widespread importance which arise in accounting for changes in the equity accounts of a business, and in accounting for various intangibles.
The course also deals with various problems arising from mergers and the preparation of consolidated financial statements. Since the course is concerned with communication of financial facts to outsiders, considerable attention is devoted to company annual reports and to the bulletins and regulations of the professional accounting bodies, the securities exchanges, and the various government agencies. The course is based primarily on case discussions, but a substantial amount of reading of appropriate literature is an integral part of the course. Students are encouraged to question current accounting practices and to anticipate future developments in financial disclosure.
half course.

418a. Industrial Relations I. The purpose of the Industrial Relations I course is to develop competence and understanding in the field of union-management relations, including ex-

posure to laws and practices surrounding union organization, negotiation and administration of contracts, union pressure tactics and dispute-settling procedures. The course presumes that all managers must consider issues of union-management relations from time-to-time as they discharge their decision-making responsibilities. It is essential for those contemplating industrial relations as a specialty, but important as well for the general manager.

Industrial Relations I focuses on union organization, grievance handling, arbitration and collective bargaining in both private industry and the public service. Particular attention is devoted to administration of collective agreements, to issues of management rights, union security, technological change, featherbedding, discipline, boredom on the job, pay and fringe benefit systems and principles of seniority.

half course.

426b. Operations Research II — Applications. The Operations Research II course, offered for students having some background in the methodology of operations research, introduces a wide spectrum of actual operations research work. The objective is to concentrate on the use of operations research by analyzing, modelling and solving management problems. Students are required to analyze the various stages of an operations research project and to recognize the implications of the solution. The course is designed to broaden students' knowledge in this area, thus enabling them to better evaluate operations research work and improving their ability to communicate effectively with those in this field. The topics addressed include such areas as forecasting models, transportation systems, problems in insurance and banking, corporate planning models and operations research in the public sector.

Prerequisite: 416a

half course.

428b. Industrial Relations II. The Industrial Relations II course is designed to accommodate students who, after successfully completing Business 418 (Industrial Relations I), wish to gain further insight into the field of union-management relations. The course of study is divided into two parts. One is an in-depth simulated experience in designing and implementing industrial relations policies. This involves work as members of management and as union representatives engaged in union organizing efforts. It features a close look at certification procedures, representation elections, picketing, boycotts, injunctions, wildcat strikes, mediation, conciliation, and unfair labour practices. The second considers new developments in the field, with special attention to government involvement in the bargaining process and emerging characteristics of labour relations.

Prerequisite: 418a.

half course.

431a. Marketing Communications. The Marketing Communications course is based on the central concept that advertising, personal selling and other promotional activities of the firm have a common purpose — the communication of incentives to buy. The primary objective of the course is to develop student analytical and decision-making skills relevant to the formulation of an effective marketing communications strategy.

Early in the course, heavy emphasis is placed on the determination of customer information needs. Selected concepts, theories, and models are introduced with a view to improving students' skills in understanding sources of information utilized by customers and the processes by which information is handled in buying decisions. Subsequent topics include the establishment of goals for a com-

munications program, determination of budgets, assignment of communication budgets to special information - dissemination tools, allocation of responsibility for communication to channel institutions, and the measurement of the effects of communication efforts.
Case studies, readings and filmed materials are used in the development of course topics. Situations examined cover consumer and industrial goods, as well as service industries. Corollary topics, such as communications strategy in foreign cultures, are also explored.
half course.

437a. Auditing. The techniques that have been classified under the general heading of auditing have been expanded to such an extent in the last fifty years that they are now included in almost every phase of management control. The Auditing course is designed to examine the entire area of auditing as it affects, and can be used by, the modern business administrator. One part of the course deals with case studies of topics such as budgeting, decentralization, internal control and internal audit. These topics are studied as tools which can be used in establishing company goals and measuring management performance. Another deals with the role of the external auditor. While some time is devoted to understanding the auditing and consulting profession, the major emphasis is on studying the kinds of services available from a public accounting firm, and an evaluation of these services from the point of view of a business manager.
half course.

438b. Managers of Change. There are two principal forms of change. One happens in spite of ourselves and is generally uncontrollable. The other is the product of conscious planning and is, to some important degree, controllable. This course deals with the second form of change. It presumes that managers are in ideal positions to anticipate, deal with, and effect change. Yet managers are generally ignorant about the ways in which unfavorable change can be effectively resisted.
The purpose of the Managers of Change course is to develop skills in design and execution of action plans for accomplishment of meaningful organizational change. This involves critical study of important revolutionary activity inside and outside business, the identification and application of various forms of power, the selection and training of competent agents of change and the design and execution of tactics for change.
half course.

441a. Marketing Research. In marketing, as in any other aspect of business, administrators must have a variety of facts at their command — facts about the people who buy their firm's products, facts about where they buy, how they buy, and why they buy that particular product. They must have facts about their advertising, their salesmen and their competitors. Marketing research attempts to provide the tools whereby they can obtain these facts accurately and quickly, and at least cost. The Marketing Research course has been designed with two aims in mind: First, the cases cover a wide range of marketing research problems and techniques, so as to give some familiarity with the tools that are available. Secondly, the cases all portray the use of these techniques in an administrative setting — that is, in each case there is a marketing problem on which some decision must be made. Thus, the cases provide some practice in the handling and interpretation of research results. An important aspect of the course is the field work done by students. Studies are

initiated and conducted in line with procedures followed by leading marketing research firms.
half course.

443b. Financial Management. The course, Financial Management, is concerned with financial implications, both measurable and immeasurable, of various kinds of business decisions. Although the role of financial officer is stressed, students are expected to consider the different responsibilities of all those taking part in the decision-making process.
The course, which is, in the main, based on the concepts studied in the first year, commences with an analysis of the problems of financial control as they relate to broad corporate objectives. It then considers in some depth investment worth, cost of capital, parent-subsidiary relationships, mergers and acquisitions, and long term financial planning. In addition, it provides for discussions of a number of representative problems such as those of foreign investment, financial emergencies, and securities legislation during which the students have an opportunity to test their understanding of basic concepts in new and more complex situations. Throughout, emphasis is placed on the importance of recognizing and assessing the implicit, as well as the explicit, assumptions on which the decisions are to be based.
half course.

444a. Manufacturing Operations. Management of a productive facility necessarily involves a number of repetitive planning decisions. These short run policy and operational problems are functions of the work force, production rate, inventory position, forecasts and sales. The manager's ability to develop a decision system that will fit today's shipping, production, work force, and purchasing needs and characteristics has substantial impact on the firm's operating and income statements. Mathematical and statistical methods are tools of manufacturing operations and are used to reduce costs through improved production planning and inventory control systems. Students in the course develop appropriate operating policies using the tools of analysis. Competence in the application of decision rules is developed using simulation techniques and electronic computers.
half course.

448b. Personnel Administration. The course in Personnel Administration is concerned with the design of personnel policies and procedures and their practical implementation. The course is planned on the premise that personnel matters comprise an important part of most managerial decision processes. Particular attention is given to the role of the personnel function. The course gives an overview of traditional functions such as recruiting, interviewing, training, management development, performance appraisal, pay systems and the administration of discipline. Consideration is given to the subject of motivation. Problems of motivation are considered in both union and non-union settings, with particular concern for isolating the elements of success and failure which accompany such programs and the impact thereof on organizational effectiveness.
half course.

450a. Business Law. This course has four objectives: (1) to give the student of management a knowledge of the most frequently encountered legal rights and obligations, in order that he will (i) be aware of some of the legal constraints on his decision-making, (ii) recognize, or at least suspect, a legal problem when he encounters one, and (iii) be able to discuss that problem intelligently with his legal advisor. (2) to introduce the student to the terminology and techniques of legal analysis, in order to better understand the legal process. (3) to help

him organize and understand the increasing network of legislation and regulation, which pervades each of the traditional management functions. (4) to develop an appreciation of the law as an attempt to solve social and management problems.

Students are presented with case situations requiring action where the possible courses of action involve legal questions. The course falls logically into three sections: (1) the law of contracts, torts and agency, which are fundamental to an understanding of more complex legal problems; (2) the distribution of powers, duties and responsibilities among the members of the organization: directors, shareholders, and employees; (3) the law governing the organization's relationship with outside parties: consumers, competition and the general society.

half course.

451b. Sales Management. The objective of the Sales Management course is to develop student understanding and decision-making skills in the building and maintenance of an effective sales organization. Conceptually, materials utilized in the course are organized around three separate, though interrelated, sections of approximately equal duration:

(a) The Salesman: This portion of the course is designed to increase student understanding of the role of the salesman in the marketing mix, of the elements of an effective sales presentation, and of the transactional process of selling.

(b) The Field Manager: This section is designed to familiarize students with the role and importance of field management in the activities of the sales force, and with the nature and scope of problems of sales force direction at the supervisory level.

(c) The Sales Executive: This section is designed to increase skills in analyzing and planning effective selling strategy, and in selecting and implementing policies which foster the achievement of marketing objectives.

To achieve these ends, case materials covering industrial and consumer sales organizations are supplemented in the classroom by appropriate readings and films.

half course.

453a. Investment Management. The course on Investment Management introduces students to the field of handling investments for the individual, estate, or small group. The main emphasis is on marketable securities — stocks, bonds and investment funds.

The case material, which is all Canadian, covers such areas as growth stocks, new issues, convertible securities, closed end funds, mutual funds, warrants, and the use of trust companies, dealers, investment counsellors and other advisors. Time is also devoted to such matters as portfolio selection and sources of investment information. Guests from the investment field are used to advantage in supplementing case discussions. The term project is designed to enable students to handle investment analysis and portfolio management on a problem basis.

half course.

454a. Manufacturing Policy. The course, Manufacturing Policy, focuses on decisions about operating programs and manufacturing policies at the level of the vice-president of manufacturing. The course materials are built around selected industries and consist of economic, technological and competitive background materials, as well as cases.

The industry approach is used to provide students with an understanding of the way products are manufactured and marketed in an industry before attempting to deal with top level manufacturing decisions in particular companies within that industry. By spending some introductory sessions on each industry and then

moving from company to company in the same industry students succeed in attaining more depth in their analysis.

The cases are carefully selected to show the interface between product and process technology under a diversity of competitive/economic circumstances. Topics include: economies of scale, vertical integration, diversification, location, expansion, modernization, and the various problems of managing decentralized and diversified manufacturing operations.

The process of analyzing an industry first and then assessing individual companies within the industry in terms of their production policy has proven useful not only to production specialists but also to investment analysts and general managers. The identification of the role of manufacturing policy in corporate strategy can provide very useful insights into the success or failure of individual companies within an industry.

half course.

456a. Probability and Statistics. Recent developments in statistical decision theory provide the manager with a framework for dealing with problems which involve decisions under uncertainty. The main focus of the course, Probability and Statistics, is application of decision analysis to managerial decision problems. Probability and utility assessments are applied to such decisions as mergers and acquisitions, competitive bidding, forecasting and oil exploration. Multiple regression and correlation applications are also covered. Case applications are examined in depth and students are required to submit project reports on a case situation or a decision problem of special interest to them.

half course.

457a. Management Planning and Control Systems. The course is designed for students who have had a course in management accounting and who wish to study management control in greater depth. Management control is the process by which management translates the organizational objectives and strategy into specified goals for attainment in a specified period of time, and secures the efficient accomplishment of these goals. The course deals with systems that facilitate this process with particular attention to those designed for use at divisional and top management levels. Topics include measurement of performance, considerations relevant to setting up investment centers and profit centers, transfer pricing, control of managed costs, the annual planning/budgeting process, and long range planning.

half course.

461b. Marketing Planning. Rapid changes in the economic, social and technological environment make it imperative that marketing managers develop operating programs with consideration for future events. Developing such programs is the marketing planning function. Marketing planning is viewed in this course as a continuous process involving: (1) Setting company marketing goals; (2) Assessing market opportunities; (3) Developing a marketing strategy; (4) Developing a set of integrated action programs; (5) Monitoring the implementation of programs and adjusting the marketing plan. The course addresses all steps in the process but emphasis is given to steps (4) and (5). Within step (4) emphasis is given to new product programs. Throughout the course attention is given to the development of marketing planning systems — organizations and procedures — to make marketing planning a formal, co-ordinated, continuous process. Problems of implementation of new plans and systems in an ongoing organization are highlighted. During the term, students work in groups and individually to prepare realistic, detailed plans and planning

systems in a variety of problem contexts. There are a number of comprehensive presentations by students that are critically reviewed by other students in the class. It is expected that operating business managers will take part in a number of the discussions.
half course.

464a. Purchasing. The Purchasing course recognizes the increasing importance of purchasing as a major function of management, and seeks to develop currently useful principles upon which sound procurement policy and its administration are based.
There are two major sections to the course. The first, encompassing approximately two thirds of the course, is designed to establish a good understanding of basic concepts and techniques in the field of materials management. The remainder is devoted to a series of options selected by the class from topics like personal buying, negotiation, plant visits, reports, selected commodity studies and so on. The introduction to the basic section is devoted to the relationships between the purchasing department and other departments of the organization. It is designed to indicate the nature and scope of the purchasing function especially as it affects the profitable operation of a business. Subsequently, attention is devoted to problems involved in determination and description of proper quality, including the relation of price to quality; materials management, including inventory control; value analysis; source selection and the assurance of supply; price policies; procurement by manufacture and leasing as alternatives to purchasing. The course concludes with an examination of problems requiring an appraisal of the efficiency with which the purchasing function is being performed.
Study materials consist of readings and cases taken from organization situations involving an array of purchasing problems. The point of view is essentially that of top management.
half course.

466b. Mathematical Programming. The Mathematical Programming course deals with the mathematical theory behind the various optimization techniques for linear and non-linear systems. Throughout the course, theory and applications are intermingled. The depth in which each topic is covered is largely dependent upon the students in the course. The areas treated include introduction to linear algebra and functional analysis, extensions to linear programming and various topics in non-linear programming.
half course.

468a. Human Relations. The Human Relations course has a twofold purpose: to develop increased self-awareness, and to develop understanding and skill in interpersonal behaviour. One portion of the course stresses personal growth and development. A second emphasizes sources of misunderstanding between people, understanding others from their point of view, and helping others to understand their own behaviour and the consequences of such efforts. Throughout the semester students are expected to draw on diverse disciplines, materials and experiences to expand their source of useful and relevant information for their growth as individuals and as professional managers. Exercises of various types are used in addition to classroom discussion. Time and instructor guidance are provided for pursuit (individually or in groups) of topics of special interest to students.
half course.

471b. Advertising Management. The Advertising Management course considers in depth the broad range of management decisions involved in the conception and implementation of successful advertising programs. It

focuses attention on two levels of decision making. Level one, the operational level, deals with the major issues associated with the development of an advertising campaign itself, largely within the context of a given marketing strategy. Level two, the senior executive level, centers around the relationships between client and agency and the organizational problems of agencies and client advertising functions.

At the operational level the specific types of problems covered fall into the following categories: budgeting, developing advertising and strategy, the development of advertising programs within the agency, testing advertising programs, implementation, control and evaluation of the advertising program.

At the senior executive level, the issues examined revolve around agency selection and termination, client-agency operational policies, organization and control within the agency, and termination of the client-agency relationship.

half course.

473b. Financial Institutions. The Financial Institutions course has two broad objectives. The first is to study the organization, operation and regulation of the money and capital markets in the Canadian economy. The second is to analyze the effectiveness of banks and financial intermediaries in influencing the flow of funds as well as the problems of the businessman in making maximum use of the services they provide. The course is designed to be of interest and value to those who are considering careers with such firms. However, it should also be of benefit to those who desire to develop their understanding of the world of finance for a career in non-financial firms.

During the course the following kinds of questions will be discussed. What is the structure of Canada's financial community in terms of legal organization, locus of voting control, distribution of equity ownership, availability and adequacy of coverage of financial services? What are the kinds and magnitudes of the various fund flows through different classes of financial institutions? How does the Bank of Canada regulate the flow of funds? How can financial managers anticipate monetary and debt policies and guard against adverse consequences of sudden reversals in policy? Particular attention will be given to an evaluation of the institutional strategies used in competing for deposit and other funds, and on the effective employment of these funds in the financing of business and individual capital needs. An examination will be made of the extent to which trust and loan companies, consumer and industrial finance companies, and industrial development corporations facilitate the business operations of non-financial firms. Also examined is the role of investment bankers in developing opportunities for the temporary investment of idle balances in the short term money market, as well as their activities in private and public placement of securities. Of over-riding concern throughout this course is the reconciliation of the objectives of various financial institutions with the demand for funds by the business community, the requirements of supervisory authorities, and the public interest.

half course.

474b. Management of Technology. The impact of technological change on the manufacturing facilities of the firm is far-reaching in its implications. For management, the penalties of poor decisions about production technology rise quickly with technological sophistication. The Management of Technology course focuses on management of technological resources with some emphasis on production facilities. Its objectives are: (1) to improve the student analysis of eco-

nomic and technological factors relevant to management decisions about uses and control of technological change within the firm, (2) to increase student understanding of technological change as a factor in business activities, and (3) to develop approaches to managing production processes under conditions of technological change.
half course.

480a. International Business. The International Business course examines, largely via case studies, the management problems that arise when firms do business abroad. It is built around the notion that a firm's international experience tends to evolve through certain stages, beginning with export operations progressing to direct investment in production facilities abroad and culminating in multi-national operations where the firm essentially has no "domestic" market. The skills and resources required for successful operation differ at each stage in the progression, and an awareness of this can sharpen managerial responsiveness. The course also centres on the effects of foreign direct investment on host countries. This is examined from the point of view of less-developed countries in need of economic assistance and from the Canadian point of view as a major user of foreign capital. In Canada's case, the question of a national industrial strategy necessarily arise and is approached from the standpoint of how independent Canadian firms can best cope with critical competitive advantages of the multinational enterprise.
half course.

483a. Taxation. The Taxation course has two major objectives. The first is to offer a broad understanding of the Canadian tax system in its economic, legal and accounting settings. Fundamental legal and economic concepts will be studied as well as specific provisions and problems that commonly arise. The second objective is to relate the provisions of the taxing statutes to common business situations and problems. Emphasis here is on tax planning and the responsibilities of management to live the tax law.
half course.

484b. Planning Models in Production Systems. The essence of the Planning Models in Production Systems course is the examination of management science applications in the planning and design of production systems. Production is viewed as a complex man-machine system, operating in an organizational environment with cost as a significant criterion of success. Techniques involving information systems, decision processes, and mathematical models are studied in terms of improving the performance of this system.
Specifically, the course adopts a system approach to production built on a basic economic model of the production function. The role of formal models such as mathematical programming, network analysis and queueing, and techniques such as simulation, are related to the design of the production system. Developments in behavioural models related to decision processes and information systems are studied for their managerial implications. Throughout, the emphasis is on the application of planning models in production systems as opposed to their theoretical derivation or degree of complexity.
half course.

493b. Capital Markets. The objectives of the Capital Markets course are to (1) define Canada's capital markets, (2) describe and analyze the flow of funds within these markets, (3) analyze the basic determinants of value, expected return and risk, in the context of financial assets, (4) establish the premises underlying the concept of an efficient market and compare the actual situation to the model

(5) develop the basic relationships between market prices and other economic data in order to explain and predict. The topics are developed by reading assignments followed by classroom discussion. In addition, students develop and undertake short research projects on financial markets for presentation in class.
half course.

496a. Computers and Information Systems. The Computers and Information Systems course is designed to give students an understanding of Computer Systems design and implementation in relation to Management Information Systems. One of the comments heard most often about computers and their relation to management is that the aspiring manager should be a knowledgeable consumer of computers. Students are given a background which will enable them to participate effectively in the design of an information system, the acquisition of an appropriate computer, and the operation of a computer installation. They are also provided with some insight into the impact of computers on organizations.
half course.

499. Research. The purpose of the Research course is to provide students with the opportunity to learn the research process by undertaking an individual project and preparing a research report. The experience of conducting an individual project can be useful to persons considering further academic work or doing special projects in industry.
Specific topics and activities are developed between students and a faculty member of their choosing who agrees to supervise their work. For example, a topic can be chosen on special interest in research techniques, or particular academic interest. In order to make best use of the course students are advised to plan their research and contact a faculty member in the spring or early summer of the calendar year in which the research is to be started.
one course.

ADDITIONAL COURSE OFFERINGS

There are two courses offered by the School of Business Administration which have considerable appeal to students considering entering one of its programs of study, or wishing to pick up some basic grounding in the management techniques taught therein. These courses, Business 020 and Business 257, are described below.

020. Introduction to Business. This is an introductory survey course which assumes no prior study of business administration. The course is designed to present an opportunity for students to examine and discuss a broad range of business cases involving situations where analysis and decision-making are required. Emphasis is placed on developing an understanding of the nature and scope of the field of business administration; the various knowledge, attitude, and ability factors involved in administrative effectiveness in the functional areas of business; the management decision-making process, business terminology; and general information about various industries and types of organizations.
While students are expected to learn much about the problems which managers face, the major benefit they will receive from the course should be a feeling for, and an understanding of, the environment in which the manager must make decisions. The course should teach something of what is involved in good judgment as against bad; and above all, it should develop

the capacity for forming sound decisions on the basis of the information available. The course continually stresses that it is management's function to make decisions, to make them promptly, and to make them on the basis of what is known, with no more than a proper respect for what is unknown.

The course is divided into five parts: (1) financial function, (2) personnel administration, (3) production, (4) marketing, and (5) general management. The first part of the course, dealing basically with the financial function—figure management aspects of administration and the management of funds that must be invested in a business in order to achieve its objectives—is concerned with legal and financial implications of different forms of business organization, analysis of balance sheets and profit and loss statements. Special attention is paid to the flow of funds resulting from a company's operation, formulation of policies in regard to the nature and timing of capital expenditures, sources of capital in Canada and the methods whereby it may be obtained.

In the second section of the course, an opportunity is provided for students to develop an awareness of the administrative practices and human relationships that form the core of any business. Cases and readings in this area consider the importance of people in administrative situations, the motivations, actions and relationships of people in various levels of a business and the conflicts that may stem from differing individual and group characteristics, attitudes, and value systems. The material deals primarily with the problems arising from the inter-personal relationships of people in working situations and emphasizes working relationships, selection and placement, training and evaluation, salary and wage administration, union-management relations, and personnel department operations. Topics studied in the production section of the course include plant location and layout, equipment installation, inventory control, methods for controlling the amount and quality of the product(s) being produced, decisions as to whether a product should be made by a company or purchased from an outside manufacturer, and the many different overall problems involved in organizing the manufacturing function of a company.

The cases in the marketing section of the course present problems involving consideration of the characteristics and buying habits of consumers; determination of the types of products that should be sold; choice of distribution channels; use of promotional tools such as personal selling, advertising, and special sales promotion methods; pricing, marketing research and the planning of marketing programs. The fifth and concluding section of the course focuses on general management problems. It enables students to become acquainted with the problems of a business as seen from the level of top management where company-wide objectives are set and departmental policies and operations are coordinated.

257. While this course is designed primarily as a preparation for entry to the School of Business Administration, and as a prerequisite to entry therein, it has wider applicability for the understanding of data flows in the business sector. The course is composed of 3 inter-related parts.

(1) Financial Accounting

Develops the Financial Accounting model used in public reporting; in particular it examines generally accepted methods of presenting the economic status and performance of the firm. The uses and limitations of financial statements are assessed, so that students can read and interpret the published financial reports, and can also gain an appreciation of the

important types of information which financial statements do not contain.

(2) Management Accounting

Approaches the accounting model from the point of view of the management of the firm. Develops methods of internal reporting and assesses the types of data relevant to typical decision-making situations facing managers.

(3) Data Analysis

Deals with the development, interpretation and use of Statistical information to isolate, quantify and communicate facts and opinions. This part of the course is taught by the use of actual information gathered in ongoing projects. The course includes a student team project which interrelates the three parts of the course and exposes students to actual proposals for new business ventures.

Prerequisite: five courses at University level.

GRADUATE COURSES IN BUSINESS ADMINISTRATION

In addition to its Undergraduate Program, the School of Business Administration offers the opportunity for graduate work in the field of business administration. The graduate program which leads to the degree of MBA is designed to cover two academic years. To enter this program, candidates must hold a recognized undergraduate degree from an accredited university or have equivalent qualifications. Moreover, their record must indicate that they are capable of doing graduate work. Admission to the Program may be offered by the School to candidates without an undergraduate degree if they can demonstrate that their previous work experience and leadership qualities clearly indicate a high potential for management. In 1960, the School instituted a program leading to the Doctor of Philosophy degree in Business Administration. The stated purpose of this course is to train prospective teachers and researchers of business administration. Admission procedures are highly selective. Further information on the MBA and PhD programs may be obtained from the Admissions Office, School of Business Administration.

UNDERGRADUATE PASSING AND GRADUATION REQUIREMENTS

1. Senior Year

To enter the Senior Year students must:

(a) pass all courses in the Junior Year,

(b) obtain an average of 60% or better in the Junior Year,

(c) obtain a grade of 70% or better in at least one course,

(d) have no more than one course with a grade below 60%.

2. Graduation

To graduate students must:

(a) pass all courses taken in the Senior year,

(b) obtain an average of 60% or better in at least one full course or two half-year courses,

(d) obtain, for each grade less than 60%, a balancing grade of 70% or better in courses of equivalent weight. One full-year course will be weighted equivalent to two half-year courses.

Under special circumstances students who do not meet the above standards may be passed as a result of Faculty action.

STUDENT ACTIVITIES

At the School of Business Administration, extracurricular activities are considered to be an integral part of university life, and students are urged to participate in the many and varied clubs, events and positions available to them. The organization which governs the activities of the undergraduate students is the Undergraduate Business Council. The Council arranges social and athletic events and, in conjunction with the MBA Association and with the Faculty, sponsors many extracurricular events. Furthermore, the Council makes it possible for undergraduate students to participate in the Investment Club, the Marketing Club, the International Business Club, and the Small Business Club. Not only do these clubs provide a place for lively discussion in their meetings, but they are also responsible for bringing speakers to the School to address the students. These speakers are leaders from the various levels of government, and different types of business and industry ranging from small firms to multi-national corporations. They address the students on topics varying from technical business problems to the various social responsibilities of corporations in today's changing world. The Council also works with the School's Placement Office to provide knowledge of career opportunities and to actively assist in the placement function at both the summer and permanent levels.

Students, however, do not have to limit themselves to the Business School in order to round out their educational experience while pursuing undergraduate studies. Within the University there are a wide range of opportunities and facilities available to interested students. Student government, the University Senate, the student publications such as the Gazette, Folio and Occidentalia offer challenging and responsible posts. There are also clubs whose membership is University-wide. Examples of these groups are the Ski Club, Purple Patches, the Gilbert and Sullivan Society, the Debating Society, the Sports Car Club and the U.W.O. Choir. All of these are active bodies and sources of enjoyment for their members. For those students who are interested in sports, there are particularly extensive programs at both the intramural and intercollegiate levels. Facilities and instruction are available for squash, tennis, swimming, badminton, football, soccer, rugger, hockey, basketball, skiing, wrestling and fencing.

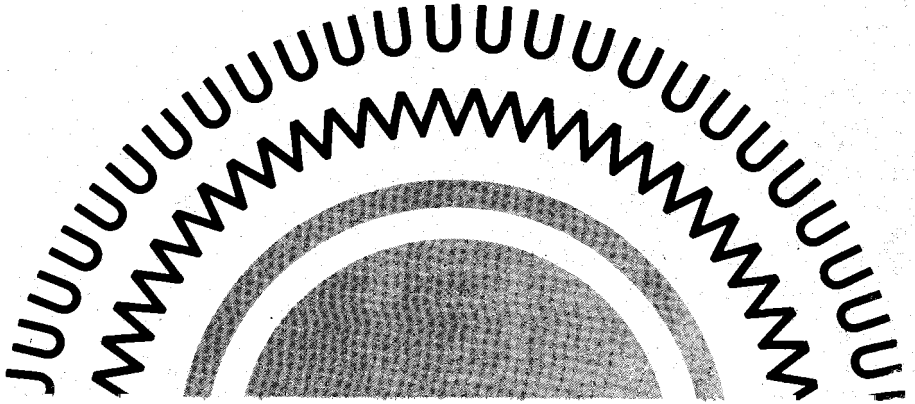
Activities, however, are not exclusively for the benefit of the students. For the wives of the married members of the program, a Biz Wives Club has been formed by the wives themselves. The purpose of this club is not only social, but also to keep the wives abreast of the topics and concerns that their husbands are dealing with in their business studies and will be facing in their future careers. Toward this end, the wives participate in a classroom discussion series led by Faculty members.

THE PLACEMENT PROGRAM

The conditions of study in the Program place a premium on free time, since most of the day is spent in the serious study of business problems. Students must, therefore, plan their placement program in order to use their free time as economically as possible. It must be understood that the effective placement of students is wholly their own responsibility; however, the Placement Office endeavours to assist students to make the most of their efforts. During the fall term, the School provides opportunities for students to participate in meetings dealing with career counselling, personal career strategy development, effective placement procedure, resume writing and general orientation to effective placement. During a six week period in January and February each year, all interested companies are invited to visit the School for the purpose of discussing employment with students in their graduating year. Information about each class is forwarded to over 7,000 top management people across the country and abroad. In addition, the graduating class and the Business Council run a program of self help in conjunction with the Placement Office activities. This program is designed to make each class as well known as possible to the business community of Canada. These activities result in a continuing flow of excellent job opportunities being brought to the attention of each graduating class.

The students take the responsibility for seeing that the concentrated on-campus program runs effectively from day to day. Active participation in this activity has increased its value to both students and employers.

Faculty of Engineering Science



OFFICERS OF ADMINISTRATION

Dean: A. I. Johnson, BASC., MChE, PhD, PEng
Room 2005A Phone: 679-3304

Assistant Dean (Graduate Affairs): J. E. Zajic, BA, MS, PhD, JD, PEng
Room 118A (Bio-Building) Phone: 679-3419

Assistant Dean (Undergraduate Affairs): G. S. P. Castle, BESc, MSc, DIC, PhD, PEng
Room 2006, Phone: 679-2769

Student Services Officer: W. H. Peacock, BASc, MASc PhD, PEng
Room 2085 Phone: 679-3317

Secondary School Liason Officer: I. J. Duerden, BSc, D Phil
Room 2063 Phone 679-2159

Librarian: B. Brajsa, BESc, MASc, BLS
Room 1001, Phone: 679-3341

Faculty of Engineering Science

Chairman, Chemical and Biochemical Engineering: M. A. Bergougnou, MS, PhD
Room 2059A, Phone: 679-3326

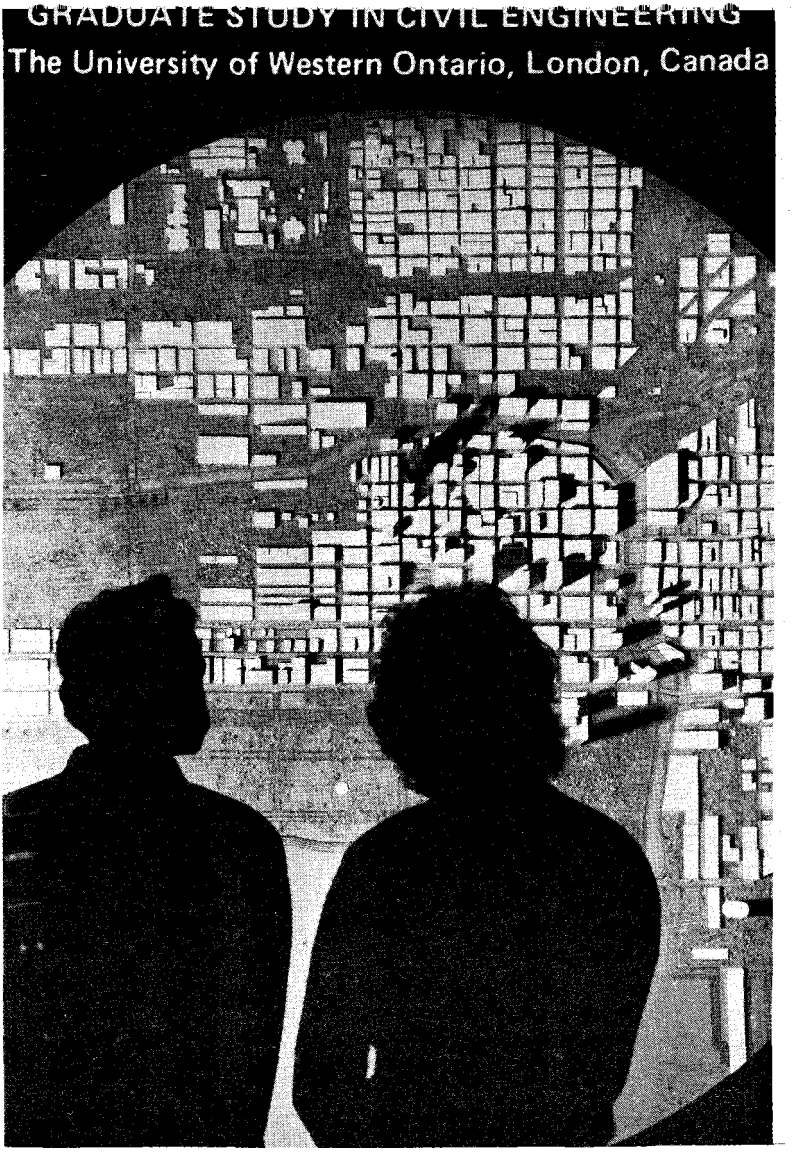
Chairman, Civil Engineering: A. G. Davenport, BA, MASc, PhD, PEng
Room 113 (Wind Tunnel) Phone: 679-3307

Chairman, Electrical Engineering: I. I. Inculet, Dip Ing MSc, PEng
Room 2077 Phone: 679-3333

Chairman, Materials Science: J. D. Brown, BSc, PhD
Room 2009D Phone: 679-3344

Chairman, Mechanical Engineering: E. S. Nowak, BEng, MSME, PhD, PEng
Room 2073, Phone: 679-3323

Chairman, Core Studies: R. K. Swartman, BSc, MSc, PEng
Room 2069B Phone: 679-3332



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Mr. J. H. Scrimgeour, PEng	Dept. of Industry, Trade and Commerce
Dr. J. A. Tanner, PEng	National Research Council

GENERAL FACULTY INFORMATION

A MODERN DEFINITION OF ENGINEERING

While Engineering has traditionally been concerned with the application of science, a new definition has recently been introduced: Engineering is the profession, responsible and accountable for man's physical environment, its management and control. In this era of concern for over population, the remedying of past damages to our environment and the utilization of the world's remaining resources to the best advantage, this profession offers tremendous challenges and opportunities to young men and women. The Faculty of Engineering Science at Western Ontario provides the educational foundations, and introductory practical experience for meeting these challenges.

THE FACULTY AND ITS FACILITIES

Engineering Science was established in 1954 as an honours program in the Faculty of Arts and Science. The first graduates received their Bachelor of

Engineering Science (BESc) degree in 1958. In 1960 the Faculty of Engineering Science was formed and located in the newly constructed Alexander Charles Spencer Engineering Building. This move from temporary quarters permitted a large increase in modern laboratory facilities in the areas of Chemical, Civil, Electrical and Mechanical engineering. During the early sixties a program in Materials Science was added, as well as graduate studies and research in several areas of engineering. An IBM 1130 computer was installed principally for use by undergraduate engineering students. In the late sixties, increased undergraduate enrolment and the expansion of research and graduate activities necessitated a large addition to the building now shared in part by the mathematical and computer sciences. Several unique and outstanding laboratory facilities including The Boundary Layer Wind Tunnel and the Biochemical Laboratory currently attract national and international attention.

THE UNDERGRADUATE PROGRAM

The basic sciences, mathematics and communication methods such as graphics, form the basis of all engineering. At Western, all engineering students study essentially the same subjects in the early part of their program. Following this, the student chooses a particular field of engineering from among the five options offered; Chemical and Biochemical, Civil, Electrical, Mechanical Engineering, and Materials Science. (Currently before Senate is a proposal for the introduction of a "credit system" for introduction in the fall of 1974. With its introduction, students will be able to select their option on the successful completion of three academic terms.)

The common program in the first two years allows for the interaction of engineering students with both faculty members and students of other disciplines. In the early terms the student may find that much of the instruction takes place in other faculties in the university. However, the Core Studies Group Chairman of the Faculty of Engineering Science and members of his group are charged with and dedicated to the responsibility of supervising the education and morale of the students before selecting their special field of engineering. Members of the faculty associated with the Core Studies Group have pioneered and stimulated many innovations leading to better faculty-student cooperation and communication. Research and development of the self-paced instruction method and its application to specific courses are but one example. Such initiatives are important in the "core" since it is where the foundations of knowledge and habit are laid, and student confidence and aspiration fostered. After a student has chosen his field of interest he may find that some courses are still taken in common with students from other programs.

Opportunities exist for students to develop and follow their individual interests and they are encouraged, particularly in their senior terms, to undertake work which will bring them into close working contact with individual professors and advanced laboratory facilities.

Students in the early terms may find that they are in large classes for lectures but that in many courses they also work in smaller tutorial groups. In the upper years the classes are small, which allows the student close interaction with the professor.

Emphasis is placed on each student developing his individual talents and abilities in order to equip him or herself for a professional career. Part of this personal development may involve working with a group to develop a specific project. In recent years student groups from Western have had significant success in national

and international competitions sponsored by a variety of engineering groups. For example, Western students won the prize in the Electric Car Division in the Urban Vehicle Design Competition as well as gaining the highest number of points overall. This competition had entries from over 60 engineering schools across North America.

The Credit System

The Faculty of Engineering Science currently (November 1973) has before the Senate certain proposed changes that will be phased into the existing curriculum over a four year period beginning with Year I in September 1974. The following paragraphs describe the revised regulations, subject to ratification by the University Senate.

(NOTE; This ratification was obtained at the meeting of Senate on Dec. 13, 1973. The following regulations become effective for Year I in 1974 and will be phased into the upper years over a four year period.)

CURRICULUM

1.1 The curriculum is based on a term system in which all courses of instruction (with the exception of some courses given by other Faculties) are one term in duration. Students who are in First Year for the first time will be evaluated for progression at the end of the second term; all other students will be evaluated for progression at the end of each term.

1.2 For guidance of students and to facilitate timetabling, the program has been divided into eight terms. A regular program usually consists of six courses per term except in the final year where there are seven courses per term including the project. However, students may, subject to the academic regulations and timetabling, proceed through the program at their own pace and are not required to take courses in sequence provided that they meet all prerequisites and corequisites.

1.3 The curriculum, provides to the student some latitude in choosing his program of study. In addition to electing courses leading to specialization in one of the various disciplines of engineering he is able to choose from a wide range of technical and non-technical electives.

1.4 The credits shown opposite each course of instruction represents the number of hours per week, including both scheduled classroom time and personal work, that students, on the average, are expected to devote to that course. The credits are used in computing the weighted average of the work of a student for that term and should be used by the student as a guide in budgeting his time.

ELECTIVE COURSES

2. There are two categories of elective courses, viz. Technical Electives and Non-Technical Electives. In general, students may not select elective courses which would involve excessive overlap of material covered elsewhere in his program. The following paragraphs provide further guidance on the selection of elective courses.

2.1 **Technical electives.** These are specified in the curriculum of the program in which the student is registered and in most cases the choice is restricted to a specified list. The availability of a particular elective course may depend on a sufficient number of students wishing to enrol. Technical electives must carry a credit value of at least 6 units per term.

2.2 **Non-technical electives.** Each student must include in his program the equivalent of six one-term courses (with a credit value of at least 6 units per term), that are non-technical in nature. Courses may be selected from either of the following groups.

(a) ES 290 Man and His Environment

(b) Courses offered by other Faculties in The University (with the approval of the student's counsellor).

2.3 Notes:

(i) A course specified as "Elective" may be *either technical* or non-technical.

(ii) The credits per term assigned to elective courses offered by other Faculties shall normally be computed as the sum (three times the number of lecture hours per week plus the number of laboratory hours per week).

(iii) A student, with the approval of his counsellor, may be permitted to substitute equivalent courses for a limited number of courses prescribed in his program of studies. For example, a student wishing a stronger mathematics background might request a substitution of other honours mathematics courses for the mathematics courses prescribed in the Engineering Science program.

ACADEMIC REGULATIONS

3. **General**

3.1 **Academic counselling.** Each student in the Engineering Science program shall be assigned a faculty member for academic advice and planning (a student must obtain the signature of his counsellor on the pre-registration form each year when planning his program for the subsequent year). For students entering terms one, two, or three of the program, the counsellors shall be appointed by the Chairman of the Core Studies Group; for students in subsequent terms, the counsellor shall be the Chairman (or designate) of the appropriate Group.

3.2 **Credits.** The credits for a course are expressed as a number associated with the course which indicates its relative weight.

3.3 **Rate of work.** Students may complete the program by full-time and/or part-time studies.

(1) Full-time students. A student will normally require four academic years to complete the requirements for the degree BESc. However, with the permission of the Dean of the Faculty (in consultation with the student's counsellor) a student may accelerate his progress by:

(a) during the Winter Session taking more than the normal number of credits shown in the academic calendar, and/or

(b) during the Intersession or Summer Session taking additional credits at The University of Western Ontario or at other universities on Letters of Permission.

A student may decelerate his progress by taking fewer than the normal number of credits shown in the academic program.

(2) Part-time students. A student who does not register in at least 3 1/2 full (or equivalent) courses in the Winter Session is classed as a part-time student. (A full course is defined as one requiring a minimum of 52 contact hours.)

3.4 **Residence requirements.** At least twelve full (or equivalent) courses must be completed from those offered by The University of Western Ontario. These requirements may be altered by the Dean of the Faculty of Engineering Science for students admitted with Advanced Standing.

4. **Progression**

4.1 **Weighted averages.** Term weighted averages (TWA) and cumulative weighted averages (CWA) are used to evaluate students for progression. Students in the First Year for the first time shall be evaluated at the end of the second term of the academic year; all other students shall be evaluated at the end of each term.

4.2 **Weighted mark.** The weighted mark for a course is the product of the credits for the course and the mark obtained by the student.

4.3 **Term weighted average.** The TWA is the total of the weighted marks accumulated by the student in one term divided by the number of credits attempted in that term.

Note: Courses that extend over two terms shall not be included in computing the TWA for the first term.

4.4 Cumulative weighted average. The CWA is the total of weighted marks accumulated by the student from the time the student enrolled in the program divided by the number of credits attempted.

Note: If courses have been repeated or substitutions allowed, the most recent results shall be used in computing the CWA.

4.5 **Good standing.** In order to remain in good standing, a student must at the end of each term achieve a TWA of not less than 55% and maintain a CWA of not less than 60%.

4.6 **Failed courses.** Supplementary examination privileges are not offered in the Faculty of Engineering Science. Credit for failed courses must be obtained either by repeating the course or by taking an approved substitution.

4.7 **Probation.** A student who at the end of any term obtains a CWA in the range 55-59% may progress in the program but shall be placed on probation for one term. A student on probation must, by the end of the probationary term, raise his CWA to 60%.

4.8 **Suspension.** A student who at the end of any term

(a) obtains a TWA of less than 55%

(b) obtains a CWA of less than 55%

(c) fails to meet the conditions of a probationary term

shall be suspended for an indefinite period from further studies but may at any time submit a written petition to the Dean of the Faculty to have the suspension removed. The Dean, in consultation with the Undergraduate Division of the Executive Committee of the Faculty Council, and the student's counsellor, shall rule on the petition and determine the conditions under which the student will be allowed to continue.

Note: Conditions might include, for example, suspension for a definite number of terms, repeating all courses in the previous one or more terms for which a mark of less than 60% was obtained, placed on probation for one or more terms.

4.9 **Withdrawal.** A student who has been suspended from further studies and whose petition has been denied shall be required to withdraw from the program.

4.10 **Degree requirements.** A candidate for the degree BESc shall pass all courses in his approved program of studies with a CWA and TWA of not less than 60% in his final term.

5. **Extra Courses**

A student wishing to take extra courses (not required in his approved program of studies) may, with the permission of the Dean of Engineering Science, enrol in one extra course per term. Such courses will not be included when evaluating the student for progression.

GRADUATE STUDIES

For information on Graduate Studies in Engineering Science see the Graduate section of this calendar.

REGISTRATION AS A PROFESSIONAL ENGINEER

The requirements for registration as a Professional Engineer vary somewhat from province to province. Applicants for registration with the Association of Professional Engineers of Ontario (A.P.E.O.) must have successfully completed a university course in engineering accredited by the Association or have passed qualifying examinations set by the Association. The program in Engineering Science at The University of Western Ontario has been accredited by the Association. In addition, applicants must obtain two years of acceptable engineering experience as Graduates-in-training to qualify for registration.

The Association of Professional Engineers of Ontario is responsible for the administration of the Professional Engineers Act, the control of registration and such things as maintenance of ethical standards of its members in the interest of the general public. The title Professional Engineer, PEng., is employed by members in good standing with the Association.

Registration in other Provinces is subject to similar regulation, the details of which may be obtained from the Professional Engineering Association of the various provinces.

ENGINEERING

CORE STUDIES GROUP

Chairman: Professor R. K. Swartman, MSc *Queen's*. **PROFESSORS:** Emmerson, Inculet. **ASSOCIATE PROFESSORS:** Duerden, MacDonald, Olson, Peacock, Rosati, Shelstad, Swartman, Tarasuk **ASSISTANT PROFESSORS:** Svrcek.

The Core is defined as the central part around which everything else is built. Thus the Core Studies group co-ordinates the course offerings that are common for all engineering students no matter what their final option may be.

Year I (terms 1 and 2) includes basic sciences (chemistry, physics), mathematics, graphics, mechanics (statics and dynamics) and an introduction to engineering. At this stage emphasis is primarily on laying a firm groundwork for the engineering courses. Year 2 (terms 3 and 4) includes the fundamental engineering science courses, applied mathematics, computer programming and an engineering laboratory course. These courses lead into the more applied and the design courses given in the different options in the upper years.

FIRST YEAR PROGRAM (1974/75)

TERM 1		Lect.	Lab.	Tut.	Personal	Credits
AM 020	Engineering Mathematics I	3	-	1	5	9
ES 020a	Engineering Graphics I	1	3	-	3	7
ES 022a	Mechanics of Solids	3	-	1	5	9
Phys 028a	Electricity and Magnetism	2	2	-	5	9
Non-technical elective		-	-	-	-	-
and ONE of:						
†Chem 023	General Chemistry	3	3	-	3	9
††Chem 020	General Chemistry	2	3	-	4	9
††Chem 024a	General Chemistry	3	3	-	3	9
						48 min.

†for students without Grade XIII Chemistry
††for students with Grade XIII Chemistry

TERM 2		Lect.	Lab.	Tut.	Personal	Credits
AM 020	Engineering Mathematics I	3	-	1	5	9
ES 021b	Engineering Graphics II	1	3	-	3	7
ES 023b	Engineering Dynamics	3	-	1	5	9
Non-technical elective		-	-	-	-	-
and TWO of:						
†Chem 023	General Chemistry	3	3	-	3	9
††Chem 020	General Chemistry	2	3	-	4	9
Phys 027b	Optics and Sound	2	2	-	5	9
ES 024b	Engineering Problems	2	2	1	4	9
						48 min.

NOTES:

1. Students wishing to take senior Chemistry courses as electives will normally require Chem 020 or Chem 023 as prerequisites although Chem 024a may be accepted with the permission of the Department of Chemistry. Chem 024a is the recommended chemistry course for Engineering Science students.

2. Students wishing to take senior Physics courses as electives will require Phys 020 as a prerequisite. Phys 020 may be substituted for Phys 028a and Phys 027b. However, it should be noted that the electricity and magnetism content of Phys 020 is not as great as it is for Phys 028a.

DESCRIPTION OF COURSES

NOTE: E. S. denotes an Engineering Science Course.

E.S. 020a. Engineering Graphics I. Topics include: use of instruments, geometrical constructions, sketching, orthographic projections, sectional views, dimensioning, auxiliary projections, axonometric projection, perspectives, vector analysis, layouts for empirical equations, nomographs and graphical mathematics.
1 lecture, 3 lab hours.

E.S. 021b. Engineering Graphics II. Continuation of topics from E.S. 020a. Another significant part of the course is a design project which the student must present in the graphic form. The purpose of the project is to develop the creative and innovative skills of the student while giving him confidence in the use of graphic communication.
1 lecture, 3 lab hours.

E.S. 022a. Mechanics of Solids. Emphasis is on equilibrium and resolution of forces. Topics include: moments, couples, friction, centroids, moments of inertia; torsion, bending moment and shear force diagrams for simple supported and cantilever beams, stresses due to bending and Mohr's circle.
3 lectures, 1 tutorial hour.

E.S. 023b. Engineering Dynamics. Topics include: rectilinear, angular and curvilinear motion; kinetics of a particle, a translating rigid body and a rigid body in pure rotation; definitions of different energies and energy balance; power and efficiency; and linear impulse and momentum.
3 lectures, 1 tutorial hour.

E.S. 024b. Engineering Problems. Topics include: strategies for problem solving, introduction to design using open-ended problems and design of machine elements and structures. The emphasis is on concepts developed in the Mechanics of Solids course (E.S. 022a).
2 lectures, 2 lab hours, 1 tutorial.

Chem. 020. General Chemistry. The fundamental principles of Chemistry, including the kinetic theory and states of matter, the properties of solutions, chemical equilibrium, rate process and energy changes. Experiments in the laboratory are selected to illustrate these principles.
2 lectures, 3 laboratory hours.

Chem. 023. General Chemistry. For students who have not had Grade XIII Chemistry.
3 lectures, 3 laboratory hours.

Appl. Math. 020. Engineering Mathematics 1. Limit of a function, continuity; differentiation and integration of functions of one variable; applications; numerical methods of approximating definite integrals; polar coordinates; parametric equations; infinite series.
3 lectures, 1 tutorial hour.

Chem. 024a. General Chemistry. For students in Engineering Science program only.
Prerequisite - Grade XIII Chemistry. (This course is a suitable prerequisite only for Chemistry 203 and 212).
3 lectures, 3 lab hours, first term, half course.

Physics 028a. Electricity and Magnetism. For students in First Year Engineering Science. An introduction to electric fields, current electricity, magnetic properties of matter.
Prerequisite: Mathematics 10 or two credits in Grade 13 Mathematics, including a credit in Calculus.
Corequisite: Applied Mathematics 020.

2 lectures, 2 lab hours, first term, half course.

Physics 027b. Optics and Sound. For students in First Year Engineering Science. An introduction to the fundamentals of travelling waves, acoustics, reflection and refraction of light, simple lens systems and light wave phenomena.

Prerequisite: Mathematics 10 or two credits in Grade 13 Mathematics, including a credit in Calculus.
Corequisite: Applied Mathematics 020.
2 lectures, 2 lab hours, second term, half course.

SECOND YEAR PROGRAM (1974/75).

All Second Year Students

E.S. 020a, & E.S. 021b	Engineering Graphics I & II (if not taken previously)
E.S. 203	Heat, Mass and Momentum Transfer
E.S. 205	Electrical Science
E.S. 208	Computer Programming for Engineers
E.S. 209	Materials Science
E.S. 210	Engineering Laboratory
Appl. Math. 270	Engineering Mathematics II

Option A - Chemical & Biochemical Engineering

E.S. 204	Applied Thermodynamics
Chem. 203	Organic Chemistry

Non-Technical Elective to be approved by the Faculty

Option D - Materials Science

E.S. 202	Mechanics of Materials I

and TWO of:

Chemistry 203	Organic Chemistry
Chemistry 214	Elementary Physical Chem.
E.S. 201	Engineering Mechanics II
E.S. 204	Applied Thermodynamics

Option B, C and E - Civil Electrical and Mechanical

E.S. 201	Engineering Mechanics II
E.S. 202	Mechanics of Materials I
E.S. 204	Applied Thermodynamics

SECOND YEAR PROGRAM (1975/76 And Subsequent Years)

TERM 3		Lect.	Lab.	Tut.	Personal	Credits
AM 270	Engineering Mathematics II	3	-	-	6	9
ES 203a	Heat, Mass, & Momentum Transfer	3	-	1	5	9
ES 205a	Electrical Circuits 1	3	-	1	5	9
ES 209a	Properties of Materials	3	-	1	5	9
ES 210a	Engineering Laboratory 1	1	3	-	2	6
Non-technical elective		-	-	-	-	-
						48 min.

TERM 4		Lect.	Lab.	Tut.	Personal	Credits
AM 270	Engineering Mathematics II	3	-	-	6	9
ES 208b	Computer Programming for Engineers	2	3	-	4	9
ES 210b	Engineering Laboratory 11	1	3	-	2	6
Non-technical elective		-	-	-	-	-
						30 min.

Two additional courses prescribed for the particular discipline in which the student wishes to specialize.

DESCRIPTION OF COURSES (1974/75)

E.S. 201. Engineering Mechanics II. A continuation of Engineering Science 21. Kinematics and kinetics of plane motion; application of work-energy and impulse-momentum relationships; introduction to vibrations.
2 lectures, 2 problem hours, 1 tutorial hour.

E.S. 202. Mechanics of Materials I. Stress and strain, elastic and inelastic material idealizations, behaviour of assemblages, analysis of thin-walled pressure vessels, shearing force and bending moment, stresses in beams, deflection of beams, torsion of shafts, buckling of columns.
2 lecture hours.

E.S. 203. Heat, Mass and Momentum Transfer. An introduction to the basic principles of fluid mechanics and of the transport of heat and mass in systems of interest to engineers.
2 lecture hours.

E.S. 204. Thermodynamics. Properties of a pure substance, first law of thermodynamics, processes in open and closed systems, second law of thermodynamics, ideal gases, mixture of ideal gases, and psychiometry, compressors and ideal power cycles.
2 lecture hours.

E.S. 205. Electrical Science. Electrostatics, conductors and semi-conductors, magnetism and electrodynamics, principles of electric-circuit theory, principles of energy conversion, electrical measurements; sinusoids, complex numbers, phasors, transient and steady-state behavior of simple circuits, power and energy, network equations and theorems, polyphase systems; coupled circuits, transformers; Fourier analysis of non-sinusoidal quantities.
3 lecture hours.

E.S. 208. Computer Programming for Engineers. An elementary course in Fortran programming for the IBM 1130.
1 lecture hour, 1 1/2 tutorial hours.

E.S. 209. Materials Science. An outline of the scientific understanding of those properties of materials which are most important in engineering. The dependence of these properties upon the nature, structure and treatment given to materials.
2 lecture hours.

E.S. 210. Engineering Laboratory. Selected Experiments in Engineering Science.
3 laboratory hours.

Chem. 203. Organic Chemistry. (For description see Chemistry section)
2 lecture hours, 3 laboratory hours.

Chem. 214. Elementary Physical Chemistry. (For description see Chemistry section)
3 lecture hours.

Appl. Math. 270. Engineering Mathematics II. Partial differentiation, multiple integrals, infinite series including power series, an introduction to complex variables, elementary ordinary differential equations.
3 lecture hours.

ELECTIVE COURSES

Non-Technical Electives

E.S. 290. Man and His Environment. An interdisciplinary course designed to provide a thorough introduction to all aspects of the study of the environment and environmental problems in a manner which shows their intimate relations with one another.
2 lecture hours, 2 seminar hours.

Technical Electives

E.S. 361a. Air Pollution. This course deals with the nature and effects of air pollution. Individual aspects treated include the structure and physical behaviour of the atmosphere, types and origins of air pollutants, chemical reactions in the atmosphere, techniques of pollutant evaluation and surveys and effects of air pollutants on health and other aspects of urban and natural environments. This course is open to science majors (physical or biological sciences) as well as engineers.
2 lecture hours, half course, first term.

E.S. 361b. Water Pollution. The chemistry and properties of water and the important pollutants of water are presented. Toxicity, energy imbalances in nature and the common unit processes used in pollution control and abatement are discussed. Course is directed toward providing a background for science majors, biologists and engineers.
2 lecture hours, half course, second term.

E.S. 461a. Water Pollution Design. Design problems are undertaken and completed on specific pollution topics. Topics selected are activated sludge, trickling filters, oxidation ponds, anerobic digestion, composting, solvent extraction, flotation, settlers and clarifiers, incineration, chemical treatment, e.g. flocculation, coagulation, ozonation or chlorination.
2 lecture hours, first term, half course.

E.S. 461b. Air Pollution Control. This course deals in detail with sources of air pollution and the design and applications of air pollution control equipment. Subjects covered include descriptions of the air pollution emissions from specific operations, and theory of operation and design of control equipment.
2 lecture hours, second term, half course.

CHEMICAL AND BIOCHEMICAL OPTION

Chairman: Professor M. A. Bergougnou, MS Nancy, PhD Minnesota
PROFESSORS: Bergougnou, Bulani, Johnson, Sullivan, Zajic ASSOCIATE PROFESSORS: Baker, Beeckmans, Kosaric, Shelstad ASSISTANT PROFESSOR: Svrcek

Chemical Engineering encompasses all operations and activities associated with the conversion of raw or recycled materials into innumerable products for the benefit of mankind. It involves the research, development and design of processes and plants to manufacture these products.

The objective of the chemical engineering program is to help the student develop:

1) first and foremost, the ability to continue educating himself all throughout his life;
2) good engineering and professional judgement
3) an orientation towards problem formulation, invention, innovation and entrepreneurship.

This is done by providing constant interaction with a team of teachers who endeavour to pass on to their students the considerable experience and insights gained during many years of highly successful industrial Research and Development work. Because of the broad base and depth of his curriculum, the chemical engineer has the unique versatility and flexibility required in a great variety of industries: chemical, petroleum, mining, metallurgical, pulp and paper, nuclear, etc. as well as a great number of other parachemical and secondary industries.

THIRD YEAR PROGRAM - OPTION A - CHEMICAL AND BIOCHEMICAL ENGINEERING (1974/75, 1975/76)

E.S. 303a	Fluid Mechanics (1st term)
E.S. 307b	Heat Transfer (2nd term)
E.S. 305b	Electronics (2nd term)
E.S. 310	Chemical Engineering Lab. 1
E.S. 311	Unit Operations 1
E.S. 312	Industrial Process Chemistry
Appl. Math. 370	Engineering Mathematics 111
Chem. 304	Physical Chemistry for Engineering Students
Chem. 212	Analytical Chemistry

Non-Technical Elective to be approved by the Faculty.

NOTE: Courses E.S. 303a and E.S. 307b may be replaced with a Technical Elective with the permission of the Chairman of the Chemical and Biochemical Group.

CHEMICAL AND BIOCHEMICAL ENGINEERING (1976/77 And Subsequent Years).

TERM 4		Lect.	Lab.	Tut.	Personal	Credits
ES 204b	Thermodynamics	3	-	1	5	9
ES 212b	Industrial Processes 1	3	3	-	6	12
						51 min.

TERM 5		Lect.	Lab.	Tut.	Personal	Credits
AM 370	Engineering Mathematics III	3	-	-	6	9
ES 311a	Unit Operations I	3	3	-	6	12
ES 312a	Industrial Processes II	2	2	-	4	8
Chem 304	Physical Chemistry	3	1 1/2	-	6 1/2	11
ES 305a	Electronic Instrumentation and Measurement	2	1 1/2	-	4 1/2	8
Technical elective		-	-	-	-	-
						54 min.

TERM 6		Lect.	Lab.	Tut.	Personal	Credits
AM 370	Engineering Mathematics III	3	-	-	6	9
ES 311b	Unit Operations II	3	3	-	6	12
ES 315b	Chemical Engineering Kinetics	3	-	3	3	9
ES 312b	Industrial Processes III	2	2	-	4	8
Chem 304	Physical Chemistry	3	1 1/2	-	6 1/2	11
Technical elective		-	-	-	-	-
						54 min.

DESCRIPTION OF COURSES (1974/75, 1975/76)

E.S. 303a. Fluid Mechanics. Additional principles of incompressible and compressible fluid flow: dimensional analysis, dynamic similarity, fluid resistance, ideal (potential) flow, frictionless compressible flow; application of basic principles: fluid measurements, flow in closed conduits and open channels, aerodynamics, turbomachinery.
2 lecture hours, first term.

E.S. 305b. Electronics. Characteristic behavior of vacuum tube and semiconductor devices, and their use in linear amplifiers, oscillators and measuring instruments.
2 lecture hours, second term.

E.S. 307b. Heat Transfer. Principles of heat transmission by conduction, convection and radiation.
2 lecture hours, second term.

E.S. 310. Chemical Engineering Laboratory I. A laboratory course associated with the topics discussed in E.S. 311.
6 laboratory hours.

E.S. 311. Unit Operations I. Principles and applications of equilibrium stage processes.
2 lecture hours.

E.S. 312. Industrial Process Chemistry. A correlative discussion of a number of chemical industries in terms of unit processes, unit operations, physical chemistry, economics, and power.
2 lecture hours, 2 problem hours.

Appl. Math 370. Engineering Mathematics 111. This is a general course in Applied Mathematics for Third Year Engineering students, covering the following topics. First Term: finite differences, difference tables, interpolation, numerical solutions of differential equations, direct and iterative methods for solving linear algebraic equations. Second Term: linear algebra, Fourier Series, Fourier Integral, Laplace Transform.
3 lecture hours.

Chemistry 212. Analytical Chemistry. (For description see Chemistry section)
2 lecture hours, 3 lecture hours.

Chemistry 304. Physical Chemistry for Engineering students. (For description see Chemistry section).
2 lectures first term, 3 lectures second term, 1-1/2 laboratory hours.

FOURTH YEAR PROGRAM - OPTION A

CHEMICAL AND BIOCHEMICAL ENGINEERING (1974/75, 1975/76, 1976/77)

E.S. 400	Project, Report and Seminar
E.S. 408	Engineering Practice
E.S. 410	Chemical Eng. Lab II
E.S. 411	Unit Operation II
E.S. 412	Chemical Processes and Plant Design
E.S. 414	Instrumentation and Control
E.S. 415	Chemical Engineering Kinetics

Non-Technical Elective to be approved by the Faculty. (It is highly recommended that this elective be Business 279)

Any full course or the equivalent chosen with the approval of the chairman of the Chemical and Biochemical Engineering Group chosen from Non-Technical Electives, E.S. 300, 400 or 500 courses, or Faculty of Science 3rd or 4th year courses.

CHEMICAL AND BIOCHEMICAL ENGINEERING (1977/78 And Subsequent Years)

TERM 7		Lect.	Lab.	Tut.	Personal	Credits
†ES 400	Project	-	-	-	6	6
ES 408a	Engineering Practice I	2	-	-	4	6
ES 411a	Unit Operations III	2	3	-	4	9
ES 412a	Plant Design I	2	4	-	4	10
ES 419a	Industrial Instrumental Analysis	3	3	-	6	12
Elective		-	-	-	-	-
Non-technical elective		-	-	-	-	-
						55 min.

TERM 8		Lect.	Lab.	Tut.	Personal	Credits
†ES 400	Project	-	-	-	6	6
ES 408b	Engineering Practice II	2	-	-	4	6
ES 411b	Unit Operations IV	3	3	-	6	12
ES 412b	Plant Design II	2	4	-	4	10
ES 414b	Instrumentation and Control II	3	-	-	6	9
Elective		-	-	-	-	-
Non-technical elective		-	-	-	-	-
						55 min.

†A student may, with the permission of his Group Chairman and the approval of his counsellor, substitute a technical elective for ES 400.

TECHNICAL ELECTIVES		Lect.	Lab.	Tut.	Personal	Credits
ES 361a	Air Pollution	2	-	-	4	6
ES 361b	Water Pollution	2	-	-	4	6
ES 461a	Water Pollution Design	2	-	-	4	6
ES 461b	Air Pollution Control	2	-	-	4	6
ES 413a	Selected Topics In Chemical Engineering	2	-	-	4	6
ES 416a	Biochemical Engineering I	2	-	-	4	6
ES 416b	Biochemical Engineering II	2	-	-	4	6
ES 417a	Catalytic Processes in Modern Industry	2	-	-	4	6
ES 418a	Fluidized Bed Processes	2	-	-	4	6

DESCRIPTION OF COURSES (1974/75, 1975/76, 1976/77)

E.S. 400. Project, Report and Seminar. Selection and investigation of an engineering problem. Analytical and/or experimental work is carried out by individual students or project

groups under the supervision of a faculty member. Progress reports and a final engineering report are prepared; each student must deliver a public lecture.

A student who, in connection with another course, undertakes a project which culminates in the preparation and presentation of a report and which meets all the requirements of E.S. 400, may with the permission of the Chairman of his Group, substitute a technical elective for E.S. 400.

5 hours.

E.S. 408. Engineering Practice. The course covers basic aspects of practice law, contracts, insurance, patent and copyrights, labor law, natural resource law as it relates to the practice of engineering in Canada. The following topics will also be discussed: Time value of money, Depreciation, Profitability, methods of cost accounting, elementary optimization techniques. Engineering ethics are discussed as they relate to the characteristics of the profession, evolution and history, legislation related to Engineering.

2 lecture hours.

E.S. 410. Chemical Engineering Laboratory II. A *combined laboratory* associated with the topics discussed in E.S. 411, E.S. 414 and E.S. 415.

3 laboratory hours.

E.S. 411. Unit Operations II. The principles given in E.S. 311 are utilized in the detailed study of stage and differential contacting processes, and of unit operations involving particulate solids.

3 lecture hours.

E.S. 412. Chemical Process and Plant Design. Design of a large-scale commercial process to manufacture a selected chemical. This involves: an evaluation of the market; raw materials and energy requirements; detailed design and costing of the equipment; environmental treatment of effluents; control and computer simulation; start-up and operating procedures; determination of the profitability. A strong emphasis is placed on developing in the student a creative attitude *towards problem formulation*, innovation and decision making.

2 lecture hours, 4 design hours.

E.S. 413. Selected Topics in Chemical Engineering.

2 lecture hours.

E.S. 414. Instrumentation and Control. Theory and application of automatic control of variables in industrial processes.

2 lecture hours.

E.S. 415. Chemical Engineering Kinetics. Chemical kinetics as applied to the large-scale manufacture of chemicals. An introduction to the factors which affect the design and size of chemical reactors, as well as the conditions under which they are to be operated for maximum efficiency.

2 lecture hours.

E.S. 416. Biochemical Engineering. Principles and operations of biochemical processes. The laboratory associated with this course will be integrated with E.S. 410.

2 lecture hours, 3 lab. hours.

E.S. 417. Catalytic Processes in Modern Industry. Kinetics and mechanisms of heterogeneous catalysis including case studies of several modern catalytic processes in industry.

1 lecture hour.

E.S. 418. *Fluidized* Bed Processes. Principles and operations of fluidized bed processes.

2 lecture hours per week for 1 term.

CIVIL OPTION

Chairman: Professor A. G. Davenport, BA, Cantab; MASc, Toronto; PhD Bristol; PEng
PROFESSORS: Davenport, Lo, Novak, Poucher, Quigley. ASSOCIATE PROFESSORS: Abu-Sitta, Davis, Isyumov, Peacock, Rosati. ASSISTANT PROFESSORS: Harman, Jandali, Palmer, Surry.

Civil engineering has traditionally been associated with the design, operation and construction of canals, docks, railways, roads, bridges, airports, tunnels and industrial as well as commercial and domestic building. Today it continues to be concerned with structures or other engineering works to adapt the environment for the needs of man kind. Within Civil engineering there are several areas of specialization: structural engineering, geotechnical engineering, hydraulic engineering, sanitary engineering, municipal and transportation engineering. The pressing need to predict the consequences of new engineering projects more completely requires that the Civil engineer also be familiar with a widening application of other fields such as geophysics, biology, and meteorology, as well as the society in which he lives.

To graduate in Civil engineering the programme offers a core of mandatory courses and a variety of electives. The former are intended to develop an appreciation of design and analytical concepts in the contexts of structural, geotechnical and hydraulic engineering. The electives allow opportunity for exploration of other areas such as transportation, meteorology and hydrology and environmental engineering. For specially able students, privileges will be allowed to take certain graduate courses. The programme is supported by the teaching and research laboratories, specifically the geotechnical laboratories, the Structural laboratory and the Boundary Layer Wind Tunnel Laboratory. Undergraduates have the opportunity to use these laboratories either during normal course instruction or during their undergraduate thesis.

THIRD YEAR PROGRAM - OPTION B - CIVIL ENGINEERING (1974/75, 1975/76)

E.S. 302	Mechanics of Materials II
E.S. 320	Civil Engineering Laboratory
E.S. 321	Structural Theory I
E.S. 322	Structural Design I
Appl. Math 370	Engineering Mathematics III
E.S. 324	Surveying (2 weeks in Fall)
E.S. 303a	Fluid Mechanics (1st term)
Geol. 391a	Geology for Engineers (1st Term)
E.S. 323b	Engineering Fluid Mechanics (2nd Term)
E.S. 327b	Soil Mechanics I (2nd term)

Non-Technical Elective to be approved by the Faculty.

Any two of:

E.S. 306a	Electromechanics (1st term)
E.S. 305b	Electronics (2nd term)
Appl. Math 343a	Applied Statistics (1st term)
Appl. Math 344b	Experiment Design (2nd term)
E.S. 328b	Dynamics of Structures I (2nd term)

CIVIL ENGINEERING (1976/77 And Subsequent Years)

TERM 4		Lect.	Lab.	Tut.	Personal	Credits
ES 202b	Mechanics of Materials I	3	2	-	6	11
Geol 291b	(formerly Geol 391a) Geology for Engineers	2	3	-	4	9
						50 min.

TERM 5		Lect.	Lab.	Tut.	Personal	Credits
Appl. Math 370	Engineering Mathematics III	3	-	-	6	9
ES 302a	Mechanics of Materials II	3	2	-	6	11
ES 321a	Structural Theory I	2	-	1	4	7
ES 322a	Structural Design I	2	2	-	4	8
ES 327a	Soil Mechanics I	2	1 1/2	-	3 1/2	7
Non-technical elective		-	-	-	-	-
and ONE of:						
Appl. Math 343a	Applied Statistics	3	-	-	6	9
ES 329a	Transportation Engineering	3	-	1	4	8
Other technical Engineering course approved by the student's counsellor		-	-	-	-	-
						54 min.

TERM 6		Lect.	Lab.	Tut.	Personal	Credits
ES 321b	Structural Theory II	3	-	1	5	9
ES 322b	Structural Design II	2	2	-	4	8
Appl. Math 370	Engineering Mathematics III	3	-	-	6	9
ES 323b	Engineering Fluid Mechanics	3	1	2	4	10
ES 327b	Soil Mechanics II	2	1 1/2	1 1/2	4	9
Non-technical elective		-	-	-	-	-
						51 min.

DESCRIPTION OF COURSES (1974/75, 1975/76)

E.S. 302. Mechanics of Materials II. A continuation of E.S. 202 to include theory of buckling, elastic theories of failure, variation of shearing stress, deflection due to shear, stresses in thick spheres and cylinders, and energy methods. The laboratory work is designed to elucidate and extend the knowledge gained from lecture material.
2 lecture hours.

E.S. 303a. Fluid Mechanics. Additional principles of incompressible and compressible fluid flow: dimensional analysis, dynamic similarity; fluid resistance, ideal (potential) flow, frictionless compressible flow; application of basic principles: fluid measurements, flow in closed conduits and open channels, aerodynamics, turbomachinery.
2 lecture hours, first term.

E.S. 305b. Electronics. Characteristic behaviour of vacuum tube and semiconductor devices, and their use in linear amplifiers, oscillators and measuring instruments.
2 lecture hours, second term.

E.S. 306a. Electromechanics. Characteristics and applications of dc generators and motors; ac power

generation and transmission; ac motors; transformers.
2 lecture hours, first term.

E.S. 320. Civil Engineering Laboratory I. Laboratory supporting all the Engineering Science courses.
6 laboratory hours.

E.S. 321. Structural Theory I. An introduction to the theory of statically determinate and statically indeterminate structures. Emphasis is placed on an understanding of the basic elastic theorems and their application.
2 lecture hours.

E.S. 322. Structural Design I. An introduction to structural engineering design including the use of manufactured and natural materials.
1 lecture hour, 3 lab hours.

E.S. 323b. Engineering Fluid Mechanics. Unsteady flow in closed conduits, waterhammer; analysis of pipe networks; gradually and rapidly varied flow in open channels; wind loads on buildings; elementary surface hydrology.
2 lecture hours, second term.

E.S. 324. Surveying (two weeks in Fall). The principles of plane surveying and the use of surveying in design and construction. Only students without second year condition examinations are permitted to register for this course. All civil engineering students must satisfactorily complete E.S. 324 before registration for Fourth Year.

E.S. 327b. Soil Mechanics I. Introductory soil mechanics stressing soil classification and laboratory testing including textures, structure, moisture content, void ratio, Atterberg limits, specific gravity, shear strength, sensitivity, permeability and compaction. Principles of particulate mechanics with in-depth analysis of pore-water pressure, seepage forces and the principle of effective stress.
2 lecture hours, 1 1/2 lab hours, second term.

Geol. 391a. Geology for Engineers. Introduction to minerals, rocks, weathering, transportation, deposition and glacial geology. Engineering properties of geologic materials; application of principles of weathering to the deterioration of construction materials; ground water seepage conditions and their influence on slope stability; glacial soils and their importance in engineering practice. Case histories of engineering projects markedly influenced by site geology.
2 lecture, 3 lab hours, first term.

Appl. Math. 370. Engineering Mathematics III. This is a general course in Applied Mathematics for Third Year Engineering students, covering the following topics. First Term: finite differences, difference tables, interpolation, numerical differentiation and integration, numerical solutions of differential equations, direct and iterative methods for solving linear algebraic equations. Second Term: linear algebra, Fourier Series, Fourier Integral, Laplace Transform.
3 lecture hours.

Appl. Math. 343a. Applied Statistics. (See the description in the Applied Math Section).
3 hours, first term.

Appl. Math 344b. Experiment Design. (See the description in the Applied Math Section).
3 hours, second term.

E.S. 328b. Dynamics of Structures I. Response of simple structural systems to deterministic and stochastic time varying effects. Applications to wind earthquake blast and machine loads. Estimation of dynamic effects such as fatigue.
2 lecture hours, second term.

FOURTH YEAR PROGRAM - OPTION B - CIVIL ENGINEERING (1974/75, 1975/76, 1976/77)

E.S. 400	Project, Report and Seminar
E.S. 408	Engineering Practice
E.S. 421	Structural Theory II
E.S. 422	Structural Design II
E.S. 423a	Engineering Hydraulics (1st term)
E.S. 426	Soil Mechanics
	Civil Engineering Lab II

Non-Technical Elective to be approved by the Faculty. (It is highly recommended that this elective be Business 279)

and

A combination of electives equivalent to 3 one term courses chosen with the approval of the Chairman of the Civil Engineering Group.

It is recommended that the electives be chosen from the following list:

Appl. Math 453	(With the approval of the Instructor)
Appl. Math 470a	Engineering Mathematics IV (1st term)
E.S. 425b	Transportation Engineering (2nd term)
E.S. 427a	Dynamics of Structures (1st term)
E.S. 428b	Selected Topics in Civil Engineering (2nd term)
E.S. 429b	Applied Meteorology & Hydrology (2nd term)

NOTE:

Electives will only be offered provided there is a sufficient number of course registrants.

CIVIL ENGINEERING (1977/78 And Subsequent Years)

TERM 7		Lect.	Lab.	Tut.	Personal	Credits
ES 400	Project	-	-	-	6	6
ES 408a	Engineering Practice I	2	-	-	4	6
ES 421a	Structural Theory III	2	3	-	4	9
ES 422a	Civil Engineering Design I	2	2	-	4	8
ES 423a	Engineering Hydraulics	3	-	2	4	9
ES 426a	Geotechnical Engineering Design	2	3	-	3	8
and ONE of:						
ES 427a	Dynamics of Structures	2	1	-	4	7
Appl. Math 470a	Engineering Mathematics IV	3	-	-	6	9
						53 min.

TERM 8		Lect.	Lab.	Tut.	Personal	Credits
ES 400	Project	-	-	-	6	6
ES 421b	Structural Theory IV	2	3	-	4	9
ES 408b	Engineering Practice II	2	-	-	4	6
ES 422b	Civil Engineering Design II	3	3	-	6	12

ES 471b	Civil Engineering Materials	2	2	-	4	8
and TWO of:						
ES 429b	Applied Meteorology & Hydrology	2	-	-	4	6
ES 529b	Foundation Engineering	2	-	-	6	8
ES 428b	Selected Topics in Civil Engineering	2	1	-	4	7
Appl. Math 344b	Experiment Design	3	-	-	6	9
Other technical science or engineering course approved by the student's counsellor		-	-	-	-	-
						54 min.

NOTE:

ES 324 Surveying (9 Cr.): This course is available each summer (14 days) and must be completed before a student may graduate from the Civil Engineering program. It is open to any interested student of any year (no prerequisite) as a technical elective or as an extra course. If taken as a technical elective, the results of the course will be included with the results of the work in the following term.

DESCRIPTION OF COURSES (1974/75, 1975/76, 1976/77)

E.S. 400. Project Report and Seminar. Selection and investigation of an engineering problem. Analytical and/or experimental work is carried out by individual students or project groups under the supervision of a faculty member. Progress reports and a final engineering report are prepared; each student must deliver a public lecture.

A student who, in connection with another course undertakes a project which culminates in the preparation and presentation of a report and which meets all the requirements of E.S. 400, may with the permission of the Chairman of his Group, substitute a technical elective for E.S. 400.

5 hours.

E.S. 408. *Engineering* Practice. The course covers basic aspects of practice law, contracts, insurance, patent and copyrights, labor law, natural resource law as it relates to the practice of engineering in Canada. The following topics will also be discussed: Time value of money, Depreciation, Profitability, methods of cost accounting, elementary optimization techniques. Engineering ethics are discussed as they relate to the characteristics of the profession, evolution and history, legistlation related to Engineering.

2 lecture hours.

E.S. 421. Structural Theory II. A continuation of E.S. 321 to include elastic behavior and analysis of trusses and frames by matrix methods and moment distribution. Inelastic behavior of beams and frames is considered with concepts of plastic design. Dynamics of structures is discussed together with the approximate estimation of natural frequencies and the dynamic loads due to wind and earthquake. Laboratory periods include testing of structural elements, models and materials and practice in the use of computer programs and computer languages oriented to structural engineering problems.

2 lecture hours.

E.S. 422. Civil Engineering Design. A course concerning the design of civil engineering projects and involving the principles of structures, foundations and hydraulics.

2 lecture hours, 2 lab. hours.

E.S. 423a. Engineering Hydraulics. The fundamentals of hydraulics associated with hydrology, channel flow, sediment transport and flow through pipe networks.
2 lecture hours, *first* term.

E.S. 425b. Transportation Engineering. Planning, design and construction of highways and other transportation systems.
2 lecture hours, second term.

E.S. 426. Soil Mechanics II. Shear strength, consolidation and earth pressure theories with special reference to the principle of effective stress. Analysis and design of earth embankments, unretained slopes, retaining walls and braced cuts. Analysis and design of footings and pile foundations for a wide variety of soil conditions.
2 lecture hours.

E.S. 427a. Dynamics of Structures II. Continuation of E.S. 328b. Application of dynamic and statistical loading descriptions to response of multidegree of freedom systems such as tall buildings, towers, chimneys etc.
2 lecture hours, first term.

E.S. 428b. Selected Topics in Civil Engineering.
2 lecture hours, second term.

E.S. 429b. Applied Meteorology and Hydrology. Climatic and meteorological characteristics of rain, snow, wind temperature and their statistical despription. Diffusion of pollutants; hydrology.
2 lecture hours, second term.

Civil Engineering Lab II. A combined lab period associated with year IV Civil Engineering courses.
6 laboratory hours.

ELECTRICAL OPTION

CHAIRMAN: Professor I. I. Inculet, Dipl Ing Bucuresti; MSc Laval; PEng
PROFESSORS: Chess, Inculet, Lauchland. **ASSOCIATE PROFESSORS:** Bonnema, Castle. **ASSISTANT PROFESSORS:** Livingstone, Watson. **HONARARY LECTURER:** Sherebrin.

Electrical engineering is based on the economic application and use of the wide range of phenomena associated with the electron, one of the fundamental particles of nature. In many respects, man's ability to control electrons and to predict their behaviour has played a central role in the development of technology and of today's standard of living. Electrical energy is the most flexible and versatile form of energy known at the present time. Electrical engineering is the science and art of designing, constructing, and operating systems by which (a) energy is converted from some form to the electrical form, (b) electrical energy is transmitted, distributed, and controlled, and (c) electrical energy is converted to some other form for utilization.

Two of man's greatest desires are to substitute machines for his muscles and to establish communication. Electrical engineering is concerned with the satisfaction of these two desires. The conversion, transmission, and reconversion of energy in a large electric system is a good example of how the first desire, the substitution of machines for human muscles and the means of turning the wheels of industry, is satisfied. In such a system, two of the major problems are the efficiency and reliability of conversion and transmission. Electrical engineers satisfy the second desire by establishing communication in many ways, such as; telephone, radio, data transmission, radar, television, computers, control systems.

Energy systems and information systems are never independent; energy systems require information and information systems require energy. In addition, no system is purely electrical. As a result, electrical engineers must work closely with other engineers, with scientists and technologists, and with businessmen.

THIRD YEAR PROGRAM—OPTION C—ELECTRICAL ENGINEERING (1974/75, 1975/76)

E.S. 451	Electronic Structure and Properties of Materials
E.S. 330	Electrical Engineering Laboratory 1
E.S. 331	Electric Circuits
E.S. 332	Electronic Circuit Analysis
E.S. 333	Electromagnetic Field Theory
E.S. 334	Electrical Energy Conversion
Appl. Math 370	Engineering Mathematics 111

Non-Technical Elective to be approved by the Faculty.

ELECTRICAL ENGINEERING (1976/77 And Subsequent Years)

TERM 4		Lect.	Lab.	Tut.	Personal	Credits
ES 204b	Thermodynamics	3	-	1	5	9
ES 231b	Electric Circuits II	3	-	-	6	9
						48 min.

TERM 5		Lect.	Lab.	Tut.	Personal	Credits
AM 370	Engineering Mathematics III	3	-	-	6	9
AM 470a	Engineering Mathematics IV	3	-	-	6	9
ES 331a	Electric Circuits III	3	-	-	6	9
ES 334a	Electrical Energy Conversion I	3	1 1/2	-	6 1/2	11
ES 451a	Electrical Structure and Properties of Materials	3	1 1/2	1	5 1/2	11
Elective		-	-	-	-	-
						55 min.

TERM 6		Lect.	Lab.	Tut.	Personal	Credits
AM 370	Engineering Mathematics III	3	-	-	6	9
ES 332b	Electronics I	3	3	-	6	12
ES 333b	Electromagnetic Theory	3	-	-	6	9
ES 334b	Electric Energy Conversion II	3	3	-	6	12
Elective		-	-	-	-	-
Technical Elective		-	-	-	-	-
						54 min.

DESCRIPTION OF COURSES (1974/75, 1975/76)

E.S. 330. Electrical Engineering Laboratory 1. Laboratory supporting all the Engineering Science courses.
8 laboratory hours.

E.S. 331. Electric Circuits. Analysis of linear networks with the emphasis on general network equations, the complex frequency plane, one and two port networks. Fourier series, Fourier transform and Laplace transform applied to linear circuits. Introduction to non-linear network analysis.
3 lecture hours.

E.S. 332. Electronic Circuit Analysis. Operation and application of electronic, solid state devices. Stability, biasing of transistors. Gain-frequency response of amplifiers. Application of operational amplifiers. Oscillators, power supplies, regulators.
2 lecture hours.

E.S. 333. Electromagnetic Field Theory. A vector treatment of the theory of static and dynamic electric and magnetic fields, leading to Maxwell's equations and solutions of Maxwell's equations to specific problems. Boundary value solutions using vector calculus and partial differential equations.
2 lecture hours.

E.S. 334. Electromechanics. Principles of electromechanical energy conversion and their applications in direct-current and alternating current machines.
2 lecture hours.

Appl. Math 370. Engineering Mathematics 111. This is a general course in Applied Mathematics for Third Year Engineering students, covering the following topics. First Term: *finite differences, difference tables,* interpolation, numerical differentiation and integration, numerical solutions of differential equations, direct and iterative methods for solving linear algebraic equations. Second Term: linear algebra, Fourier series, Fourier *Intregal, Laplace Transform.*
3 lecture hours.

E.S. 451. Electronic Structure and Properties of Materials. Quantum theory, electronic structure, Brillouin zones, electrons in crystals, conductivity, insulation and semi-conduction, electrical and thermal conductivity, resistance of alloys, magnetic properties, domains, semiconductors, rectification, transistors, optical properties, lasers, dielectrics, piezoelectricity, and superconductivity.
3 lecture hours.

FOURTH YEAR PROGRAM—OPTION C—ELECTRICAL ENGINEERING (1974/75, 1975/76, 1976/77)

E.S. 400	Project, Report and Seminar
E.S. 408	Engineering Practice
E.S. 430	Electrical Engineering Lab. 11
E.S. 431	Digital Logic Systems
E.S. 433	Electric Power Systems
E.S. 436	Control Systems
E.S. 432a	Radiation and Propagation (1st term)
E.S. 434a	Electromechanical Energy Conversion (1st term)
E.S. 435a	High Frequency Electronics (1st term)
E.S. 432b	Microwave Systems (2nd term)

E.S. 434b	Electrical Energy Conversion (2nd term)
E.S. 435b	Communication Theory (2nd term)

Non-Technical Elective to be approved by the Faculty. (It is highly recommended that this elective be Business 279)

ELECTRICAL ENGINEERING (1977/78 And Subsequent Years)

TERM 7		Lect.	Lab.	Tut.	Personal	Credit
ES 400	Project	-	-	-	6	6
ES 408a	Engineering Practice I	2	-	-	4	6
ES 435a	Electronics II	2	1	-	5	8
ES 437a	Communications Theory	2	-	-	4	6
ES 438a	Design of Electronic Circuits	0	6	-	4	10
Non-Technical elective		-	-	-	-	-
TWO technical electives selected from the following						
ES 432a	Radiation and Propagation	2	-	-	4	6
ES 433a	Electrical Power Systems I	2	-	-	4	6
Other technical engineering or science course approved by the student's counsellor		-	-	-	-	-
						54 min.

TERM 8		Lect.	Lab.	Tut.	Personal	Credits
ES 400	Project	-	-	-	6	6
ES 408b	Engineering Practice II	2	-	-	4	6
ES 431b	Digital Logic Systems	3	3	-	6	12
ES 436b	Control Systems	3	3	-	6	12
Non-Technical elective		-	-	-	-	-
TWO technical electives selected from the following††						
ES 432b	Microwave systems	2	3	-	4	9
ES 433b	Electric Power Systems II	2	0	-	4	6
ES 434b	Electrical Energy Conversion III	2	3	-	4	9
Other technical engineering or science course approved by the student's counsellor		-	-	-	-	-
						53 min.

††*NOTE: One of the technical electives* **must** be either ES 432b or ES 433b

DESCRIPTION OF COURSES (1974/75, 1975/76, 1976/77)

E.S. 400. Project, Report and Seminar. Selection and investigation of an engineering problem. Analytical and/or experimental work is carried out by individual students or project groups under the supervision of a faculty member. Progress reports and a final engineering report are prepared; each student must deliver a public lecture.

A student who, in connection with another course, undertakes a project which culminates in the preparation and presentation of a report and

which meets all the requirements of E.S. 400, may with the permission of the Chairman of his Group substitute a technical elective for E.S. 400.
5 hours.

E.S. 408. Engineering Practice. The course covers basic aspects of practice law, contracts, insurance, patent and copyrights, labor law, natural resource law as it relates to the practice of engineering in Canada. The following topics will also be discussed: Time value of money, Depreciation, Profitability, methods of cost accounting, elementary optimization techniques. Engineering ethics are discussed as they relate to the characteristics of the profession, evolution and history, legislation related to Engineering.
2 lecture hours.

E.S. 430. Electrical Engineering Laboratory 11. Laboratory supporting all the Engineering Science courses.
9 laboratory hours.

E.S. 431. Digital Logic Systems. Theory of Boolean algebra, switching circuits, Venn diagrams; Karnaugh maps; logic and memory systems, design of combinational and sequential switching machines; electronic switching circuits; basic design of digital computors.
2 lecture hours.

E.S. 432a. Radiation and Propagation. Plane EM wave propagation, wave polarization, antenna radiation, parallel plate wave guide, reciprocity theorem, scattering, propagation through ionosphere.
2 lecture hours, 1st term.

E.S. 432b. Microwave Systems. Introduction to the theory of the principal types of microwave devices and transmission, klystrons, magnetrons, travelling wave tubes, Elementary principles of varactors, lasers, masers and parametric amplifiers.
2 lecture hours, 2nd term.

E.S. 433. Electric Power Systems. Parameters and performance of transmission lines, transformers, and machines; performance of transmission and distribution systems, symmetrical components, voltages and currents in systems under fault conditions; introduction to power-system stability.
2 lecture hours.

E.S. 434a. Electromechanical Energy. Conversion Theory of AC machines, electric transients in AC machines, dynamics of electro mechanical systems.
2 lecture hours, 1st term.

E.S. 434b. Electrical Energy Conversion. Considers problems associated with the energy crisis in the context of the supply of electrical energy. Topics include the energy picture, thermoelectric conversion, thermionic conversion, photo voltaic conversion, fuel cells, M.H.D. and prospects for other sources such as fusion.
2 lecture hours, 2nd term.

E.S. 435a. High Frequency Electronics. Low-pass and band-pass amplifiers, sinusoidal and non-linear oscillators. Principles of amplitude, frequency and phase modulation; modulators and demodulators; negative feedback; large signal amplifiers, microwave oscillators and amplifiers.
2 lecture hours, 1st term.

E.S. 435b. Communication Theory. Introduction to communication systems and statistical communication theory. Deterministic and random signals; linear systems; spectral analysis; introduction to information theory.
2 lecture hours, 2nd term.

E.S. 436. Control Systems. Analysis of feedback control systems using both root locus and frequency response techniques; includes the application of stability criteria; gain adjustment and compensation to meet performance specifications.
2 lecture hours.

MATERIALS SCIENCE OPTION

CHAIRMAN: Professor J. D. Brown, BSc McMaster, PhD Maryland
PROFESSOR: Geach ASSOCIATE PROFESSORS: Brown, Duerden, Roy, Sheasby

Scientific understanding of the materials used by engineers has grown very rapidly recently. Its application in engineering is now widespread and becoming the occupation of engineers who specialize in the area. A great variety of new types of materials is coming into engineering application. New methods of fabricating and using materials are constantly developed and applied. Advances are also taking place in the traditional engineering media such as concrete, steel and timber.

The materials scientist works to achieve such progress and applies it to serve society. He must appreciate the progress in those areas of chemistry, crystallography, mechanics, physics, metallurgy, economics and the other sciences which he can employ and keep in touch with developments in these areas. He should be aware of new materials as they are developed and appreciate when use of them can help. But, he must keep in touch with traditional materials and note when developments make it wise to use them in further fields or in altered ways. When materials do not exist, he applies his science in efforts to develop them. The methods of fabricating materials are similarly his concern. Means of testing and controlling engineering materials are now determined by materials science.

Materials science has in recent years contributed to the major developments in creep resistant high temperature materials; in engineering with polymers and in semiconductors. Superplasticity conditions under which certain alloys elongate several hundred percent before failure, and fibres of metals or ceramics with many times the normal strength of these materials are typical of the more unusual areas in which practical advances are to be expected. At the same time developments in conventional materials and in the methods of using them will occur largely because of the work of materials scientists and will prove of even greater practical importance.

THIRD YEAR PROGRAM - OPTION D - MATERIALS SCIENCE (1974/75, 1975/76)

E.S. 305b	Electronics (2nd term)
E.S. 306b	Electromechanics (1st term)
E.S. 350	Materials Science Laboratory I
E.S. 352	Phase Equilibria and Transformations
E.S. 353	Mechanical Properties of Materials
E.S. 356a	Crystallography (1st term)
E.S. 357b	Structure of Real Materials (2nd term)
E.S. 452	Surfaces and Interfaces
Appl. Math 370	Engineering Mathematics III

Non-Technical Elective to be approved by the Faculty

ONE OF:

E.S. 201	Engineering Mechanics II
Chem. 214	Elementary Physical Chemistry (Must be taken if not taken previously)

Other Technical Elective to be approved by the Chairman of the Materials Science Group

MATERIALS SCIENCE ENGINEERING (1976/77 And Subsequent Years)

TERM 4		Lect.	Lab.	Tut.	Personal	Credits
ES 251b	*Physico - Chemical Principles in* Materials Science	3	1 1/2	-	6 1/2	11
Technical elective		-	-	-	-	-
						47 min.

TERM 5		Lect.	Lab.	Tut.	Personal	Credits
AM 370	Engineering Mathematics III	3	-	-	6	9
ES 356a	Crystallography	3	3	-	6	12
ES 358a	Thermodynamics of Solids	3	1	-	6	10
ES 352a	Phase Equilibria & Transformations	3	1	-	6	10
ES 374a	Metallography & *X-Ray Methods*	1	3	-	2	6
ES 305a	Electronic Instrumentation and Measurement	2	1 1/2	-	4 1/2	8
						55 min.

TERM 6		Lect.	Lab.	Tut.	Personal	Credits
AM 370	Engineering Mathematics III	3	-	-	6	9
ES 353b	Mechanical Properties of Materials	3	3	-	6	12
Elective		-	-	-	-	-
Three technical electives,		-	-	-	-	-
ONE of:						
ES 359b	Oxidation, Corrosion & Sintering	3	2	-	5	10
ES 372b	Corrosion and Wear	3	1	-	6	10
and **TWO** of:						
ES 375b	*Non-Metallic Materials*	2	-	-	4	6
ES 373b	Preparation of Materials	2	-	-	4	6
ES 447b	Manufacturing Processes	2	-	-	4	6
						49 min.

DESCRIPTION OF COURSES (1974/75, 1975/76)

E.S. 305b. Electronics. Characteristic behavior of vacuum tube and semiconductor devices, and their use in linear amplifiers, oscillators, and measuring instruments.
2 lecture hours, second term.

E.S. 306a. Electromechanics. Characteristics and application of dc generators and motors; ac power generation and transmission; *ac motors;* transformers.
2 lecture hours, first term.

E.S. 350. Materials Science Laboratory I. A laboratory course associated with the lecture courses.
6 laboratory hours.

E.S. 352. Phase Equilibria and Transformations. Phase equilibria in engineering materials. Transformation, precipitation effects and their influence. Metastable and non-equilibrium states. The application of

this knowledge to the treatment and control of engineering materials.
2 lecture hours.

E.S. 353. Mechanical Properties of Materials. Elasticity, plasticity and fracture. Mechanical testing. The working and forming of materials.
2 lecture hours.

E.S. 356a. Crystallography. Crystal classes, symmetry, point groups, space groups, X-ray methods, crystal structure determination.
2 lecture hours, first term.

E.S. 357b. Structure of Real Materials. Structure of the elements, defects in crystals, structure of alloys, inorganic compounds, glasses, polymers, microstructures, macrostructures.
2 lecture hours, second term.

E.S. 452. Surfaces and Interfaces. Thermodynamics of surfaces, structure of surfaces, surface energy, absorption, adhesion, surface area measurement. Sintering mechanisms and the sintering process. Friction, wear, lubrication, bearing materials.
1 lecture hour.

Appl. Math 370. Engineering Mathematics III. This is a general course in Applied Mathematics for Third Year Engineering students, covering the following topics. First Term: finite differences, difference tables, interpolation, numerical differentiation and interpolation, numerical differentiation and integration, numerical solutions of differential equations, direct and iterative methods for solving linear algebraic equations. Second Term: linear algebra, Fourier series, Fourier Integral, Laplace Transform.
3 lecture hours.

E.S. 201. Engineering Mechanics II. A continuation of Engineering Science 21. Kinematics and kinetics of plane motion; application of work-energy and impluse-momentum relationships, introduction to vibrations.
2 lecture, 1 tutorial, 2 problem hours.

Chem. 214. Elementary Physical Chemistry. (See Chemistry section for description).
3 lecture hours.

FOURTH YEAR PROGRAM - OPTION D - MATERIALS SCIENCE (1974/75, 1975/76, 1976/77)

E.S. 400	Project, Report and Seminar
E.S. 408	Engineering Practice
E.S. 450	Materials Science Lab. II
E.S. 451	Electronic Structure and Properties of Materials
E.S. 358a	Thermodynamics (1st term)
E.S. 359b	Oxidation and Corrosion (2nd term)
E.S. 455	Applications of Materials Science
E.S. 456a	Properties of Engineering Materials (1st term)
E.S. 457a	Transformation (1st term)
E.S. 458b	Structure and Engineering Properties (2nd term)
E.S. 459b	Transformation Structures (2nd term)

Non-Technical Elective to be approved by the Faculty (It is highly recommended that this elective be Business 279).

MATERIALS SCIENCE ENGINEERING (1977/78 And Subsequent Years)

TERM 7		Lect.	Lab.	Tut.	Personal	Credits
ES 400	Project	-	-	-	6	6
ES 408a	Engineering Practice I	2	-	-	4	6
ES 451a	Electronic Structure and Properties of Materials	3	1 1/2	1	5 1/2	11
ES 456a	Properties of Engineering Materials	2	3	-	4	9
ES 457a	Transformations	3	1	-	6	10
Non-technical elective		-	-	-	-	-
Elective		-	-	-	-	-
						54 min.

TERM 8		Lect.	Lab.	Tut.	Personal	Credits
ES 400	Project	-	-	-	6	6
ES 408b	Engineering Practice II	2	-	-	4	6
ES 455b	Applications of Materials Science	3	-	-	6	9
ES 459b	Transformations and Structures	2	1	-	4	7
Non-technical elective		-	-	-	-	-
TWO technical electives from:						
ES 476b	Plasticity in Production Processes	2	1	-	4	7
ES 556b	Advanced X-Ray Techniques	2	1	-	4	7
ES 558b	Electron Microscopy	1	3	-	3	7
ES 559b	Instrumental Techniques in Materials Science	2	3	-	2	7
Other technical science or engineering course approved by the student's counsellor		-	-	-	-	-
						47 min.

DESCRIPTION OF COURSES (1974/75, 1975/76, 1976/77)

E.S. 400. Project, Report and Seminar. Selection and investigation of an engineering problem. Analytical and/or experimental work is carried out by individual students or project groups under the supervision of a faculty member. Progress reports and a final engineering report are prepared; each student must deliver a public lecture. A student who in connection with another course, undertakes a project which culminates in the preparation and presentation of a report and which meets all the requirements of E.S. 400, may with the permission of the Chairman of his Group substitute a technical elective for E.S. 400.
5 hours.

E.S. 408. Engineering Practice. The course covers basic aspects of practice law, contracts, insurance, patent and copyrights, labor law, natural resource law as it relates to the practice of engineering in Canada. The following topics will also be discussed: Time value of money, Depreciation, Profitability, methods of

cost accounting, elementary optimization techniques. Engineering ethics are discussed as they relate to the characteristics of the profession, evolution and history, legislation related to Engineering.
2 lecture hours.

E.S. 450. Materials Science Laboratory II. A laboratory course associated with E.S. 451, 456, 457, 458 and 459.
4 1/2 laboratory hours.

E.S. 451. Electronic Structure and Properties of Materials. Quantum theory, electronic structure, bonding, Brillouin zones, electrons in crystals, conductivity, insulation and semiconduction, electrical and thermal conductivity, resistance of alloys, magnetic properties, domains, semiconductors, rectification, transistors, optical properties, lasers, dielectrics, piezoelectricity, and superconductivity.
3 lecture hours.

E.S. 358a. Thermodynamics. The laws of thermodynamics, the production of work from heat, statistical interpretation of entropy, free energy of binary systems, defects in crystals.
2 lecture hours, first term.

E.S. 359b. Oxidation and Corrosion. Reaction rate theory, oxidation rate curves, techniques, oxidation behavior of metals and alloys, alloys for high temperature service, cladding. Electrochemistry. Pourbaix diagrams, E-1 diagrams, types of corrosion, corrosion protection, electropolishing.
2 lecture hours, second term.

E.S. 455. Applications of Materials Science. The application of materials science in engineering illustrated by examples from the production of materials and their employment in various areas of engineering.
2 lecture hours.

E.S. 456a. Properties of Engineering Materials. Improvement or modification of the following properties of engineering materials; Young's modulus, damping capacity, elastic limit and tensile strength, resistance to brittle fracture, resistance to stress corrosion, fatigue and creep strength.
2 lecture hours, first term.

E.S. 457a. Transformations. This course covers the basic kinetic theory of transformations in materials and deals with the concepts of nucleation and growth. Activation energies, rates of reaction in ideal cases.
2 lecture hours, first term.

E.S. 458b. Structure and Engineering Properties. Properties of lattice imperfections in metallic, ionic and covalent solids. Generation and physical observation of point and line defects. Irradiation damage.
2 lecture hours, second term.

E.S. 459b. Transformation Structures. This course applies the theory of transformations to actual situations, solidification, precipitation, polymorphism, order-disorder, vitrification, etc. The structural aspects of transformations are also considered, e.g., effect of dislocations, imperfections, boundaries, etc.
2 lecture hours, second term.

MECHANICAL OPTION

CHAIRMAN: Professor E. S. Nowak, BEng McGill; MSME, PhD Purdue, PEng
PROFESSORS: Emmerson, Foreman, Nowak ASSOCIATE PROFESSORS: MacDonald, Olson, Stewart, Swartman, Tarasuk ASSISTANT PROFESSORS: Base, Dickinson

Mechanical Engineering has traditionally been involved with the design, development and operation of machines, internal combustion engines, steam and gas

turbines and mechanical and auxillary equipment associated with power plants of all forms and with services to residential and commercial buildings and transportation. All of these are designed in order that man may better interact with the environment around him.

Within mechanical engineering there are several basic areas of specialization, thermal engineering sciences, applied mechanics including control of noise and vibrations and finally manufacturing processes and production engineering. Lately there has been application of mechanical engineering in such diverse fields as space engineering, biomedical engineering nuclear engineering and management of our material resources including energy.

The Mechanical option includes courses in mechanical design, fluid mechanics, heat transfer thermodynamics, energy conversion and manufacturing processes. By means of proper choice of electives it is possible for the student to get a broader background in the thermal engineering sciences, acoustics and noise control and machine design.

THIRD YEAR PROGRAM-OPTION E-MECHANICAL ENGINEERING (1974/75, 1975/76)

E.S. 302	Mechanics of Materials II
E.S. 304	Thermodynamics
E.S. 340	Mechanical Engineering Lab. 1
E.S. 341a	Kinematics and Dynamics of Machines
E.S. 341b	Introduction to Mechanical Design
E.S. 347	*Manufacturing Processes*
Appl. Math. 370	Engineering Mathematics III
E.S. 303a	Fluid Mechanics (1st term)
E.S. 306a	Electromechanics (1st term)
E.S. 305b	Electronics (2nd term)
E.S. 307b	Heat Transfer (2nd term)

Non-Technical Elective to be approved by the Faculty

MECHANICAL ENGINEERING (1976/77 And Subsequent Years)

TERM 4		Lect.	Lab.	Tut.	Personal	Credits
ES 204b	Thermodynamics	3	-	1	5	9
ES 202b	Mechanics of Materials I	3	2	-	6	11
						50 min.

TERM 5		Lect.	Lab.	Tut.	Personal	Credits
AM 370	Engineering Mathematics III	3	-	-	6	9
ES 305a	Electronic Instrumentation and Measurement	2	1 1/2	-	4 1/2	8
ES 302a	Mechanics of Materials II	3	2	-	6	11
ES 303a	Fluid Mechanics I	3	1 1/2	-	5 1/2	10
ES 341a	Kinematics and Dynamics of Machines	3	3	-	5	11
and ONE of						
Applied Math 343a Applied Statistics or one other technical science or engineering course approved by students counsellor.		3	-	-	6	9
						55 min.

TERM 6		Lect.	Lab.	Tut.	Personal	Credits
AM 370	Engineering Mathematics III	3	-	-	6	9
ES 341b	Mechanical Design Fundamentals	2	4	-	5	11
ES 306b	Electromechanics	2	1 1/2	-	4 1/2	8
ES 304b	Thermodynamics	3	1 1/2	-	5 1/2	10
ES 307b	Heat Transfer	2	1 1/2	-	5 1/2	10
and ONE of						
Applied Math 344b Experimental Design or one other technical science or engineering course approved by students counsellor.		3	-	-	6	9
						54 min.

DESCRIPTION OF COURSES (1974/75, 1975/76)

E.S. 302. Mechanics of Materials II. A continuation of E.S. 202 to include theory of buckling, elastic theories of failure, variation of shearing stress, deflection due to shear, stresses in thick spheres and cylinders, and energy methods. The laboratory work is designed to elucidate and extend the knowledge gained from lecture material.
2 lecture hours.

E.S. 303a. Fluid Mechanics. Additional principles of incompressible and compressible fluid flow; dimensional analysis, dynamic similarity, fluid resistance, ideal (potential) flow, frictionless compressible flow; application of basic principles: fluid measurements, flow in closed conduits and open channels, aerodynamics, turbomachinery.
2 lecture hours, first term.

E.S. 304. Thermodynamics. Properties of a pure substance, first law of thermodynamics, processes in open and closed systems, second law of thermodynamics, ideal gases, mixture of ideal gases, and psychrometry, compressors and ideal power cycles, introduction to heat transfer.
2 lecture hours.

E.S. 305b. Electronics. Characteristic behavior of vacuum tube and semiconductor devices, and their use in linear amplifiers, oscillators and measuring instruments.
2 lecture hours, second term.

E.S. 306a. Electromechanics. Characteristics and application of dc generators and motors; ac power generation and transmission; ac motors, transformers.
2 lecture hours, first term.

E.S. 307b. Heat Transfer. Principles of heat transmission by conduction, convection and radiation.
2 lecture hours, second term.

E.S. 340. Mechanical Engineering Laboratory I. This course supports and supplements those courses which are given in the Third Year mechanical option. Students work in small groups on engineering experiments, utilizing equipment in the thermal power, heat transfer, fluid mechanics, mechanics of materials, electrical, chemical, experimental analysis and material science laboratories.
9 laboratory hours.

E.S. 341a. Kinematics and Dynamics of Machines. Displacement, velocity and acceleration analysis of linkage mechanisms, static and inertia force analysis of mechanisms with particular application to reciprocating engine mechanical analysis; determination of indicated torque, horsepower and speed regulation; balancing of rotating and reciprocating masses; vibration analysis of single

degree of freedom systems; gyroscopic forces.
3 lecture hours, first term.

E.S. 341b. Introduction to Mechanical Design. Analysis and principles of design of cams, linkages, gears, gear-trains, belt drives, clutches, couplings, brakes, shafts and bearing.
3 lecture hours, second term.

E.S. 347. Manufacturing Processes. The relationships between design, materials selection and process choice in general manufacture as they apply to modern technology.
2 lecture hours.

Appl. Math 370. Engineering Mathematics III. This is a general course in Applied Mathematics for Third Year Engineering students, covering the following topics. First Term: finite differences, difference tables, interpolation, numerical differentiation and integration, numerical differentiation and integration numerical solutions of differential equations, direct and iterative methods for solving linear algebraic equations. Second Term: linear algebra, Fourier Series, Fourier Integral, Laplace Transform.
3 lecture hours.

FOURTH YEAR PROGRAM - OPTION E - MECHANICAL ENGINEERING (1974/75, 1975/76, 1976/77)

E.S. 400	Project, Report and Seminar
E.S. 408	Engineering Practice
E.S. 414	Instrumentation and Controls
E.S. 440	Mechanical Engineering Laboratory II
E.S. 444	Experimental Measurement and Analysis

Non-Technical elective to be approved by the Faculty (It is highly recommended that this elective be Business 279).

The equivalent of **three full courses** selected with the approval of the Chairman of the Mechanical Engineering Option from the courses listed below: *

E.S. 441a	Design of Machine Components (1st term)
E.S. 441b	Creative Design (2nd term)
E.S. 442a	Convection Heat Transfer (1st term)
E.S. 442b	Applied Heat Transfer (2nd term)
E.S. 443a	Energy Conversion (1st term)
E.S. 443b	Heating, Ventilating, Air Conditioning (2nd term)
E.S. 445a	Gas Dynamics (1st term)
E.S. 445b	Fluid Machinery (2nd term)
E.S. 446a	Mechanical Vibrations (1st term)
E.S. 446b	Vibration and Shock (2nd term)
E.S. 449a	Acoustics and Noise (1st term)
E.S. 449b	Engineering and Architectural Acoustics (2nd term)
E.S. 353	Mechanical Properties of Materials
E.S. 453b	Corrosion and Wear (2nd term)
Appl. Math 343a	Applied Statistics (1st term)
Appl. Math 470a	Engineering Mathematics (1st term)
C.S. 460a	Computer Simulation (1st term)
C.S. 461b	Simulation Laboratory (2nd term)

Any course offered for the other Engineering Science options, including a graduate course† with the approval of the Instructor.

* Elective courses will only be offered provided that there is a sufficient number of course registrants.

†Only those students with a B average (70% or more) in Year III will be considered as eligible to take a graduate course as an elective. Approval is based upon the course elected, the prerequisite required, and the potential of the student to cope with the course demands.

MECHANICAL ENGINEERING (1977/78 And Subsequent Years)

TERM 7		Lect.	Lab.	Tut.	Personal	Credits
ES 400	Project	-	-	-	6	6
ES 408a	Engineering Practice I	2	-	-	4	6
Non-technical elective		-	-	-	-	-
FOUR technical electives from:						
ES 441a	Design of Machine Components	2	2	-	4	8
ES 442a	Convection Heat Transfer	2	2	-	4	8
ES 443a	Energy Conversion	2	2	-	4	8
ES 444a	Experimental Measurement and Analysis	2	2	-	4	8
ES 445a	Fluid Mechanics II	2	2	-	4	8
ES 446a	Mechanical Vibrations	2	2	-	4	8
ES 447a	Manufacturing Process I	2	2	-	4	8
ES 449a	Acoustics and Noise	2	2	-	4	8
AM 470a	Engineering Math IV	3	0	-	6	9
ONE other science or engineering course approved by the students counsellor		-	-	-	-	-
						50 min.

TERM 8		Lect.	Lab.	Tut.	Personal	Credits
ES 400	Project	-	-	-	6	6
ES 408b	Engineering Practice II	2	-	-	4	6
Non-technical elective		-	-	-	-	-
FOUR technical electives from:						
ES 441b	Creative Design	2	2	-	4	8
ES 442b	Radiative Heat Transfer	2	2	-	4	8
ES 443b	Heating, Ventilating, and Air Conditioning	2	2	-	4	8
ES 414b	Instrumentation and Control	3	-	-	6	9
ES 445b	Fluid Mechanics III	2	2	-	4	8
ES 446b	Vibrations and Shock	2	2	-	4	8
ES 447b	Manufacturing Processes	2	2	-	4	8
ES 449b	Engineering and Architectural Acoustics	2	2	-	4	8
ONE other science or engineering course approved by the students counsellor		-	-	-	-	-
						50 min.

DESCRIPTION OF COURSES (1974/75, 1975/76, 1976/77)

E.S. 400. Project, Report and Seminar. Selection and investigation of an engineering problem. Analytical and/or experimental work is carried out by individual students of project groups under the supervision of a faculty member. Progress reports and a final engineering report are prepared; each student must deliver a public lecture.

A student who, in connection with another course, undertakes a project which culminates in the preparation and presentation of a report and which meets all the requirements of E.S. 400, may with the permission of the Chairman of his Group, substitute a technical elective for E.S. 400.
5 hours.

E.S. 408. Engineering Practice. The course covers basic aspects of practice law, contracts, insurance, patent and copyrights, labor law, natural resource law as it relates to the practice of engineering in Canada. The following topics will also be discussed: Time value of money, Depreciation, Profitability, methods of cost accounting, elementary optimization techniques. Engineering ethics are discussed as they relate to the characteristics of the profession, evolution and history, legislation related to Engineering.
2 lecture hours.

E.S. 414. Instrumentation and Control. Theory and application of automatic control of variables in industrial processes.
2 lecture hours.

E.S. 440. Mechanical Engineering Laboratory II. This course supports and supplements the work given in 4th year lectures. Students work in small groups on engineering experiments and projects, using equipment in the thermodynamics, fluid mechanics, experimental analysis and computer laboratories.
6 laboratory hours.

E.S. 441a. Design of Machine Components. Functional, physical and economic selection and design of machine components such as couplings, clutches, brakes, power screws, fasteners, gears, shafts, bearings, springs, connecting rods, pressure vessels; vibration in mechanical design; reliability; hydrodynamic lubrication.
1 lecture hour, 2 laboratory hours, 1st term.

E.S. 441b. Creative Design. Analysis and design problems in which project synthesis and system engineering are emphasized, typical design case studies.
1 lecture hour, 2 lab. hours, 2nd term.

E.S. 442a. Convection Heat Transfer. Development of the basic equations of continuity, momentum, and energy as applied to convection in forced and natural flow systems, exact solutions, integral solutions, turbulent flow and Reynolds analogy, empirical correlations and simplified equations.
2 lecture hours, first term.

E. S. 442b. Applied Heat Transfer. A major portion of the time will be devoted to radiation heat transfer which will include physics of radiation, grey body radiation, Bevans-Dunkle method and gas radiation. Other topics will include condensation heat transfer, boiling, heat exchangers, solar radiation and design of electrical analogue systems.
2 lecture hours, second term.

E.S. 443a. Energy Conversion. Theory and engineering aspects of: thermoelectric energy systems, fossil fuel power plants, nuclear power plants. Internal and external combustion engines; spark ignition engines, gas turbines, rockets and steam engines. An introduction will be given to fuel cells, plasma generators, thermionic energy conversion systems and solar cells.
2 lecture hours, first term.

E.S. 443b. Heating, Ventilating and Air Conditioning. The psychrometry of air conditioning processes, comfort and inside design conditions, climate and outside design conditions, heat gains from solar and other sources, cooling load and heating load calculations, ventilation and filtration.
2 lecture hours, second term.

E.S. 444. Experimental Measurement and Analysis. Selected topics in experimental analysis: photoelasticity, photostress, transducers, instrumentation techniques and evaluation in the measurement of variables such as strain, pressure, temperature, vibration flow and sound.
2 lecture hours.

E.S. 445a. Gas Dynamics. Isentropic flow through nozzles, adiabatic and isothermal flow with friction, diabatic flow with heat addition, normal and oblique shock waves, analysis of ramjet and rocket engines.
2 lecture hours, first term.

E.S. 445b. Fluid Machinery. Fluid turbo-machinery theory, performance characteristics of centrifugal and axial flow fans, compressors, pumps and turbines, fluid vibrations and sound, water hammer, introduction to fluid power controls and fluid amplifiers.
2 lecture hours, second term.

E.S. 446a. Mechanical Vibrations. Single and multi-degree of freedom systems; torsional vibrations; strings, rods and beams; energy methods; whirling of shafts.
2 lecture hours, first term.

E.S. 446b. Mechanical Vibrations and Shock. Hamilton's principle; Lagrange's equation; continuous systems; normal modes; transfer matrices; propagation of shock and stress waves through material.
2 lecture hours, second term.

E.S. 449a. Acoustics and Noise. A critical review of one and three dimensional wave equations and their solution. Sound intensity, pressure, power, absorption, attenuation and reflection. The Helmholtz resonator, closed and open tubes, filters. Characteristics of the human ear, measurement of sound and noise, sources and methods of control for noise.
2 lecture hours, first term.

E.S. 449b. Engineering and Architectural Acoustics. Standing waves, modes in rooms and ducts. The growth and decay of sound intensity in enclosures, reverberation, its influence on room acoustics and its control. Airborne sound transmission, partitions, slits, openings, barriers, reflectors and absorbers. Structural borne sound transmission, impact sound transmission.
2 lecture hours, second term.

E.S. 453b. Corrosion and Wear. Corrosion principles, types of corrosion, corrosion protection; friction, wear, lubrication, bearing materials.
2 lecture hours, second term.

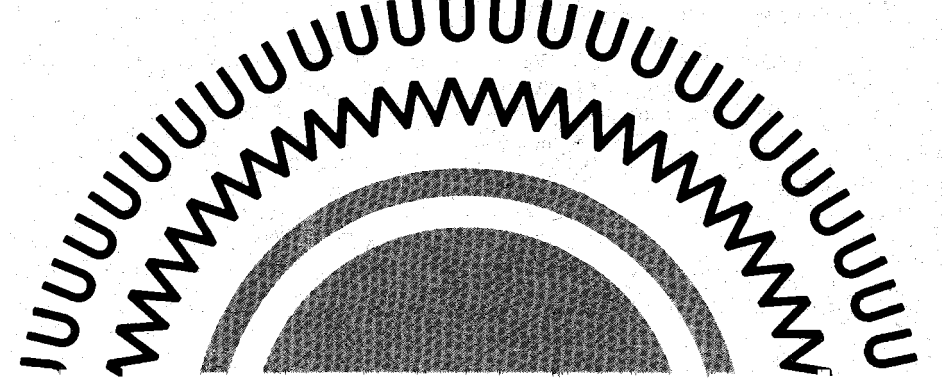
Appl. Math 343a. Applied Statistics. See Applied Math section for this description.
3 lecture hours, first term.

Appl. Math 470a. Engineering Mathematics IV. See Applied Math section for this description.
3 lecture hours, first term.

Comp. Sc. 460a. Computer Simulation. See Computer Science section for description.
3 lecture hours, 1 laboratory hour, first term.

Comp. Sc. 461b. Simulation Laboratory. See Computer Science section for description.
2 lecture hours, 2 laboratory hours, second term.

Faculty of Law



Faculty of Law

The University of Western Ontario, 1151 Richmond Street, London, Ontario N6A 3K7.
Dean's Office, Room 100, 679-3346
Admissions Office, Room 13, 679-3439

Acting Dean:
E. E. Palmer, BA William and Mary; MA Yale; LLB, LLM Toronto; of Osgoode Hall (Barrister-at-Law)
Assistant Dean:
S. I. Bushnell, BSA, Toronto; LLB, Dalhousie; LLM, Osgoode Hall.
Administrative Officer and Assistant to the Dean:
Margaret McNulty.
Administrative Officer: Admissions
Patricia Black.
Librarian:
Margaret Banks, MA, PhD.

PROFESSORS: Brandt, Gorsky, Hickling, Mackay, Palmer, ASSOCIATE PROFESSORS: Arnold, Balogh, Barton, Bushnell, Oosterhoff, Judson, Rayner, Samuels, Sinha. ASSISTANT PROFESSORS: Bryant, Crown, McLaren, McLeod, Ramsay, Roberts, Solomon, Usprich, Vivian. SESSIONAL PROFESSORS: Carson, Cherniak, SESSIONAL LECTURERS: Genest, Nursey, Peel, Ritchie, Schwartz.

ACADEMIC CALENDAR

1974

September 3, Tuesday	9:30 a.m. General assembly of first year students. Lectures begin for second and third year students.
December 6, Friday	First semester classes end.
December 9, Monday	Second and third year examinations begin.
December 20, Friday	First semester ends.

1975

January 6, Monday	Second semester begins.
April 18, Friday	Second semester classes end.
April 21, Monday	Examinations begin.
May 3, Saturday	Second semester ends.

Note: April 1 - last day for receiving applications for Faculty of Law for 1974-75.

* THE ABOVE DATES ARE SUBJECT TO MODIFICATION.

FOUNDATION OF THE LAW SCHOOL

In 1885, the year in which the Faculty of Arts was forced to close, the idea of founding a law school was first publicly mooted. At this time there were in the London district a number of young men studying for admission to the Bar who obviously had much to gain in attending a local course of lectures designed for future practitioners. In November, 1885, the Middlesex Law Association took the initiative and approached the Senate of the University with a proposal for affiliation. This was quickly approved and in the following months the Senate passed a statute establishing the Faculty of Law of Western University. In an amended form this instrument won legislative approval on August 3rd, 1886.

The first curriculum was framed to embrace all subjects in which examinations were required by the Law Society of Upper Canada for admission to the Bar. It was expected that the examinations of the London Law School would be accepted in lieu of those of the Law Society as soon as the school had become formally established. The course of instruction included also the subjects required by other universities in Ontario for the degree of Bachelor of Laws so that students of the school could proceed on an equal footing to the degree of LLB in Western University.

A number of prominent London lawyers offered their services as lecturers, enabling the school to begin operation immediately. The faculty included: William Elliott, Senior Judge of the County of Middlesex, Dean; W. H. Bartram, Registrar; W. W. Fitzgerald, Bursar; and the following lecturers: J. F. Flock; N. D. Fraser; George C. Gibbons; I. F. Hellmuth, LLB; James Magee; W. R. Meredity, QC, LLB, MPP; The Honourable David Mills, LLB, MP; and W. P. R. Street, QC, LLB.

Thirty-eight students were registered in the first year. The inaugural lecture was delivered in the Court House on the evening of December 4th, 1885, by Judge Frederick Davis. The regular lectures which were held on Monday, Wednesday and Friday afternoons at 5 o'clock went on through the winter of 1885-86. The Law Society of Upper Canada, however, refused to accept the examination of the London Law School as equivalent to its own. Consequently, the enthusiasm of the students began to wane and one by one they dropped out of the course until only three were left to write the first examinations in June.

LAW

In September, 1886, the school opened for a second season, this time with a registration of only seventeen. Lectures continued as before but the interest of the students was again flagging. The number in attendance continued to drop until February 12th when all further lectures were cancelled and the Law School, like the Arts Department, ceased to function. Some members of the Middlesex Law Association still hoped to revive it but this possibility was precluded when in 1889 the Law Society of Upper Canada required all students of law in Ontario to attend Osgoode Hall for three years.

However, between 1915 and 1954, under various departments in the Faculty of Arts, courses of instruction were given in legal subjects leading to a degree of Bachelor of Laws (LLB). In 1920 a Department of Law was created under F. E. Perrin, BA, who continued to lecture in that Department until his appointment to the Bench in 1934.

In 1930 he was joined by C. C. Carrothers, BA, LLB, and the latter lectured until the termination of the Department in 1954.

As a matter of interest, the requirements for the LLB during this period are typified by the general catalogue for the University for 1930-31, which provided as follows: "The Degree of Bachelor of Laws will be conferred on candidates who present the following academic standing, and pay the fees pertaining to the course:

(a) An Honour Degree in the Department of Economic and Political Science from the University of Western Ontario or some other acceptable university or college.

(b) A certificate of graduation from Osgoode Hall and of admission to the practice of law in the Province of Ontario or equivalent certificates.

(c) Examinations taken on a course of reading in the following: Domestic Relations, Medical Jurisprudence, Theory of Obligations, Contracts.

(d) An approved thesis, on an assigned subject."

Nevertheless, between 1889 and 1949 the Law Society continued to maintain a monopoly over legal education through the medium of its own school at Osgoode Hall. On February 15th, 1957, after years of protracted controversy, the Law Society of Upper Canada provided for the equal participation of approved university law schools in the academic preparation for admission to the Ontario Bar. It also recognized the need for graduation upon completion of a full-time academic course of not less than three years, as a prerequisite to the final stages of professional training.

In 1958, following this important change of policy in legal education, the Senate of The University of Western Ontario decided to re-establish the Faculty of Law and on May 1st, 1959, The Honourable Ivan C. Rand, formerly a Puisne Judge of the Supreme Court of Canada, was appointed its Dean. On Thursday, September 17th, 1959, after an interval of seventy-two years, regular classes resumed in the law school of The University of Western Ontario, with a first-year enrolment of thirty-five students selected from a large number of applicants.

By the retirement of Dean Rand in June 1964, first-year enrolment had doubled. Both the Faculty of Law itself and its course of instruction are officially approved by the Law Society of Upper Canada.

During the first two years instruction in the Faculty of Law was carried on in a wing of the new Engineering Science Building. In May 1961 construction of the Josephine Spencer Niblett Building was completed and in the summer months following the Faculty moved into its permanent home. Built in the modified

collegiate Gothic tradition, this handsome building takes a place of honor on one of the most beautiful campuses in Canada. It was designed to accommodate about two hundred students, composed of three years of medium-size undergraduate classes and later of graduate groups. The Faculty of Law contained three lecture rooms and four seminar rooms, a well-equipped library with space for 100,000 volumes, a courtroom, a student lounge, and other facilities. In 1968 an addition to the physical plant approximately doubled the existing size of the school.

GENERAL STATEMENT OF POLICY

The principal object of the Faculty of Law in The University of Western Ontario is to offer students a liberal education through the critical study of legal and related materials, in preparation for the private practice of law, for government service, and for kindred vocations.

FEES FOR THE FACULTY OF LAW

Faculty of Law $658.50

NOTE: The above fee includes a $60.00 non-academic charge for the University Community Centre, University Students' Council, Athletics and Health Services. This sum may not, by law, be included in the student income tax certificate. The certificate will be available by the last day of February each year. A $50.00 tuition deposit is required of all first-year students in the Faculty of Law.

PAYMENT OF FEES

Fees for full-time undergraduates are due and payable at the time of registration. A student may pay a minimum of $360.00 at the time of registration and the balance on or before the first day of the second term. There is a charge of $5.00 for payment of fees in two installments. If a $50.00 tuition deposit has been paid prior to registration this amount will be applied against the first-term's tuition installment.

Students are advised to establish accounts in London banks well in advance of registration to ensure banking privileges for the payment of fees.

OTHER CHARGES

Late registration fee $25.00
Withdrawal during registration week (minimum penalty) $50.00
Special examination $15.00
Transcript of academic record $1.00

The Board of Governors reserves the right to amend fees after the printing of this list.

Except by permission of the Dean of the Faculty of Law and the Comptroller of the University, students may not attend lectures or examinations, nor may they be recommended for any degree or diploma until tuition fees, fines and other accounts owed to the University are paid.

RIGHTS RESERVED

The Faculty reserves the right to change any of its rules, courses, regulations and charges, and to make such changes applicable to students already registered as well as to new students.

REGULATIONS OF THE FACULTY OF LAW

I. ADMISSION TO THE FACULTY OF LAW

1. Preliminary Education

The Faculty of Law does not prescribe a course of pre-legal studies, nor does the Faculty recommend specific undergraduate courses for those intending to enter law school. For those students planning university courses with a view to satisfying admissions requirements of the Faculty of Law, it is recommended that a broad background is advantageous and that a student should select a program of studies which will challenge him and assist him in developing good study habits.

The Faculty of Law does recommend that students should, during their high school career, take English and/or related courses which might develop reading and writing skills.

2. Admissions Requirements

According to the requirements of the Law Society of Upper Canada, a person desiring admission to the first year of the LLB program must have successfully completed not less than two full years of academic work at a recognized university following Grade Thirteen in Ontario, or its equivalent.

3. Mature Applicant

The Law Society of Upper Canada has approved a recommendation of its Special Committee on Legal Education (1972) to the effect that "Law schools should waive the normal requirements and admit those mature students who on the basis of age, experience, maturity and outstanding qualities as evidenced by their previous careers merit an opportunity to study law." A limited number of applicants who can present proper evidence of the qualities described above, but who are unable to fulfill the regular admissions requirements, may in exceptional cases and by special action of the Faculty be admitted. A mature applicant must supplement his application with detailed information of his education and business experience, and general fitness to undertake the study of law as well as a statement explaining why he is unable to qualify as a regular applicant. Mature applicants are invited to discuss their application with the Admissions Officer of the Faculty of Law. The University of Western Ontario early in the year preceding the year for which they are applying. Mature applicants will normally be required to have an interview with an interview board.

4. Canadian Natives

The Faculty of Law, The University of Western Ontario, has decided to encourage any native Canadian interested in the study of law to make application. All such applications will be considered on an individual basis. Many factors will be considered including such things as maturity, academic performance, results on the Law School Admission Test, personal interviews, employment history, leadership potential and letters of reference — but not one factor or accumulation of factors (indeed, in some instances none of these factors) will be determinative.

Although it is intended to consider each application on an individual basis, it must remain the object of the Law Faculty, in fairness to all concerned, to admit only those applicants who have a reasonable chance of success. To encourage others, who by reason of youth, lack of education or maturity, are unlikely to succeed would be a disservice to both the individual and the community. Accordingly, in the main, the criteria for admission will be the successful completion of two years university work after Grade 13 in Ontario or its equivalent. Failing such formal educational requirement, decisions will be made on the basis of age, experience,

maturity or outstanding qualities as evidenced by applicants' previous careers.

Upon admission the student will be offered additional help and support during his law school career so as to minimize any difficulties he may encounter in the law school program. Financial assistance may be made available through the Department of Justice and the Department of Indian Affairs. Applicants should contact the appropriate Government Department.

5. Application Procedure

Application for admission must be on the prescribed form which may be obtained from the Admissions Office, Faculty of Law, The University of Western Ontario, 1151 Richmond Street, London, Ontario N6A3K7. Because of the limited number of spaces available, applications should be made well in advance of the date of intended enrolment. The deadline date for receipt of applications for the academic year 1975-76 is March 1st, 1975. As a matter of policy, decisions are made as early as possible during the year. This places a premium upon making early application and ensuring that all requisite documentation is submitted as soon as possible. In due course, applicants will be informed in writing of the decision of the Admissions Committee. Applicants should not rely upon oral communications. Any enquiry relating to an admissions decision should be directed to the Admissions Office of the Faculty of Law. The strength of competition for places is such that decisions are frequently made before final year marks are available.

6. Admissions Procedure

Admission to the Faculty of Law in every case is by decision of the Admissions Committee of the Faculty of Law. The Admissions Committee of the Faculty of Law is composed of four members of the faculty (one of whom is the chairman), two representatives from the student body and one representative from the Senate Admissions Committee. The Admissions Officer of the Faculty of Law acts as a voting ex-officio member of the Committee. Factors taken into account in assessing applicants include: prior academic record, Law School Admission Test scores. Letters of self-appraisal, employment history, letters of reference and other factors which in the opinion of the Committee indicate the applicant's potential ability for the study of law may also be considered.

7. Law School Admission Test

Every applicant is required to take the Law School Admission Test. Test scores are used to supplement academic grades and other admissions criteria. For the convenience of applicants, test centres have been established in major cities in Canada and the United States. For Canadians, the test is given four times a year, in October, December, February and April. The Faculty of Law urges that applicants arrange to take the test early in the academic year preceding the year for which they are applying. An application for the test and further details can be obtained from the Admissions Office, Faculty of Law, The University of Western Ontario or by writing to the Educational Testing Service, Box 944, Princeton, New Jersey 08540. LSAT applications must be received in Princeton at least six weeks prior to the date upon which an applicant wishes to take the test.

8. Advanced Standing

Applications from students successfully completing a part or all of their legal education in another Law School may be considered for admission with advanced standing, but one year full-time attendance at the Faculty of Law is a minimum requirement.

9. Letters of Permission

A student who is registered at another recognized law school, but who presents a letter of permission from that school, may, on application and on payment of the appropriate fees, be admitted to the Faculty of Law, the University of Western Ontario to a program of courses approved by the school at which such a student is registered for purposes of obtaining the law degree of that school. A student admitted with a letter of permission cannot receive the LLB of the University of Western Ontario.

10. Candidates for the LLB Degree

Candidates are admitted only at the opening of the first semester of a regular session, and for the whole session and the full course of work.

II. THE ACADEMIC SESSION

1. The Academic Session at the Faculty of Law comprises a period of approximately thirty weeks; the session is divided into two semesters.
2. The first semester starts on September 3 and ends on December 20. The second semester starts on January 6 and ends on May 3.
3. The time-table for the first semester is available at the general office on the first day of classes. The Faculty may, on notice, schedule compulsory classes and seminars additional to those indicated on the time-table.

III. ATTENDANCE

1. Success in law studies requires that students devote their full time to the work of the school. The Faculty advises a student to avoid outside employment unless absolutely necessary. A student who contemplates taking outside employment in order to remain in school is required to consult the Dean of the Faculty either before or at the time of registration.
2. No credit is allowed for work done in absentia. Leave of absence is not permitted except in unusual circumstances. A student in good standing who is permitted to withdraw can only rejoin the Faculty of Law subject to the regulations in force at the time he applies to re-enter. Failure to attend classes, seminars, appointments, or examinations without good cause shown constitutes a ground for exclusion from the Faculty of Law.

IV. EXAMINATIONS

1. The final grade in each formal course is usually based upon written examinations or such work as is assigned. Examinations for second and third year courses are held at the end of the first semester in December and at the end of the second semester in May. They are graded anonymously.

The Faculty may prescribe other tests or examinations during the Academic Session and may also require submission of essays or participation in other projects. The weight to be assigned to such interim tests, examinations and assignments in computing the final grade of the student shall be determined by the Faculty.

2. Non-attendance at an examination constitutes an absolute failure in the course concerned unless the candidate is excused by the Faculty for good cause shown.
3. The right to sit for examinations is conditional upon regular attendance at classes and group work. Final examination papers will not be returned to students, nor will they be regraded after the grades have been published, unless in exceptional circumstances the Faculty directs otherwise.

4. Where a student fails to obtain the weighted average of 60%, all of his examination papers are re-read.
5. Upon such conditions as the University may specify, a student may have an examination paper re-read by his examiner.
6. Where a student wishes to seek special consideration respecting an examination or examinations on medical, compassionate or other grounds, he must provide the relevant facts in writing as may be prescribed by the Dean before the student sits for the examination or examinations. In the absence of compelling and unusual circumstances, such as where the student is unable to communicate with the Dean because of incapacity, submissions after the event will not be considered.
7. First-year students will be examined in full year courses at Christmas. These examinations are designed to give the student experience in assimilation of facts, identification of legal issues, and the solution of problems through analysis and critical application of legal principles. Since these examinations form an integral part of the first-year training program, the same considerations apply as noted in (1), (2) and (3) above. The mark assigned will comprise at least 25% of the student's final mark in that course.
8. A first-year student whose Christmas results, over the broad spectrum of subjects examined, fail to indicate a minimum aptitude for legal studies or an ability to grasp the fundamental concepts of substantive law will be referred to the Dean, who may determine the advisability of his continuing as a student in the Faculty of Law, and, where indicated, may advise or request that he withdraw.

V. GRADES

1. The following scale is used in grading: A: 75-100, representing excellent; B: 67-74, above average; C: 60-66, average; D: 50-59, below average; F: below 50.
2. The grade in each course is usually weighted in proportion to the credit assigned to the course. The unit credit is the semester hour, which represents one class-hour per week for a semester. Failing marks are included in computing the weighted average.
3. A student who obtains a weighted average of 60% will not be required to write supplemental examinations but will be passed on his average. A student who obtains a weighted average of less than 60% will be failed on his year. Supplemental examinations will not be permitted except in exceptional circumstances. The Faculty reserves the right to require a student to write a deferred or special or supplemental examination where the Faculty considers such action desirable.
4. Individual grades assigned by instructors are subject to the approval of the Faculty.
5. A student who fails to meet the required standards in any one year may be excluded from the Faculty of Law unless the Faculty allows him to repeat the whole of the work of that year during the following academic session. A student who fails any two years in the Faculty of Law shall be excluded except in extraordinary circumstances.

LAW

COURSES OF INSTRUCTION

1. All courses in the first year are obligatory. All courses in the second and third years are elective.
2. Students in the second and third years may take a range of fourteen to sixteen hours in either semester to a minimum of twenty-nine hours in both semesters and a maximum of thirty-one hours in both semesters, except that a student may exceed thirty-one hours but only with the permission of the Assistant Dean.
3. A student who has successfully completed his first year of studies in the Faculty of Law may, over the following two years, be permitted to take up to the equivalent of six semester hours outside of the Faculty of Law; credit for more than four hours outside of the Faculty of Law may not be received in any one semester. The approval of the outside course instructor and the Dean of the Faculty of Law must be obtained.

OBLIGATORY COURSES

FIRST YEAR

407a,b Constitutional Law. An introduction to fundamental public law concepts: the structure and interpretation of Canadian federalism; the constitutional powers of the Crown, the executives, parliament, legislatures and their respective agencies; individual rights, public order and limitations on governmental powers; the process of Canadian constitutional reform.
Two hours per week, both semesters.

410a,b Contracts. An introduction to the law concerning binding obligations voluntarily entered into, commonly called contracts: how they are created, problems in the contractual relationship and remedies.
Three hours per week, first semester; two hours per week, second semester.

412a,b Criminal Law. Courts and jurisdiction; procedure from original process through arraignment and trial to appeal; indictable and summary conviction offences; standards and proof of liability; factors of justification and mitigation; analysis of selected offences against persons, property and morality; inchoate crimes; problems of legal responsibility involving insanity, drunkenness, etc., and youthful offenders.
Two hours per week, both semesters.

442a,b Legal Writing and Moot Court Program. The course is designed to teach the first year students the basic skills and techniques of legal research, analysis and communication. The students, working in small groups under the supervision of a faculty member and a student assistant, will be required to complete a series of assignments during the first and second term. In addition to a library assignment the student will be required to prepare legal memoranda, factums and two moots.
Both semesters.

425a,b Property. The possession and ownership of land and the incidents thereto are the primary concern of this course; the origin of interests in land, the concept of estates, future interests, fees, tenancies, rights in the land of another, land ownership and family obligations. Select problems relating to the law of personal property.
Three hours per week, first semester; two hours per week, second semester.

430a,b Torts. An examination of the rules of law governing the basis for, and defenses to, civil liability arising from torts of intent, negligence, and strict liability, and from other wrongful acts combining these characteristics.
Three hours per week, first semester; two hours per week, second semester.

446a,b Civil Procedure. An introduction to the role of "adjective" law in the adversary system of justice and its relationship with and influence on substantive law. Emphasis is placed on the role of the lawyer in our system with its concomitant ethical dilemmas and on illustrations from practice.
Two hours per week, both semesters.

ELECTIVE COURSES:

SECOND AND THIRD YEARS

401a Administrative Law. A study, on a broad scale, of the processes of law making and law application by the executive departments of government with particular reference to the law of judicial control of public authorities. The central theme will be the tension between law and discretion.
Three hours per week, one semester.

401b Administrative Law. A study of the administrative process in Canada. This will include an examination of the part to be played by various administrative agencies in controlling modern economic life as well as the role of the courts in supervising this activity.
Three hours per week, one semester.

402 Commercial Law. A study of the law of commercial transactions as it relates to the distribution and sale of merchandise, and the financing thereof. The rights and obligations of buyers and sellers of goods, including the law of sale of goods, consumer protection, secured transactions, and the financing of such transactions.
Four hours per week, one semester.

403 Company Law. The course shall be concerned with the legal implications of carrying on commercial activity in what has become known as the corporate form. A short introduction shall compare this form of business activity to other methods used by the business community. There shall be an attempt to provide a jurisprudential basis for the existence of the incorporated company.
Four hours per week, one semester.

404 Advanced Company Law This seminar explores various aspects of the multinational corporation, both in North America and within the context of the European Economic Community. It is proposed initially to consider the differences between Anglo-American, French and German company law and the general problems of present day company law in relation to the large national and international corporation.
Prerequisite: Company Law
Two hours per week, one semester.

405 Comparative Law. A brief consideration of the historical background and legal structure of civil law systems with emphasis on French and Quebec law, followed by an intensive comparative study of selected problems.
Three hours per week, One semester.

406 Conflict of Laws. The resolution of legal problems arising from transactions involving more than one jurisdiction, including characterization and the proper law in marriage, divorce, annulment, legitimation, adoption, wills, administration, succession, contracts, torts and property.
Four hours per week, one semester.

411 Debtor-Creditor Rights. Including remedies of unsecured creditors, execution of judgments, fraudulent conveyances and preferences, general assignments and bankruptcy.
Two hours per week, one semester.

413 Estate Planning. Review of intestate succession and limits on testamentary power; use of concur-

rent interests in property as a planning device; use of insurance, pensions, annuities; planning for particular family problems - incapacity, minority, spendthrift beneficiary, marriage breakdown; planning for the use of the trust, testamentary and inter vivos; will drafting: planning for the disposal of a business or professional practice; tax planning, including consideration of the effect of death taxes and capital gains.
Prerequisites: Trusts and Wills.
Two hours per week, one semester.

414 Evidence. The course deals with the principles and rules which regulate the input of facts forming the basis upon which a decision is made by a judge or jury or other judicial tribunal.
Two hours per week, both semesters.

415 Family Law. A study of the legal problems relating to the organization and disorganization of the family, including the law of husband and wife, parent and child, etc.
Four hours per week, one semester.

416 Advanced Family Law. A study of the law and procedure relating to actions before the Provincial Court - Family Division. This will include consideration of child protection cases, affiliation proceedings. Deserted Wives applications for support; and proceedings under the Juvenile Delinquents Act. Students will be involved in work with some of the specialized agencies in the locality.
Prerequisite: Family Law
Two hours per week, one semester.

417 Insurance Law. A study of the insurance contract, its scope, purpose and social effects; its formation and construction; and its statutory regulation. Special attention will be given to the principles of insurable interest, subrogation, contribution, disclosure and illegality.
Two hours per week, one semester.

418a Jurisprudence. This course is concerned with the nature and function of law. Certain modern theories will be considered and attention will be focused on judicial behaviour, through the work of the American and Scandinavian realists and other attempts to relate to social and moral values.
Three hours per week. One semester..

418b Jurisprudence. The objective of the seminar is to develop and test the student's own ideation of the nature of law. Toward that end, various perceptions of law are examined in the seminar.
Four hours per week, one semester.

419 Labour Law. This course will deal with four aspects of labour relations: the creation of collective bargaining rights; the strike situation; arbitration; and the rights of individual members. In covering these topics, chief emphasis will be placed upon the Ontario Labour Relations Act which is the most important piece of legislation in this field in Canada and is also representative of problems occurring generally.
Four hours per week, one semester.

426 Land Development Law. The primary concern of this course is the introduction of some of the more sophisticated and practical problems resulting from land acquisition, its ownership and the financing thereof.
Four hours per week, one semester.

427 Public International Law. An introduction to the underlying principles of international law and the developing framework in several areas.
Four hours per week, one semester.

428 Individual Research. A student wishing to undertake a major piece of research and writing may apply to the Curriculum Committee A student may select this option only once in his law school career. Open to students during their second and third years.

431 Trade Regulation. This course deals with one important aspect of government regulation of business,

the regulation of competition. It is not a course in regulated industries or consumer protection although these topics are considered briefly. Rather, the course is aimed at an examination of the problems of preserving business competition. The central focus is on the Combines Act.
Three hours per week, one semester.

434 Criminology and Corrections. The course will examine the basic concepts in the study of criminology and corrections, focusing in detail on areas of specific concern to law students. The general concepts will be examined through reading materials and discussed fairly briefly in class. More detailed study will be given to the measurement and prediction of criminal behaviour, sentencing, the Canadian Correctional system, prisoner's rights and parole.
Three hours per week, one semester.

435 Law Reform. A seminar involving an examination of those specific areas of law which may be in need of reform. The materials will focus primarily on criminal law reform but students may pursue other areas of law if they wish.
Two hours per week, one semester.

436 Securities Regulation. Although an introduction to Securities Regulation, the course is designed to develop a detailed working knowledge of the substantive and procedural law regulating transactions in securities in Ontario. Reference will be made to federal, other provincial and U.S. regulatory systems as well as to industry self-regulation in Ontario; however the principal focus will be on Ontario legislation, both current and proposed. Particular attention will be given to the ramifications of Ontario's proposed new Act — The Securities Act, 1972.
Prerequisite: Company Law; knowledge of Income Tax law and basic accounting principles is also beneficial.
Two hours per week, one semester.

438a,b Income Taxation. A basic course in income taxation concentrating on the treatment of individuals under the Income Tax Act. The course will emphasize statutory construction in dealing with problems in the following areas: residence, the meaning of income; deduction credits and exemptions; income splitting; tax accounting; the filing of returns and collection of tax.
Four hours per week, both semesters.

439 Advanced Taxation - The Federal Tax Treatment of Corporations and Shareholders. This course deals with the federal income tax treatment of corporations and their shareholders.
Prerequisite: Income Taxation.
Three hours per week, one semester.

443 Close Corporations. This course will be a study of the use of the corporate vehicle and the organization of private business activity, examined in the context of corporate planning and counselling.
Prerequisite: Company Law.
Two hours per week, one semester.

444 Environmental Law. The course will be conducted on a seminar basis, with the first half-semester devoted to a general discussion of the nature and scope of the environmental problem; the international legal position; the Canadian constitution and the environment; the advantages and disadvantages of the private action in nuisance, riparian rights, negligence, etc.; government activity and how to challenge it — the Canadian and American positions; the governmental response to pollution, examining federal and provincial legislation; policy alternatives — effluent charges, tax incentive, public participation, river basin management, the criminal sanction, etc.
Prerequisite: Administrative Law, or concurrent registration in Administrative Law.
Two hours per week, one semester.

450 Wills. An examination of the law

concerning disposition of property after death, with primary emphasis on the use of the will as a device for this disposition. It is not a course on estate planning.
Two hours per week, one semester.

454 Dispute Settlement. This course will be one which basically deals with the question of labour arbitration. In doing this, a series of seminars will be held at which topics of general importance in the field will dealt with. Students will be required to complete papers upon which they will lead discussion in these seminars. Additionally, students will be required to go to actual arbitration hearings and, on the basis of evidence there given, draft an award. Finally, all students will be required to participate in mock arbitrations.
Two hours per week, One semester.

459 Secured Transactions. A study of secured interests in personal property, with particular reference to the Ontario Personal Property Security Act and its relationship to Article 9 of the Uniform Commercial Code of the United States.
Prerequisite: Commercial Law.
Two hours per week, one semester.

462 Intellectual Property and Unfair Competition. This course will consist of a survey of the law of unfair competition, copyrights, trademarks, trade secrets and patents. The course will emphasize development of the ability to select and explain the most appropriate legal devices to protect various aspects of marketing and business arrangements including development, use sale by license of business names, literary property, commercial products or proprietary technology. Current proposals for reform of the laws dealing with patents, copyright, trademarks and industrial designs, and related statutes such as the *Combines Investigation Act* will be discussed.
Two hours per week, one semester.

463 International Organizations. An examination of the international legal aspects and problems of international organizations — powers, functions, financing, membership, and other related matters. Particular attention will be given to the European institutions and institutions of which Canada is a member.
Prerequisite: Public International Law
Two hours per week, One semester.

467 Trial Process. An experimental course designed to emphasize the law of evidence as a process rather than as a collection of rules with their associated conceptual rationales. The purpose of the course will be to attempt to provide some insights into the means by which facts are found, and therefore proved, in the Anglo-Canadian system of litigation.
Prerequisite: Evidence.
Two hours per week, one semester.

475 Real Estate Drafting and Negotiations. The primary concern of this course is the development of drafting and negotiating skills in the students.
Prerequisite: Land Development Law.
Two hours per week, one semester.

476 Trusts. An introduction to the law of trusts, including the creation of trusts, the rights and duties of trustees, the rights of beneficiaries and the special rules relating to charitable trusts. Attention will also be given to the development of equitable principles and remedies.
Three hours per week, one semester.

478 Clinical Training Program. The Clinical Training Program is a one-semester program to stimulate, in a clinical setting, an enquiry into the role of the contemporary lawyer, the practice and function of the legal system, and to provide an environment for the development of practical legal skills such as interviewing, negotiation, legal drafting and formal advocacy. The program will be conducted in a law office operated by the Faculty of Law in the downtown

district of London. The development of these skills will be analyzed and discussed in a program seminar, The Lawyering Process, conducted by the Director of the Program. This seminar will utilize cases and situations arising out of the operation of the law office. The student will have an opportunity to become acquainted with the operation of various governmental agencies, the courts and administrative tribunals.

There will be a second seminar entitled the Administration of Justice in which the responsibilities and duties of defined roles within the legal system will be discussed and analysed. Police, crown attorneys, barristers who represent accused and judges will be invited to attend to explain their views of the administration of justice and their perceived responsibilities to the legal system.

Enrolment limited to ten students, with preference to third-year students.

Equivalent to ten credit hours, One semester.

479 Advanced Criminal Procedure. A study in depth of certain chosen procedural areas of interest to those intending to practise in the area. A sound grasp of basic procedure from the first year course in Criminal Law will be assumed. An attempt will be made to relate the procedure as set out in the Criminal Code and the Summary Convictions Act and other relevant legislation to the actual practice.

Three hours per week, One semester.

480 Communications Law. The purpose of the seminar will be to develop an in-depth understanding in the student of the telecommunications industry in Canada. For the most part, the seminars will deal with the legal issues surrounding broadcasting, cable television and their associated regulatory apparatus. The seminars will be composed of lectures, discussions, and talks given by specialists from industry and government who are particularly knowledgeable in the technical aspects and the policy objectives of the broadcasting and cable television industries.

Prerequisite: Administrative Law.

Two hours per week, One semester.

481 Municipal Legal Studies. A study of the structure, functions and powers of local governments in Ontario, including their financing, as well as the public and private regulation of urban and regional land use.

Three hours per week, One semester.

482 Advanced Criminal Law. An advanced seminar in substantive criminal law designed to explore problem areas in greater depth than was possible in the first-year basic course, as well as to examine various areas not covered in the first year. Although the primary focus of the course will be on a theoretical consideration of the "law", efforts will be made to consider various problems from a practical point of view.

Two hours per week, One semester.

483 Remedies. The course will be a seminar covering in depth selected areas of the law including damages for personal injuries and death, and damages for non-pecuniary losses, products liability, injunctions, mandamus and other extraordinary remedies, and an exploration of the rights and remedies of special interest groups such as shareholders and ratepayers. An interest in civil litigation, research and preparation will be expected.

Two hours per week, One semester.

484 Law of Restitution. The Restitution Course is distinct from the Remedies Course in that it does not focus completely on merely the remedies available but rather deals with substantive causes of action. The course deals with the situation where a defendant is in possession of money or goods which the plaintiff alleges that he holds wrongly and with an examination of the causes of action

available to the plaintiff to recover these goods or monies. The area of law concompassed within the general heading Restitution covers equity and common law and also certain statutory interventions.
Three hours per week, One semester.

CROSS REGISTRATION IN BUSINESS ADMINISTRATION COURSES

The Faculty of Law and the School of Business Administration have a joint arrangement whereby advanced-standing students (second and third year law students and second year business students) are able to cross register in courses offered by the other institution. Such cross registration requires approval in advance of the Dean of the school where the student is registered and the Professor in the course he wishes to attend. Such students would be expected to meet all requirements of the course for which they cross register and they would be evaluated on the same basis as others in the course.

CROSS REGISTRATION IN COURSES OUTSIDE THE LAW SCHOOL

(1) CLASSICS 43 ROMAN LAW

The Faculty of Law and the Faculty of Arts, Department of Classical Studies, have an arrangement whereby second and third year law students may cross register in the following course in Roman Law:

Classics 43 Roman Law: This course will attempt to describe and examine all aspects of the legal system of Rome. Its topics will include the origins and substance of Roman Law, procedure and jurisdiction, the nature and position of the Lawyer, social aspects of Roman Law, the place of Roman Law in general legal theory and its influence on medieval and modern times and an explanation of Latin terms in contemporary Law. The class will meet two hours a week, both semesters.

Cross registration in the course in Roman Law requires approval in advance of the Dean of the Faculty of Law and the Professor in the course on Roman Law.

(2) HISTORY 455 UNITED STATES LEGAL HISTORY

The Faculty of Law and the Faculty of Social Science, Department of History, have an arrangement whereby second and third year law students may cross register in the following course in United States Legal History:

History 455, United States Legal History: This course will begin with some consideration of the English origins of the common law. The major focus of the first semester will be on the transplantation of the common law and related developments in American legal history from the time of the first settlements to the codification movement in the first half of the nineteenth century. The second

semester will emphasize the last one hundred years. The emphasis throughout the course will be on the social history of law.

The class will meet three hours a week in both semesters. Although the format of the course will emphasize lectures, discussions, and readings, rather than research, law students may fulfil part of the course requirements by undertaking comparative research in Canadian legal history.

Cross registration in the course in United States Legal History requires approval in advance of the Dean of the Faculty of Law and the Professor in the course on United States Legal History.

MOOT COURTS AND MOCK TRIALS

Students are required to participate in a moot court program administered by the Faculty in conjunction with the first year course, Legal Writing and Moot Court Program. Students in the second and third years are encouraged to participate in the program of moot courts which are organized and conducted by the students themselves through The University of Western Ontario Legal Society. Through such participation, the student gains invaluable experience in legal research, the preparation of argument on behalf of a client, and the oral submission of such argument. Members of the Bench and of the practising Bar, giving generously of their time and talents, sit as judges and offer to the participants their advice and constructive criticism, based upon years of experience in advocacy. In addition, students in the second and third years are offered the opportunity to prepare and conduct mock trials, based upon actual cases. Here, the student obtains experience in gathering evidence, interviewing witnesses, and examining witnesses at trial. The Faculty and students are particularly fortunate, in connection with this program, to have the co-operation of the Bench, Court officials, the police, and various citizens of London who contribute their time to act as witnesses.

SPECIAL EVENTS

The student Legal Society, with guidance from the Faculty, forms a Special Events Committee. Leading personalities in legal education, the profession of law, and related disciplines are invited to address the students on matters related to the study and practice of law, and the Committee sponsors films and panel discussions.

COMMUNITY LEGAL SERVICE PROJECTS

From its inception in September 1969, the Law Students' Community Legal Services Program has expanded into a sophisticated operation involving several different projects, operating from offices in the Law School. Law students offer legal services to the community pursuant to the regulations governing the provision of Legal Aid in Ontario. In addition, duty counsel services are provided in Family Court and a Consumer Complaint Bureau is operated.

HONORS

1. Students who obtain a weighted average of 70% or more and are in the top 10% of the class in any year shall qualify for the Dean's List of Honor Students.
2. A student who is on the Dean's List of Honor Students in all three years shall graduate with distinction. A student who is on the Dean's List of Honor

Students in at least two of his three years at the Faculty of Law is eligible to graduate with distinction.

3. Students who obtain a weighted average of 75% or more over all three years shall graduate with great distinction.

THE DEAN IVAN C. RAND HONOR SOCIETY

This Society was formed by the undergraduate students in the term of 1963-64, to commemorate the Honorable Ivan C. Rand, Dean of the Faculty of Law from 1959 to 1964. A committee composed of representatives of the undergraduate student body and of the Faculty may nominate not more than three students from the graduating year for membership of the Society, selection being based upon meritorious academic standing throughout the undergraduate years in law, and outstanding contributions in the service of the undergraduate students of the Faculty of Law.

THE MALCOLM J. McKINNON AWARD

Classmates and friends of the late Malcolm J. McKinnon, first year law student, September 1971 to February 1972, have created an award in his memory and to remind the first-year class that this school offers not only a legal education but also an opportunity to grow and develop into concerned individuals willing to give of themselves so that others may benefit from their knowledge and friendship. This award is given to the person in the first-year class who best exemplifies this spirit.

LAW CLERKS' ASSOCIATION

Each year, outstanding students who have completed service under articles and the teaching portion of the Bar Admission Course are invited to serve as Law Clerks to the Chief Justice of Ontario, the Chief Justice of the High Court of Ontario, and the Chief Judge of the County and District Courts. Further information regarding these positions may be obtained from the Dean's Office.

FINANCIAL ASSISTANCE

RESTRICTED BURSARIES AVAILABLE TO LAW STUDENTS ONLY

A Bursary of $250

From an anonymous law firm of London, to be disbursed at the discretion of the Board of Governors or persons acting for them towards payment of tuition fees in any year of the course to the student who will be likely to attain a creditable standing in the profession and whose continued education without assistance would be a hardship upon his family.

Fred J. Blackwell Bursary Fund

A fund has been established, the interest on which is available to deserving students in any year of the Faculty of Law on the recommendation of the Faculty.

Harold G. Fox Education Fund

One bursary per year of $100 is available for 1972-73 to 1976-77 out of monies given to the Law School by this Fund.

The Law Society Foundation Bursaries

Bursaries of up to $250 are available to law students in any year of the course, payable out of funds allocated to the University by the Foundation.

GENERAL INFORMATION

I. ADMISSION TO THE PRACTICE OF LAW

In view of the fact that requirements for admission to the practice of law vary from province to province, a student wishing to practise law in any province other than Ontario is advised to communicate with the Secretary of the Law Society concerned before seeking admission to the Faculty of Law in the University of Western Ontario.

Requirements for admission to practise as a barrister and solicitor in Ontario are set by the Law Society of Upper Canada, and can be ascertained in detail by writing to the Society's Secretary, Osgoode Hall, Queen Street West, Toronto. In brief, students must graduate in an approved law course offered by an approved university - the University of Western Ontario and its law course have been approved for this purpose - and complete the Bar Admission Course. The latter comprises a period of 12 months' service under articles to a solicitor in Ontario followed by a 6-month course of full-time practical training at Osgoode Hall in Toronto.

Attention is drawn to the fact that, by statute, being called to the Bar and admission to practise as a solicitor are not open to non-British subjects.

II. ACADEMIC RIGHTS OF STUDENTS — PETITIONS AND APPEALS

(a) Definitions:

A **petition** is "a request that a regulation be waived on compassionate grounds or because of extenuating circumstances."

An **appeal** is "a request that a grade on a particular piece of work, or a final standing in a course or program, be changed, on grounds provided by the individual appealing".

(b) Procedure:

(i) Each step of the petition and appeal procedure shall be completed within a reasonable time.

(An appeal must be filed with the Faculty of Law within six (6) weeks following the date of issuance of an examination report).

A petitioner or appellant should have completed all stages of the Appeal process prior to applying to the Senate Review Board (Academic). This means that in the case of an appeal, the individual must have appealed to and been unsatisfied by the relevant instructor, and the Dean of the Faculty of Law. In the case of a petition, the petitioner must have requested relief from and been unsatisfied with the response of the Dean of the Faculty. Normally the Dean of the Faculty in

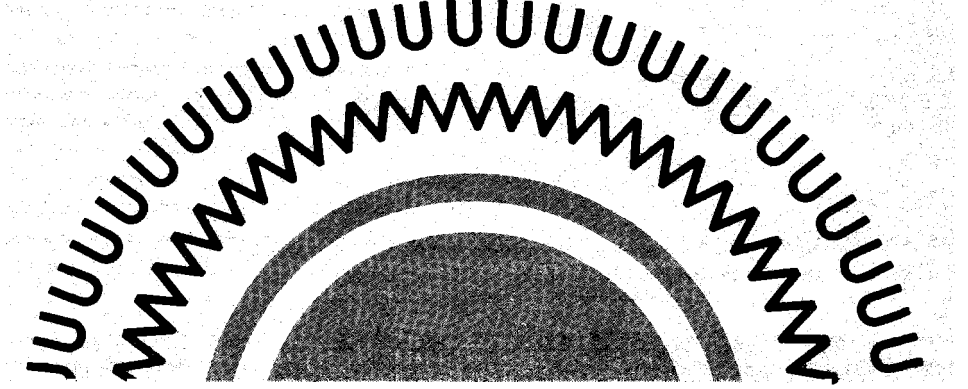
which the petitioner is registered will be the relevant Dean; however, if the petition refers to a regulation related to a specific course, the relevant Dean will be the Dean of the Faculty which offers that course. In the Faculty of Law the procedure is to make a formal complaint to the Student Appeals Committee. The Committee shall advise the Dean of the Faculty of Law.

In summary, the stages of the appeal or petition processes are:

Appeal Process	Petition Process
1. Instructor	1. Dean
2. Department	2. Senate Review Board (Academic)
3. Dean	
4. Senate Review Board (Academic)	

The Senate Review Board (Academic) is the ultimate body to which students may appeal academic decisions affecting them. It hears the application of students appealing to the Senate against prior rulings of Deans and Faculty Councils relating to petitions and appeals. Further appeals of a procedural nature may be considered directly by the Chairman of Senate. The petitioner or appellant may appeal before the SRBA with or without counsel or by agent. The right to counsel is accorded only at the level of the SRBA. Cost of legal counsel shall be borne by the party concerned unless the final tribunal makes an order as to costs.

Faculty of Dentistry



Dean:
Wesley J. Dunn, DDS, Toronto; FACD
Room 1003 Dental Sciences Building Phone: 679-3864

Administrative Officer:
E. Clark
Room 1003 Dental Sciences Building Phone: 679-3864

Director of Clinics:
K. M. Baird, OBE, CD, DDS, Toronto; FICD
Room 0153 Dental Sciences Building Phone: 679-3389

Faculty of Dentistry

ACADEMIC CALENDAR 1974-5

1974

July 26	Last day for receiving applications for examinations for removal of conditions.
August 16	Examinations for removal of conditions begin at 9:00 a.m. in Dental Sciences Building.
August 26	Third Year commences Clinical Orientation and Oral Diagnosis, 8:00 a.m., (Room 3008, Dental Sciences Building).
September 9	Orientation. Complete details concerning Registration will have been sent by the Registrar's Office before this date. First Quarter commences for Third Year. Issue of Dental instrument kits will be made to students on the following schedule: 8:00 a.m. Second Year 9:30 a.m. First Year 11:00 a.m. Fourth Year (Location: Lower Ground Floor, Dental Sciences Building)
September 10	First quarter begins for First, Second and Fourth Years.
October 14	Thanksgiving Day - Holiday with classes cancelled.
October 25	Autumn Convocation.
November 4	Second Quarter begins - all years.
December 20	Christmas Vacation begins at 5:00 p.m. - all years.

1975

January 6	Lectures resume - all years.
January 13	Third Quarter - all years. Payment of final installment of fees is required on or before this date.
March 10	Fourth Quarter begins - all years.
March28	Good Friday - Holiday with classes cancelled.
April 21	Study Week - Fourth Year.
April 28	Fourth Year final examinations (Monday-Friday).
May 5	Study Week - First/Second/Third Years. Fourth Year resumes clinical practice.
May 12	First/Second/Third Years final Examinations (Monday-Friday)
May 19	Victoria Day - Holiday with classes cancelled.
May 19-21*	Third Year to attend sessions of Ontario Dental Association.

May 22	Third Year summer clinic begins.
June 6	Spring Convocation - Dentistry.
June 21	Third Year summer clinic ends.

*Tentative dates.

Regular meetings of the Council of the Faculty of Dentistry or its Executive Committee are normally held on the fourth Monday of every month, September to June, inclusive.

HISTORY OF THE FACULTY

In October, 1947, the Board of Governors of The University of Western Ontario approved in principle the development of a faculty of dentistry. In 1949, this was endorsed by the Canadian Dental Association and the Royal College of Dental Surgeons of Ontario.

By 1950, it became obvious there was need to expand the existing facilities for the teaching of dentistry in the Province and accordingly the Royal College of Dental Surgeons recommended the creation of new premises for the existing dental school.

In 1962, the Royal College of Dental Surgeons of Ontario in a report to the Minister of Health, recommended two sites for the establishment of a second dental school, one of which was within The University of Western Ontario.

The Honorable John P. Robarts, then Prime Minister of Ontario, announced on 29 October 1964 that the Government of Ontario had approved the development of a faculty of dentistry at The University of Western Ontario within the Health Sciences Centre. Less than one month later, on 20 November 1964, the Board of Governors officially established the Faculty of Dentistry, effective 1 January 1965 and at the same meeting appointed its dean who took office on 1 February 1965.

The Honorable Dr. M. B. Dymond, then Minister of Health of Ontario, officiated on 27 September 1966 at the Ground-Breaking Ceremony for the Dental Sciences Building. The following year, on 20 October 1967, the cornerstone was placed by Colonel D. B. Weldon in his last official act as Chairman of the Board of Governors. The Official Opening of the Dental Sciences Building took place on 25 October 1968, again with Dr. Dymond officiating.

Full approval of the undergraduate dental program was given on 21 February 1970 by the Council on Education of the Canadian Dental Association.

The first class selected from among 88 applicants was enrolled in the Faculty of Dentistry in September, 1966 and its graduates four years later on 29 May 1970 received their degrees marking the first time the degree of Doctor of Dental Surgery had been conferred by The University of Western Ontario.

Earlier projections had not envisaged that enrolment of First Year dental students would have reached the full capacity of 52 students until perhaps, the mid-1970s but in 1970-71 First Year full enrolment was achieved. In sharp contrast to the 88 applications received for admission to the first class in 1966, the Faculty of Dentistry Committee on Admissions gave consideration to 609 applications in 1973.

Another milestone in Faculty development was reached in July 1973 when the first graduate program commenced. Four students were enrolled in Orthodontics. At its conclusion, the successful candidate will be awarded the Degree of Master of Clinical Dentistry (M.C1.D.)

Objectives

The objectives of the Faculty of Dentistry are to select students who are intellectually, morally and physically qualified for a career in dentistry and to provide them with an academic environment conducive to a broad education including the acquisition of the special knowledge and skills of dentistry. There should be developed within the student an intellectual curiosity, an ability to reason, the realization of the need for continuing education, and a superior sense of responsibility to society. The student should also attain a knowledge of the basic sciences related to dentistry including the application of these sciences to his clinical practice, a high degree of clinical ability, and understanding and interest in research and education, a knowledge of and the ability to practice preventive dentistry, a competence to organize and administer a practice properly including the utilization of auxiliary personnel, and a highly developed sense of ethical principles in professional life.

Specifically, the DDS program is intended to graduate dentists who possess the knowledge and skill to conduct a superior general practice and also sufficient knowledge of basic and applied science to permit and stimulate professional and intellectual growth.

The Library

The Dental Library is a fully-integrated part of the Health Sciences Library serving Dentistry, Medicine, Nursing and associated Basic Sciences.

Although located separately on the main floor of the Health Sciences Centre, the Health Sciences Library is part of the main University Library.

The collection of the Health Sciences Library contains about 107,000 volumes and the library regularly receives the leading health sciences periodicals. Within the collection is a section of several thousand volumes dealing with the History of the Medical Sciences.

Hours during the term are Mon-Fri 8:30 a.m. to 11:00 p.m.; Sat. 9:00 a.m. to 11:00 p.m.; Sundays 10:00 a.m. to 11:00 p.m.

ADMISSION REQUIREMENTS

Admission to the Faculty of Dentistry is based on academic ability and personal qualities as evidenced by scholastic records, aptitude tests, and personal references. Because facilities for pre-clinical and clinical instruction are limited, it is necessary to restrict enrollment to those who, in the opinion of the Faculty, are best qualified to meet the mental and physical demands of the curriculum and most likely to successfully complete the full course of study. The presentation of the minimum requirements for admission will not assure acceptance.

Students in the following categories are eligible to apply for admission to the first year of the four-year program in the Faculty of Dentistry:

(a) Those who are in, or who have successfully completed, a second-year program at an Ontario University, or an equivalent second year at another university, provided that the program has included a minimum of four honors courses or equivalent within the first ten courses completed. All applicants must have successfully completed one full laboratory course in each of Biology, Chemistry and Physics.

(b) Those in the final year of, or who have successfully completed, a graduate or undergraduate degree program at a recognized university. Graduate students

will be expected to have completed all requirements for their graduate degree prior to registration in the Faculty of Dentistry. Candidates in this category are advised that it is to their advantage to have successfully completed one full laboratory course in Biology, Chemistry, and Physics.

Prior to being permitted to register in the Faculty of Dentistry, applicants who are granted admission will be required to have demonstrated competence in Organic Chemistry to the level of the first full course in Organic Chemistry offered at The University of Western Ontario. (All applicants including undergraduate, graduate, special make-up and qualifying students, are reminded that careful assessment will be made of their accumulative academic record).

Priority consideration shall be given, all other things being equal, firstly to Canadian citizens who are resident in Ontario; secondly, to Canadian citizens resident elsewhere and to all Landed Immigrants irrespective of the Province in which they reside; and thirdly, to all others. (One position may be available for students supported by the Canadian International Development Agency or similar agency).

NOTE: Chemistry 203, 253, 313, 353 and 453 individually satisfy the Organic Chemistry requirements of this Faculty.

In their choice of options for the second "predental" year, students are urged not to anticipate dental school courses. Rather, they should seek a broad background of education in keeping with their own interests.

Application for Admission

Application for admission to the Faculty of Dentistry must be made upon the official application form obtainable from the Registrar's Office. The completed forms and supporting documents (originals) are to be mailed to The Director of Admissions, The University of Western Ontario, London, Canada, N6A 3K7. Applications should be submitted not later than March 1, 1975.

A student who has never been registered at The University of Western Ontario must:

(a) attach to his completed application form all his Ontario Grade 13 certificates (originals) or an official certified transcript of his complete secondary or high school record;

(b) request the Registrars of all universities, colleges and other institutions of post-secondary education which he attended or is attending, to forward direct to The Director of Admissions, certified official transcripts of his academic record;

(c) request the Registrar of the University which he is currently attending to forward direct to The Director of Admissions a second transcript of his record at the end of the current academic year.

Dental Aptitude Test

All applicants to this Faculty must complete the Dental Aptitude Test administered by the Canadian Dental Association. Information on this test program may be obtained by writing to:

The Administrator

Dental Aptitude Test Program

Canadian Dental Association

234 St. George Street

Toronto, Ontario, M5R 2P2.

Registration

Students in the Faculty of Dentistry will be advised direct by the Registrar's Office concerning registration. No student will be registered after the designated registration date except by special permission of the Dean.

FEES

All Years' Fees (Subject to Change) $833.50*

If paid in two installments—

With Registration $450.00

First day of Second Term $388.50

*(Includes Student Activity and Health Service Fees Totalling $60.00)

Instrument Fee

The instrument fee in each year covers the cost of various items of equipment and expendable supplies which the student requires as a part of the teaching program. The equipment items will be required on graduation for the establishment of a practice. Since the University is able to purchase such items at a considerable discount direct from the dental trades and without the normal sales tax, the instrument fee represents only a fraction of the actual retail value of the instruments provided. It also includes a small rental and maintenance fee for the major items of equipment on annual loan to the student while assigned to the various clinics and laboratories. That portion of the Instrument Fee which is expendable is recoverable through the Student Loan when granted.

(Estimate only) - Payable with Registration

First year $925.00

Second year $775.00

Third year $590.00

Fourth year $75.00

If paid in two installments, an extra $5.00 handling charge will be levied.

Late Registration

Specified date (September) $10.00

Thereafter $25.00

Other Charges

Evaluation of non Ontario certificates for admission $2.00

Transcript of record, each copy (first two copies) $1.00

Examination for removal of conditions, each paper $15.00

The Board of Governors reserves the right to amend fees after the printing of this brochure.

NOTES:

1. A non refundable $50 deposit on tuition fee is required from an admitted applicant to retain his place in the first year class.
2. Students must pay their fees as above, before attending any lectures or examinations, except by permission of the Dean of the Faculty and the Comptroller.

3. No student shall be recommended for any diploma or degree until his tuition fees and other accounts owed to the University have been paid.
4. The fees outlined above represent only a fraction of the cost of dental education. The balance is provided by Federal, Provincial and Municipal grants, endowment income and other grants and gifts.
5. The Instrument Fee includes the purchase or rental of instruments, equipment and materials; laboratory costs and compulsory Bulletins and stationery supplies.
6. A $25 fee to be deposited with the Director of Clinics is required from all Third Year students prior to commencement of the Clinical Orientation course. This is refundable at the end of Fourth Year when all items of equipment on loan have been returned.

Financial Responsibility

All students who are reported as having an unsound financial record will be subject to special review by the Council of the Faculty of Dentistry before being recommended for a promotion.

A student or students will be held financially responsible for any actions of a negligent or wantonly destructive nature which result in the damage of University property. Such charges will form part of the amount due to the University. Non-payment will result in disciplinary action by the Dean's Office.

Attendance

(a) Students registered in any year are expected to attend the courses of instruction in all subjects prescribed for that year.

(b) In dentistry, a high proportion of a student's knowledge, understanding, and clinical competence, is acquired through observation and participation in assignments, laboratory sessions, and preclinical demonstrations. Consequently, attendance is considered essential.

(c) Classes desiring postponement of any lecture, clinic or laboratory periods shall be required to secure permission for such postponement from the Dean-InCouncil, who shall thereupon notify the Chairman or Head of the Department concerned.

Academic Requirements

1. To complete the year's work and be permitted to register in the succeeding year of the dental program, a student must:
   (a) complete the prescribed assignments.
   (b) obtain at least a satisfactory level of performance in each subject in which a final examination is held.

A student who fails to satisfactorily complete the laboratory, clinical or other assignments prescribed in a clinical subject will be designated as "Incomplete" and may be required to return to the Faculty for a specified period during the summer months in order to fulfill his assignments.

2. A student may be given permission by the Council of the Faculty of Dentistry to write no more than two supplemental examinations, provided:
   (a) his general average is at the Satisfactory level.
   (b) his grades are below Satisfactory level in no more than two subjects.

3. A student will be considered to have failed to complete the year's work, if:
   (a) his general average (in all subjects of that year) falls below the Satisfactory level.
   (b) he has failed to obtain a Satisfactory level in more than two subjects.
   (c) he has been given permission to write supplemental examinations and has failed to meet the requirements under section 1(b) above.
4. A student who fails to complete a year may be permitted by the Council of the Faculty of Dentistry to repeat that year. Permission is given only when a vacancy is available in that year. The total work of the year must be repeated unless, by action of Council, the student is granted credit for any course or courses in which, in the judgment of the Council, he has performed at a sufficiently high level of competence that the repetition of such a course or courses is not required.
5. A student who obtains an average at the Excellent level in a year's work, is considered to have passed that year with honors. A student who passes with honors in each year in the Faculty of Dentistry will be graduated "with distinction".
6. In each subject the ratio of term grades to final examination grades is determined by the teaching staff of the department concerned.
7. At the end of each academic year, a report will be mailed by the Office of the Registrar to each student showing his grade in each subject. Key to Grades is as follows:
   E - Excellent performance
   G - Good performance
   S - Satisfactory performance
   U - Unsatisfactory performance

First Year Curriculum, 1974-1975

DEPARTMENT OF ANATOMY

1. Gross Anatomy. The objectives of this course are to provide the student with a knowledge of anatomy upon which all of his future studies and practice of the profession will be based.

(a) An introductory lecture course dealing with the systems of the body precedes the detailed study of the head and neck region.

(b) This is followed by a course of lectures, demonstrations and laboratory sessions which place emphasis on the regional anatomy of the head and neck and which stress the relationship of structure to function. Particular attention is given to structures which are of continuing relevance to dental students.

Students work in small groups during the laboratory sessions. Tutorials and self assessment tests provide the student with an opportunity to reinforce the knowledge gained in other parts of the course.

192 hours (total).

2. Histology. The objective is to acquire sufficient knowledge of the microscopic structure of the various

tissues and organs of the body so that the functioning (Physiology) and the disease processes (Pathology) can later be understood. Considerable emphasis is placed on the ultrastructure of tissues because the biochemical processes in cells can largely be interpreted in terms of cell ultrastructure. Since histology is concerned with the structure and relationships of normal cells, tissues and organs it serves as a basis for understanding and recognizing normality and normal variation, both of which are significant in health maintenance or disease prevention.

A large segment of the course is the detailed study of the structure and development of the oral tissues, and special emphasis is placed on the student's performance in this area.

144 hours (total).

3. Human Genetics. A short course of illustrated lectures on human genetics stressing the applications of genetics in understanding the etiology of certain types of abnormal tooth development, oral pathology and development of the cranio-facial complex, and indicating how this knowledge can be utilized in offering genetic counselling to patients and their families.

16 hours.

DEPARTMENT OF BIOCHEMISTRY

Biochemistry. Lectures, practical exercises and clinically applied discussion periods on (a) Chemistry and intermediary metabolism of carbohydrates, fats, proteins, nucleic acids and selected minerals. (b) Protein synthesis and molecular genetics, (c) Enzymes, (d) Cellular functions and control, (e) Biochemistry of blood, mineralised tissues and oral cavity, (f) Nutrition, (g) Hormones.

Lectures 88 hours. Practical and discussion periods 64 hours.

DEPARTMENT OF ORAL MEDICINE

1. Oral Medicine. The aim of the first half of this course is to introduce to the student the causes of oral disease and to demonstrate those aspects of preventive dentistry.

The natural history of dental disease is outlined. The second half of the course is devoted to lectures and demonstrations in normal orofacial surface anatomy and radiology.

32 hours.

DEPARTMENT OF PAEDIATRIC DENTISTRY

1. *Growth and Development.* *This is* an introductory program devoted to the general topics of growth, craniofacial growth and the development of the dentition.

16 hours.

DEPARTMENT OF PHYSIOLOGY

A. Human Physiology. This core course is composed of lectures, informal group discussions, demonstrations, laboratory work, and assigned study. The general objective of the course is to develop a basic knowledge of human physiology, utilizing the main general themes of homeostasis and control mechanisms of bodily functions. The course of study involves: Man and his environment; Neuronal mechanisms and an introduction to the Central Nervous System; Cardiovascular system; Respiratory system; Endocrine system; Renal system; Gastrointestinal system; Sex and reproduction; and Integrative mechanisms. A student is expected to acquire a fundamental knowledge of all the body systems, of the inter-relations among these systems, and of man as an integrated organism capable of adjusting to his environment. It

is also expected that the student will acquire knowledge of the physiological parameters of health at all ages, and will be able to predict those changes that will occur during both internal and external stresses.
The course is taught jointly to Medical and Dental Students.
96 hours.

B. Applied Physiology. The course is composed of lectures, tutorials, seminars, essay-preparations, and self-instructional program. The objective is to give dental application to major topics of the Human Physiology (A) core program.
64 hours.

DEPARTMENT OF RESTORATIVE DENTISTRY

1. Operative Dentistry. This course introduces the student to the clinical aspects of the disease of dental caries. While emphasis is given to prevention, the treatment of commonly occuring hard tissue lesions by means of routine restorative techniques is discussed in detail. The laboratory phase of the program reinforces the lecture material and permits full opportunity for practical application under simulated clinical conditions. Upon the completion of this course the student will be expected to diagnose and treat simple carious lesions utilizing routine restorative techniques.
Lectures 32 hours, Laboratory 64 hours.

2. Dental Materials Science. A basic and general discourse is given to the various classifications of materials used in dental operative procedures. Emphasis is placed on physical and mechanical properties which forms the rationale for the proper technological management of materials. In addition several selected topics concerning specific materials are presented in co-ordination with the preclinical presentations and exercises in the Operative Dentistry course.
Lectures 32 hours.

DEPARTMENT OF SOCIAL DENTISTRY

1. Professional Conduct. A short course designed to encourage the development of responsible professional attitudes and to produce, within the freshman dental student, an enhanced awareness of the nature and extent of the responsibility the dentist assumes in respect of his patients, his profession, his colleagues, society, his family and himself.

2. Scientific Writing. For the guidance of the student, to outline the requirements of good writing and the special requirements normally imposed by scientific and/or professional journals to which scientific and/or professional papers may be submitted.

3. History of Dentistry. A short course tracing the trials and tribulations in the development of dentistry as a profession and identifying its major contributors and the nature and significance of their contributions.

4. Community Dentistry. By the use of seminars and field trips, the student will be introduced to the community, its structure, the magnitude and distribution of dental disease within it and its available dental resources. Basic methods of epidemiology and biostatistics and their use in dealing with dental diseases will be discussed.
32 hours (total).

INTERDEPARTMENTAL

1. Conjoint Course in Occlusion. This course is composed of two sections, each concerned with a different aspect of the human dentition. The first part deals with the study of the morphological characteristics of both

primary and permanent teeth and their positional relationships in the dental arches. Emphasis is placed on the practical relationships of the teeth as they relate to their adjacent members. The student begins to develop technical proficiency by utilizing a wax addition method of restoring the anatomical crowns of selected representative teeth.

The second part introduces principles of occlusion designed to provide the student with a basic understanding of the fundamentals involved. The use of the dental articulator is introduced and explained as a method of orientating students to the field of occlusion. Articular patterns are fabricated in wax on mounted casts, and the relationships of the natural and artificial teeth to their antagonists and the jaws are studied. The Department of Restorative Dentistry teaches this program.

96 hours.

Second Year Curriculum, 1974-1975

DEPARTMENT OF BACTERIOLOGY AND IMMUNOLOGY

1. General Pathogenic Microbiology. A course of lectures, tutorials and laboratory exercises dealing with the nature and morphology of bacteria: host-parasite relationships; disinfection and sterilization; a survey of bacteria of medical and dental importance; the nature of viruses and virus infections; serological diagnostic methods; immunity and immune mechanisms involved in inflamation; antibiotics and chemotherapy; and special topics in mycology and parasitology. After an intensive introduction there will be detailed consideration of the part played by microbes in disease and, specifically, those affecting dental practice, hygiene and preventive measures.

2. Oral Microbiology. A course of laboratory exercises integrated with lectures, tutorials and seminars, designed as an interdisciplinary form of teaching with joint basic science - clinic participation and developed on topics with dental applied aspects of microbiology.

128 hours (total).

DEPARTMENT OF ORAL MEDICINE

1. Oral Diagnosis. By means of lectures and clinical teaching sessions the techniques of history-taking, examination, diagnosis and prognosis formulation are promulgated. Practical clinical instruction follows each didactic session.

The aim of this course is to give the student a thorough grounding in the techniques of Oral Diagnosis prior to his entry to the clinic.

16 hours.

2. Periodontics. This course comprises of a series of lectures and seminars on the etiology, pathogenesis, clinical features and diagnosis of periodontal disease.

The aim of the course is to introduce the student to patient motivation, early recognition and conservative therapy of periodontal diseases. Clinical demonstrations and exercises develop skills in the simpler therapeutic procedures.

32 hours.

3. Oral Radiology. A series of lectures and laboratory exercises designed to acquaint the student with

the principles of radiation production, control and hygiene. Instruction in radiographic techniques is commenced, as well as some lectures on the radiologic interpretation of disease processes which affect the teeth and jaws.
24 hours.

4. Occlusion. The lecture series deals with the dynamics of Occlusion in function and dysfunction. The etiology, histopathology and means of recognition of occlusal trauma are stressed. Laboratory exercises emphasize the understanding of the basic principles and a technique of occlusal correction in the natural dentition.
64 hours.

DEPARTMENT OF ORAL SURGERY

1. Local Anaesthesia. A course of lectures and demonstrations in the theory and practice of local anaesthesia pertaining to dentistry held during the third and fourth quarters.
16 hours.

DEPARTMENT OF PAEDIATRIC DENTISTRY

1. Paediatric Dentistry. This is a continuation of the first year Growth and Development program with special reference to the dentofacial complex, occlusion, its normal and abnormal development. This is followed by a pre-clinical orthodontic and paedodontic program that will prepare the student for the clinical procedures he will be required to perform in his third and fourth years.
56 hours.

DEPARTMENT OF PATHOLOGY

Introductory lectures are given at the beginning of each course in which the objectives of the course are discussed. A list of the lecture topics is provided for each student and lists of the topics to be discussed are provided at the beginning of each lecture or group of lectures.

1. General Pathology. A course of lectures, demonstrations and laboratory periods dealing with fundamental aspects of disease processes. Subjects include inflammation and repair, regressive changes, circulatory disturbances, disorders of growth and neoplasia, and specific examples of inflammation.
78 hours.

2. Systemic Pathology. A survey course designed to stress those aspects of systemic pathology which have a special relation to the practice of dentistry.
The course is taught by means of formal lectures, projector sessions illustrating gross and microscopic pathology, and sets of transparencies with recorded commentary for self-instruction.
42 hours.

3. Oral Pathology. A course of the diseases affecting the teeth, oral cavity and related structures. Forensic odontology, the oral manifestations of many systemic diseases, and the systemic manifestations of oral disease are also discussed. This course is taught by means of formal lectures, which are supplemented by clinical and histopathological illustrative material and by the study of collections of microscopic slides. The students are encouraged to read the current literature in the field.
72 hours.

DEPARTMENT OF PHARMACOLOGY

Pharmacology. The course will outline the principles involved in the chemical transmission of nerve impulses, receptor theory, and in the mechanism of action, absorption, distribution, metabolism and excretion of

drugs in general. Because of the great volume and variety of drugs in everyday use, and the prescribing rights of dental practitioners, the major groups of drugs used therapeutically will be discussed under the above headings, as well as their actions, clinical uses and toxic effects. In addition, emphasis will be put on drugs used in dentistry. The effects of typical drugs will be demonstrated in a series of laboratory/tutorial/workshop periods.
72 hours. Full course.

DEPARTMENT OF RESTORATIVE DENTISTRY

1. Operative Dentistry. A continuation of the first year course in which the student is prepared for the clinical environment. Particular emphasis is placed on cast intracoronal restorative procedures, esthetic anterior rehabilitative techniques, cariology, and the differential choice of restorative materials. Upon completion of this course and prior to the commencement of clinical practice the student is expected to demonstrate his ability to perform satisfactorily a wide spectrum of simple and advanced restorative treatment procedures.
Lectures 32 hours, Laboratory 96 hours.

2. Removable Prosthodontics. A course of lectures and demonstrations illustrating the biological and technological principles of complete and/or partial arch restoration by means of removable prostheses; applied anatomy and physiology; diagnosis, prognosis and treatment planning; occlusion factors; design and technical procedures.
32 hours.

A laboratory course affords practical experience in various clinical and laboratory techniques.
136 hours.

3. Fixed Prosthodontics. The aim of this course is to prepare the student for the clinical practice of Restorative Dentistry as it relates to Fixed Prosthodontics.
Special emphasis is placed on the preparation of students to treat patients with dental problems resulting from loss of teeth or aberration of function. Diagnosis, treatment planning, design and fabrication of prostheses, and restoration of occlusion are all stressed. The principles of dental hard tissue surgery involving extracoronal restoration are discussed along with the basic theoretical concept associated with each technique. The relationship between various restoration types and the patients' biological needs is considered. The technical skills and understanding gained in dental anatomy, dental materials science, occlusion, periodontics and operative dentistry are also applied. The lecture series is supplemented by practical laboratory assignments, demonstrations and appropriate reading assignments.
Lectures 32 hours, Laboratory 64 hours.

4. Dental Materials Science. Selected topics of various materials used in dental restorative procedures are discussed. Emphasis is placed on variables encountered when handling and applying the materials thus providing reason and insight to the proper selection of materials for the required dental restorative procedure. These topics are scheduled and co-ordinated with the preclinical presentations and exercises scheduled in Removable Prosthodontics, Fixed Prosthodontics and Operative Dentistry.
Lectures 16 hours.

5. Endodontics. A series of lectures designed to introduce the student to the clinical practise of endodontics. These lectures include a discussion of the etiology, diagnosis, treatment and prognosis of diseases of the dental pulp and the periapical tissues.
Lectures 8 hours.

A laboratory course augments the lecture series and is designed to acquaint the student with endodontic instruments and materials and to teach the basic skills and procedures necessary to treat a tooth endodontically. Participation in this laboratory course will serve as a basis for future clinical procedures.
Laboratory 9 hours.

DEPARTMENT OF SOCIAL DENTISTRY

1. The Practice of Dentistry. The current practice of dentistry is discussed. Emphasis is placed on the role of professional dental organizations, the Dental Act, the licensing body. The nature and extent of dental services are reviewed as are the characteristics of dental practices in rural and urban areas.

2. Social Aspects of Dental Care. Social factors play a central role in the utilization of dental services. These factors are identified and their relationship to the demand for dental care is discussed.

3. Health Economics and Payment for Dental Care. The various methods of payment for dental care are presented and contrasted. The present and future status of prepayment in dentistry is considered.

4. Public Dental Programs in Canada. A comprehensive look is taken at the administration, functions and services provided public dental programs at the federal, provincial and local levels.

5. Dental Personnel. The existing dental manpower resources are reviewed and analyzed in the light of the present and projected demand for dental services. The training, function and role of auxiliaries in the delivery of dental care are discussed.

6. Dental Health Programs in Selected Countries. A detailed overview of the development, organization, scope and effectiveness of dental programs in selected countries is presented. Implications for Canada are discussed.
24 hours.

INTERDEPARTMENTAL

1. Occlusion. The objectives are to teach the physiology of occlusion and mastication, jaw positions and movement patterns as they relate to the natural and artificial dentition. Also, the relationship between occlusion and the various branches of dentistry is explained as well as dysfunctional disturbances of the masticatory system. Basic principles of, and procedures for occlusal adjustment are taught in this lecture and laboratory course. The Department of Oral Medicine organizes this program.
64 hours.

2. Integrated Neurosciences. To continue the development of an understanding of the structure and functions of the nervous system. To treat in detail those neurological topics which are of especial relevance to oral medicine and surgery and to dental symptomatology.
Course Structure: Lectures and audio-visual demonstrations jointly by Departments of Anatomy and Physiology., 40 hours.
Proposed 1974-75

Third Year Curriculum, 1974-1975

DEPARTMENT OF ORAL MEDICINE

1. Oral Diagnosis.

(a) A lecture and seminar series which includes an outline of general medical conditions as they affect dental treatment. Medical laboratory aids and diagnostic aids in dentistry are discussed in detail. The small group seminars cover specific topics in Oral Diagnosis.

16 hours.

(b) Students are allocated to the oral diagnosis clinic for two separate weekly periods. There they diagnose routine and emergency cases.

40 hours.

2. Oral Medicine. A series of lectures on oral disease and the oral manifestations of systemic disease including dermatoses and blood dyscrasias.

8 hours.

3. General Medicine. Principles of General Medicine are presented in a series of lectures given by a member of the Department of Medicine. Students attend special ward rounds in general medicine with Medical Residents of University Hospital.

Lectures 24 hours, Ward Rounds 12 hours.

4. Periodontics. Lectures and clinical experience. Emphasis is placed on prevention and conservative therapeutics. Gingivectomy, plasty procedures, reattachment and treatment of emergency periodontal conditions are performed by the student. An introduction is made to advanced periodontal conditions and their treatment.

Lectures 16 hours, Clinic 96 hours.

5. Occlusion. Clinical experience is gained in the management of patients with problems which involve the occlusion. Clinical sessions are under the supervision of the Division of Periodontology.

20 hours.

6. Facial Pain and Temporomandibular Joint Dysfunction. A course of lectures is held on the etiology, diagnosis and management of facial pain and neurological disease of the face with emphasis on myofacial pain dysfunction syndrome.

12 hours.

7. Oral Radiology. A course of lectures and seminars on the radiologic interpretation of disease processes which affect the teeth and jaws. The normal radiographic appearances and their normal variations are stressed as a basis for understanding and recognizing abnormal conditions which the student may encounter. Experience is furthered in the practice of techniques presented in the second year pre-clinical program during assignment to the department.

Lectures 12 hours, Clinic and seminar 45 hours.

DEPARTMENT OF ORAL SURGERY

The objective of the Third Year course in Oral Surgery is that the student should by the completion of the year competently (a) obtain suitable local anaesthesia for oral surgery; (b) extract an erupted tooth using forceps; (c) administer intravenous sedation; and (d) administer closed cardiac massage and mouth-to-mouth resuscitation. The objective is attained by the attendance at three groups of lectures:

1.a core course of lectures given by the Department of Surgery, Faculty of Medicine, basic principles of surgery. 14 hours; 2. a preliminary course of lectures and demonstrations on the principles of exodontics, 12 hours. 3.

a course of lectures in general anaesthesia *AND RESUSCITATION* as it pertains to ORAL SURGERY. 12 hours. In addition instruction is given during interdepartmental teaching sessions and 90 hours are spent in the Oral Surgery clinic. A comprehensive course of lectures in oral surgery commences in the fourth quarter and continues into the fourth year. 8 hours

DEPARTMENT OF PAEDIATRIC DENTISTRY

1. Orthodontics.

(a) A course of lectures will be presented on diagnostic methods and treatment procedures used in the prevention and correction of irregularities of the teeth. Included will be the fundamental principles governing the design and construction of removable appliances in the preventive and corrective control of tooth movement.

24 hours.

(b) The clinic program is designed to provide opportunities for the diagnosis and treatment of selected clinical problems.

2. Paedodontics.

(a) A course of lectures and seminars will be presented that deal with the fundamentals of paedodontics and include child management, diagnosis and treatment planning, traumatized teeth, pulp therapy for the primary and young permanent dentition, current restorative concepts in paedodontics and prevention of caries and malocclusion.

24 hours.

(b) The clinical program in paedodontics is patient-centred and provides experience in the diagnosis and treatment of dental problems of a limited number of children.

DEPARTMENT OF RESTORATIVE DENTISTRY

1. Dentistry (Operative). A series of lectures devoted primarily to the clinical application of various restorative treatment techniques and procedures involved in the management of hard tissue lesions. Particular emphasis is placed on a biological approach to general restorative dentistry.

Detailed consideration is given the following topics: clinical diagnosis relative to operative dentistry; preventive periodontics in restorative procedures; clinical control of dental caries; differential choice of restoration; occlusion; composite systems and adhesives; clinical control of manipulative and biological variables. Differential diagnosis, treatment techniques and preventive procedures are stressed.

The clinical program permits direct application of the didactic lecture material. Upon completion of this course the student is expected to demonstrate (a) a reasonable degree of clinical judgement wherein routine decisions regarding diagnosis, treatment and general patient care may be made independently, and (b) a reasonable degree of clinical competence in performing routine treatment procedures with a predictable degree of success.

Lecture 24 hours, Clinical Experience 96 hours.

2. Endodontics. A series of lectures dealing in detail with all facets of endodontic treatment. Particular emphasis is placed on root canal morphology, diagnosis and treatment planning, armamentarium and sterilization, anaesthesia, bio-mechanical preparation, therapeutics, obliteration of the canal, bleaching of the endodontically treated teeth.

Endodontic surgery along with the newer concepts of endodontic periodontal surgery are discussed.
In conjunction with the Division of Fixed Prosthodontics the techniques of restoring the pulpless tooth are presented.
Lectures 24 hours, Clinical Experience 96 hours.

3. Fixed Prosthodontics. The aim of this course is to prepare the student for clinical practice as it relates to anterior fixed restorations. Special emphasis is placed on the replacement and restoration of teeth where esthetics is a problem. Those principles involving the variety of preparations employed in rendering a service where esthetics is of prime concern are discussed along with the basic theoretical concepts associated with each technique. Different kinds of veneering materials such as acrylic and porcelain are introduced and related to shade selection and color control. The lecture series is supplemented by practical laboratory assignments, slide and film presentations along with appropriate reading assignments.
Lectures 8 hours, Laboratory 16 hours, Clinical Experience 72 hours.

4. Removable Prosthodontics. A course of instruction in the clinical application of basic principles in prosthodontics. Students perform prosthodontic services for patients and are given ample opportunity to become clinically proficient in this discipline.
Lectures 24 hours, Clinical Experience 96 hours.

DEPARTMENT OF SOCIAL DENTISTRY

1. Jurisprudence. Introduction to legal aspects of the practice of dentistry dealing with contracts, leases and other legal documents.

2. Practice Administration. Introduction to the topic of practice administration dealing mainly with physical facilities related to dental practice, methods of practice, dental insurance, etc.

3. Professional Development. The professional man has a responsibility to be reasonably competent in oral communication. Arrangements will be made to provide students with the opportunity to give dental health talks to various community groups.

4. Dental Public Health and Preventive Dentistry. Social, legal and political aspects of fluoridation will be covered. Various aspects of Dental Health Education will be discussed as they relate to prevention and control of dental diseases. The area of preventive dentistry will be expanded as an extension of material previously covered. Field visits and exercises will be arranged to better acquaint the students with community aspects of dentistry.
40 hours.

INTERDEPARTMENTAL

Weekly sessions throughout the year will be both clinically oriented and directed towards the teaching of topics common to several Departments of the Faculty, including the Basic Sciences. The appropriate Departments will collaborate in the teaching of the topics and student involvement will include case presentations, seminars and televised procedures.

128 hours.

Clinical Pathological Conferences

Conferences are held throughout the academic year as part of the interdepartmental teaching program. Interesting cases are discussed from the standpoint of clinical, radiographic and pathological findings.

Conjoint Occlusion

(Refer to Third Year Curriculum, Department of Oral Medicine, Paragraph 5.).

DEPARTMENT OF CLINICS

1. (a) **Clinical Orientation** A preclinical session without patients presented by all clinical departments to familiarize the student with routine clinic procedures and administration and with the operation and maintenance of cubicle equipment.

18 hours.

(b) **Oral Diagnosis** Prior to commencement of clinical practice there will be a preliminary oral diagnosis session conducted by the Department of Oral Medicine for the examination, diagnosis and treatment planning of the introductory patients assigned to Third Year students. Regular oral diagnosis sessions will be carried on throughout the year as required.

45 hours.

2. Clinical Practice. The periods allotted will provide an opportunity for the students to apply the principles taught in the pre-clinical years to the actual treatment of patients in an atmosphere as closely related to private practice as is possible in a teaching institution. Clinical sessions are scheduled in a manner to permit students to retain their same cubicle throughout the year. The student will also be assigned to the various clinical departments and divisions where he will carry out the normal procedures involved and observe the more advanced techniques demonstrated by the instructors. These assignments include Oral Surgery, Oral Diagnosis, Oral Radiology, Emergency Clinic and Orthodontic Screening.

768 hours.

3. Summer Clinic. A continuation of the periods of clinical practice. The student may be required to bring up to standard any clinical phases which may not have been satisfactorily completed during the regular sessions. If not he may have the opportunity of concentrating on selected aspects of the treatment services.

162 hours.

4. Individual student evaluation will be made on the basis of patient administration and clinic management.

Fourth Year Curriculum, 1974-1975

DEPARTMENT OF ORAL MEDICINE

1. Oral Diagnosis.

(a) A seminar series in which more complicated cases for Oral Diagnosis are discussed. Students present cases or topics are prepared.

12 hours.

(b) Students are allocated to the Oral Diagnosis Clinic for two weekly periods in which they diagnose routine and emergency cases.

2. Oral Medicine. A lecture series in which there is emphasis on the therapeutic aspects of Oral Medicine, e.g. drug selection and prescription writing.

8 hours.

3. Periodontics. Management of advanced periodontal disease involving mucogingival problems, osseous surgery, hard and soft tissue grafting and systemic complications are discussed. Clinical experience is aimed at the development of basic skills rather than the achievement of great surgical expertise.
Lectures 12 hours, Clinic 72 hours.

4. Oral Radiology. Clinical assignments in which proficiency is gained and experience extended in all aspects of radiographic techniques provide a logical extension of lecture and laboratory sessions. Case reporting under guidance affords a practical application of lecture material. Seminars which correlate clinical observations, pathologic findings and radiographic appearances provide further opportunity to improve the ability to interpret radiographs.
Lectures 12 hours, Clinic and Seminars 12 hours.

5. Hospital Experience. Students are allocated in pairs to the Department of Dentistry, University Hospital for one week. They attend the consultation clinics, assist in the operating room and perform simple restorative procedures on the in-patients.
30 hours.

DEPARTMENT OF ORAL SURGERY

The objective of the Fourth Year course in Oral Surgery is that the student should:

(a) comprehend the theory, practice and scope of oral surgery.

(b) obtain experience in minor oral surgery under local anaesthesia.

(c) obtain experience in exodontic-sunder general anaesthesia.

(d) through hospital experience be able to practice within the hospital environment.

(e) obtain didactic and practical experience in the use of nitrous oxide sedation techniques as they pertain to dentistry.

The objectives for the Fourth Year are met by a continuation of the course of lectures in oral surgery started in the fourth quarter of Third Year continuing during the first three quarters. 24 hours.

Eight seminars on broad topics in oral surgery are held during the third quarter. 8 hours.

Further clinical experience is obtained after demonstrating competence in exodontics. Minor oral surgery, simple impactions and trans-alveolar extractions under local anaesthesia are encouraged.

In addition extractions under general anaesthesia are carried out in the out-patient operating room. Clinic 72 hours.

DEPARTMENT OF PAEDIATRIC DENTISTRY

1. Orthodontics.

(a) The lecture and seminar program will be devoted to diagnostic techniques, treatment procedures and problems likely to be encountered in general practice.
20 hours.

(b) The clinical program will be a continuation of the Third Year Program.

2. Paedodontics.

(a) Lectures and seminars are directed to specific clinical problems and the review of current Paedodontic literature.
20 hours.

(b) The clinical program is an extension of the Third Year Program into the more complex problems found in general practice.

DEPARTMENT OF RESTORATIVE DENTISTRY

Restorative Dentistry. A series of lectures and seminars on advanced restorative dentistry to include the following: Maxillo-facial prosthodontics; management of cleft palate; comprehensive diagnosis and treatment planning; patient and practice management; advances in restorative materials; the role of auxiliaries; advanced endodontics; pulp biology and research.
40 hours.

DEPARTMENT OF SOCIAL DENTISTRY

1. Practice Administration. Fundamental considerations related to professional and efficient care for a maximum number of patients, having due regard for the individual dentist and patient concerned. Consideration will be given to the principles involved in establishing, organizing and administering a dental practice.

2. Jurisprudence. Principles of law, legislation and ethics related to the practice of dentistry are discussed. Purposes and functions of the legal and voluntary agencies of the profession and the administrative structure of organized dentistry will be considered.
24 hours.

INTERDEPARTMENTAL

The program introduced in the Third Year will continue for the second and third quarters of the Fourth Year.

64 hours.

Hospital Experience. Attendance at a general hospital will enable the future dentist to effectively practice within the hospital environment. Instruction and demonstrations are given in hospital protocol, admission and discharge of patients, assistance within the operating room and participation in hospital rounds.

60 hours.

Conjoint Occlusion. Lecture and seminars will discuss the establishing of the occlusion for difficult cases. Orthodontics and Restorative Dentistry will be responsible for presenting the seminars.

Clinical Pathological Conferences. The series of conferences which commenced in Third Year continue on through Fourth Year.

Oral Cancer. The Division of Oral Pathology organizes this interdepartmental course in which the diagnosis, treatment, and rehabilitation of the patient with cancer of the oral cavity are discussed.

DEPARTMENT OF CLINICS

1. Clinical Practice.

(a) The first three quarters of the curriculum are a progression of the third year clinical sessions with assignment of cases involving more comprehensive and more complex treatment programs. The periods allotted also include blocks of time during which the student will function in the hospital environment.

Assignments include Oral Surgery Oral Diagnosis, Emergency Clinic, Hospital Experience and Orthodontic Screening
600 hours.

(b) The fourth quarter may include additional periods of clinical practice if the student is required to improve his competence in specific areas.

2. Student evaluation will be made on the same basis as for Third Year.

AREA OF CONCENTRATION

The last quarter of the Fourth Year is set aside for special studies by the student in a research or clinical area of interest to him. The student is expected to plan his activities for this eight-week period with an adviser of his choice and to proceed as independently as possible under the guidance of his adviser. A report on his activities is required and in the case of research, may take the form of a paper ready for publication.

DEPARTMENT OF ANATOMY

Room 472 Medical Sciences Building

Chairman: D. G. Montemurro, BA, MSc, PhD, UWO
PROFESSORS: Barr, Buck, Montemurro ASSOCIATE PROFESSORS: Altmann, Donisch, Gammal, Hidayet, Gwyn, Leyshon, Sergovich, Shaver, Singh, Soltan, Wilson ASSISTANT PROFESSORS: Clattenburg, Flumerfelt, Galil, Kiernan, HONORARY LECTURERS: Robinow, Walden LECTURER: Cline INSTRUCTORS: Coates, Warma, Wise

DEPARTMENT OF BACTERIOLOGY AND IMMUNOLOGY

Room 352, Medical Sciences Building

Department Head: R. G. E. Murray, BA, MA Cantab; MD, CM McGill; FRSC
PROFESSORS: Fitz-James, Murray, Robinow, Robinson, Whitby CLINICAL PROFESSOR: Hatch ASSOCIATE PROFESSORS: Black, Chodirker, Ebisuzaki, Medzon, Rozanis, Sinclair, Singhal, Strejan, Zajic CLINICAL ASSOCIATE PROFESSOR: Bakerspigel ASSISTANT PROFESSORS: Cheevers, Galsworthy, Percy, Wilkins CLINICAL ASSISTANT PROFESSOR: Campsall HONORARY LECTURERS: Abrahams, Bell, Hannay, Howson, Naylor, Roslycky, Toogood

DEPARTMENT OF BIOCHEMISTRY

DEPARTMENT OFFICE: 316 Medical Science Building

Chairman: Dr. B. D. Sanwal, BSc, MSc, PhD, India, DR. NAT SC., Zurich
PROFESSORS: Bigelow, Carroll, Fitz-James, McCarter, McMurray, Rossiter, Sanwal, Smith, Stewart, Strickland, CLINICAL PROFESSORS: Brownstone, Hobkirk ASSOCIATE PROFESSORS: Ball, Cook, Donisch, Heagy, Henderson, Magee, Trevitick, Tustanoff, Walker, CLINICAL ASSOCIATE PROFESSORS: *Binns-Smith, Griffiths, *Haines, *Haust ASSISTANT PROFESSORS: Galsworthy, Gatfield, Gordon, Guthrie, McDonald, Possmayer, CLINICAL ASSISTANT PROFESSOR: Leung INSTRUCTOR: Lin HONORARY LECTURERS: Cheevers, Chefurka, Hudson, Krupka, MacPherson, Schincariol, Spencer, Vardanis, Wolfe

DEPARTMENT OF ORAL MEDICINE

Room 0134 Dental Sciences Building

Chairman: R. I. Brooke, B Ch D, L.D.S. Leeds: MRCS England: LRCP London: FDSRCS England
PROFESSORS: Brooke, Moore, ASSOCIATE PROFESSORS: Johnson, Reid, Zulqar-nain ASSISTANT PROFESSORS: Kogon, Ruprecht, Smith CLINICAL LECTURERS: Beam, Cornish, Hunter, Klein, Pellow, Thompson, Wainright, Whitman, Whiteman CLINICAL INSTRUCTORS: Clark, Dinniwell, Greenfield, Halip, Morris, Nordine, Reid, Rice

DEPARTMENT OF ORAL SURGERY

Room 0130, Dental Sciences Building

Chairman: A. G. Parnell FDS, RCS (Eng)
PROFESSORS: Parnell ASSOCIATE PROFESSORS: Schofield ASSISTANT PROFESSORS: Goldberg CLINICAL LECTURERS: Glennie CLINICAL INSTRUCTORS: Kandell, McFarlane,

DEPARTMENT OF PAEDIATRIC DENTISTRY

Room 1012 Dental Sciences Building

Chairman: W. H. Feasby, DDS, Toronto; Dip Paedo, Toronto; MSc, Manitoba
PROFESSORS: Eastwood, Feasby, Hunter ASSOCIATE PROFESSOR: Wright CLINICAL ASSISTANT PROFESSOR: Way CLINICAL LECTURERS: Campbell, Frey, Ecclestone, Scott, Smith CLINICAL INSTRUCTORS: Begg, Biesenthal, Dewis, Goodbrand, Kerr, King, Murray, Rajic HONORARY LECTURERS: Banting, Gardner, Martinello

DEPARTMENT OF PATHOLOGY

Room 4045 Dental Sciences Building

Department Head: A. C. Wallace, BA, MD, UWO; FACP; FRCP(C)
PROFESSORS: Gardner, Haust, Kaufmann, McCaughey, Wallace. ASSOCIATE PROFESSORS: Anderson, Frei, Sapp, Warren. ASSISTANT PROFESSORS: Ball, Beattie, Gilbert, Lewis, Wysocki CLINICAL PROFESSORS: Mills, Smout CLINICAL ASSOCIATE PROFESSORS: Davies, Ramzy, Slinger, Turnbull CLINICAL ASSISTANT PROFESSORS: Enriquez, Troster, INSTRUCTORS: Adilman, Armstrong, Frishette, Rota

DEPARTMENT OF PHARMACOLOGY

Room 275 Medical Sciences Building

Department Head: C. W. Gowdey, BA, MSc, DPhil Oxon
PROFESSORS: Gowdey, Hamilton, Parker ASSOCIATE PROFESSORS: Colhoun, Hirst, Philp ASSISTANT PROFESSORS: Hersey LECTURERS: Borda, Lovegrove, Meltzer, Spoerel, White INSTRUCTORS: Dinel, Geddes, Hansford

DEPARTMENT OF PHYSIOLOGY

Room 223 Medical Sciences Building

Chairman: V. B. Brooks, BA Toronto; MS Chicago; PhD Toronto
PROFESSORS: Armstrong, Brooks, Calaresu, Dellow, Mogenson ASSOCIATE PROFESSORS: Bondy, Girvin, Harding, Mercer, Seguin, Squires Wiesendanger ASSISTANT PROFESSORS: Cooke, Cunningham, Kline, Lodge, Weick LECTURERS (Sessional): Kenny, O'Hea, Sellery HONORARY LECTURERS: Chess, Manning, Rounthwaite, Steele

DEPARTMENT OF RESTORATIVE DENTISTRY

Room 0145, Dental Sciences Building

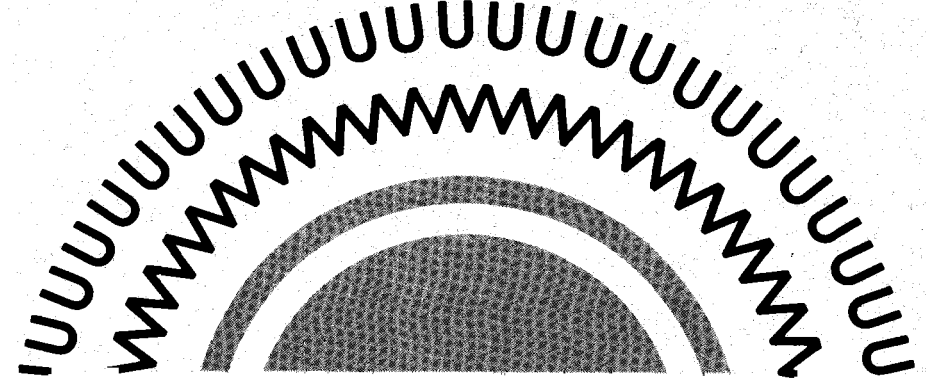
Chairman: R. E. Jordan, BA, Saskatchewan; DDS, Alberta; MSD, Washington; FICD
PROFESSORS: Jordan ASSOCIATE PROFESSORS: Johnson, Ryan, Sills, Skinner, Suzuki, Teteruck ASSISTANT PROFESSORS: Bunston, Gilboe, Gratton CLINICAL ASSISTANT PROFESSORS: Bedrosian, Hugill CLINICAL INSTRUCTORS: Emmerton, Fowler, Guest, Kozoriz, McManus, Mills, Muxlow, Paiement, Reddon, Sears, Seneshen, Setterington, Simon, Taylor

DEPARTMENT OF SOCIAL DENTISTRY

Room 1007 (B-C-D) Dental Sciences Building

Chairman: B. P. Martinello, DDS, DDPH, Toronto
ASSOCIATE PROFESSORS: Baird, Banting, Dunn, Martinello CLINICAL INSTRUCTORS: Leake

Faculty of Medicine



HEALTH SCIENCES COMMITTEE OF THE BOARD OF GOVERNORS

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Dean W. J. Dunn, Faculty of Dentistry
Dean D. Bocking, Faculty of Medicine (Secretary)
Ex officio members: The Chairman of the Board of Governors, The Vice-Chairman of the Board of Governors, The President of the University, The Vice-President, Administration and Finance, and The Secretary of the Board of Governors.

PROFESSORS EMERITUS

Macallum, A. B., BA, MD, PhD Toronto; FRSC
Neufeld, A. H., BSc, MSc, PhD Manitoba; MD, CM McGill; FCIC
Stavraky, G.W., MD Odessa; MSc, MDCM McGill; FRSC
Tew, W. P., MB Toronto; FRCS(Edin), FRCS(C), MRCOG, FRCOG, LLD UWO

Faculty of Medicine

OFFICERS OF ADMINISTRATION

Dean: Douglas Bocking, MD
Assistant Dean—Postgraduate Education: E. R. Ecclestone, MD
Assistant Dean—Continuing Education: A. T. Hunter, BA, MD
Assistant Dean: J. H. Watson, MD, CM
Health Sciences Librarian: M. Anne Seheult, BA, BLS
Administrative Officer: W. S. McBean
Administrative Assistants: Lorraine Evans, BA; Helen McCrady, BA

ACADEMIC CALENDAR FOR UNDERGRADUATE MEDICINE, 1974-1975 SESSION

1974

May 27, Monday	First Term begins for Fourth Year
July 29, Monday	Vacation begins for Fourth Year
August 23, Friday	Examinations for removal of conditions begin at 9:00 a.m. in the Medical Sciences Building
August 26, Monday	Second Term begins for Fourth Year
September 4, Wednesday	First Trimester begins for First Year
September 9, Monday	Classes begin for Second and Third Years
October 14, Monday	Thanksgiving Day - Holiday with classes cancelled
October 28, Monday	Third Term begins for Fourth Year
November 4, Monday	Second Quarter begins for Third Year
December 2, Monday	Second Trimester begins for First and Second Years
December 20, Friday	Christmas Vacation for First, Second and Third Years begins at 5:30 p.m. (Fourth Year students will each receive one week off during the Christmas vacation period, to be arranged by the Chairman or Head of the Department concerned.)

1975

January 6, Monday	Lectures resume for First, Second and Third Years; Fourth Term begins for Fourth Year
January 13, Monday	Third Quarter begins for Third Year; Payment of final instalment of fees is required on or before this date
March 10, Monday	Third Trimester begins for First and Second Years; Fourth Quarter begins for Third Year; Fifth Term begins for Fourth Year
March 28, Friday	Good Friday - Holiday with classes cancelled
May 2, Friday	Classes end for Third Year
May 9, Friday	Examinations begin for Third Year
May 11, Sunday	Fifth Term ends for Fourth Year
May 19, Monday	Victoria Day - Holiday with classes cancelled
May 21, Wednesday	Medical Council of Canada Examinations begin for Fourth Year
May 30, Friday	Classes end for First and Second Years
June 9, Monday	Comprehensive Evaluation begins for Second Year
June 6, Friday	Spring Convocation (Medicine)

Regular meetings of the Council of the Faculty of Medicine or its Executive Committee are held on the third Monday of every month, September to June inclusive.

MEDICINE

EXAMINATION TIMETABLE

FIRST, SECOND AND THIRD YEARS, 1974-1975

First and Second Year students will be evaluated during and at the conclusion of each course. In addition, there will be a comprehensive evaluation at the end of Second Year. In Third Year, the following examinations are written at the termination of the courses: Clinical Biochemistry, Ophthalmology, Otolaryngology and Physical Medicine. Final examinations in the remaining Third Year subjects will be written May 9th to 16th inclusive.

FINAL YEAR EXAMINATION TIMETABLE

Medical Council of Canada Examinations, Spring of 1975

The examinations of the Medical Council of Canada will be written May 21st, 22nd and 23rd, 1975.

University Examinations, 1974-1975

Students are evaluated by their attendance and performance on each Service and by whatever method the Department involved selects at the termination of each rotation. Students with inadequate performance may be required, where the timetable permits, to take part of the Elective period to bring their performance up to the required level.

ORGANIZATION OF THE FACULTY

The Senate of the University is responsible for the academic policy of the Faculty. The Senate vests in the Council of the Faculty of Medicine executive powers in respect of details of admission of students, curricula and examinations. The administration of the affairs of the Faculty is the responsibility of the Board of Governors of the University, through its Health Sciences Committee and the Vice President (Health Sciences).

The Council of the Faculty is composed of all full-time members of staff of the rank of Lecturer to Professor, part-time members of staff of professorial rank, the Vice President (Academic), the Vice President (Health Sciences), the Dean of Medicine, Assistant Deans, the Deans of the other Health Sciences Faculties, the administrators of the major teaching hospitals, representatives of the Faculties of Arts, Social Sciences and Science, the President of the Hippocratic Society, and the President and one other student representative from each of the four years. The Vice Chancellor of the University is a member of the Council of the Faculty and its Committees. The Council of the Faculty meets quarterly. All business during the intervening months is conducted by the Executive Committee of the Council of the Faculty, consisting of Chairmen and Heads of Departments, Directors of Programs, the Vice President (Health Sciences), the Dean, the Assistant Deans and the President of the Hippocratic Council.

The Council of the Faculty divides its detail work related to undergraduate instruction among standing Committees which, being non-executive, are responsible to the Council of the Faculty.

Joint Relations Committees have been established with representatives from the University and the following affiliated teaching institutions and organizations: London Psychiatric, St. Joseph's, Victoria and Westminster Hospitals, The Children's Psychiatric Research Institute, the London Health Association, and Parkwood Hospital.

HISTORY OF THE FACULTY OF MEDICINE

"The Western University of London, Ontario" received its charter from the Legislature of the Province of Ontario in 1878. The first classes graduated in Arts and Medicine in 1883. Although the Faculty of Arts was closed from 1885 to 1895, the Faculty of Medicine has maintained an unbroken existence since its founding. In 1912 control of the Medical School by a joint stock company ended and it came under the direct control of the Board of Governors of the University. At that time the Medical School was situated at the north-east corner of York and Waterloo Streets. In 1921, the Faculty of Medicine moved its Basic Science Departments to a new school on the north-east corner of South and Waterloo Streets, adjacent to Victoria Hospital. In the summer of 1965, the administrative offices, the medical library, the Basic Science Departments and the Department of Psychiatry and Preventive Medicine, with ancillary services, moved into the new Medical Sciences Building, which is directly contiguous with the Cancer Research Laboratory, the Dental Sciences Building and the Faculty of Nursing, which, along with the University Hospital, comprise the Health Sciences Centre. The administrative offices of the Departments of Ophthalmology and Therapeutic Radiology are located at Victoria Hospital, and the Department of Paediatrics at the War Memorial Children's Hospital. The administrative offices of the Departments of Anaesthesia, Clinical Neurological Sciences, Medicine, Obstetrics and Gynaecology, Otolaryngology, Physical Medicine and Rehabilitation, Psychiatry, Diagnostic Radiology and Surgery are located in the new University Hospital. The Departments of Epidemiology and Preventive Medicine and of Family Medicine are based at the Medical Sciences Building.

The associated teaching hospitals, through their respective administrations, provide clinical facilities for the Faculty of Medicine.

LIBRARIES

The Health Sciences Library, located on the first floor of the Medical Sciences Building, serves the Faculties of Medicine, Dentistry and Nursing. It contains over 107,000 volumes and regularly receives the leading Health Sciences periodicals. The library has an interesting collection of several thousand volumes dealing with the history of the medical sciences.

Adjacent to the library is a study hall for the use of the students in the Health Sciences.

Medical students are also permitted to use the library facilities in Victoria Hospital, St. Joseph's Hospital, Westminster Hospital and the Children's Psychiatric Research Institute.

CLINICAL FACILITIES

University Hospital

This 451-bed Hospital, which is owned and operated by the London Health Association, is part of the Health Sciences Centre on campus. Construction was completed in the fall of 1972; the first patients were admitted November 2nd, 1972.

Victoria Hospital

Victoria Hospital has a total of 841 beds and 59 bassinets, of which the majority are available for teaching.

The Hospital is approved by the Canadian Council on Hospital Accreditation, by the Canadian Medical Association and by the Royal College of Physicians and Surgeons of Canada for Interne and Resident training.

There are special facilities for the investigation and treatment of Cardiac and Pulmonary disorders, malignancy and other diseases.

Thirty-one Out-Patient Clinics are held, in addition to those under the direction of the Ontario Cancer Treatment and Research Foundation and the Crippled Children's Treatment Centre.

Victoria Hospital is the site of the Fanshawe School for Nursing Education and the Fanshawe School for Medical Laboratory Technologists. The Hospital also participates in other training programs, such as a Centralized School for X-ray Technicians, Dietetic Internes, Physiotherapy Internes, training of Registered Nursing Assistants, training of Food Supervisors, and others.

The War Memorial Children's Hospital

The War Memorial Children's Hospital, the Paediatric Department of Victoria Hospital, is situated directly opposite the main Hospital. Of the total beds listed above, there is accommodation for 152 Paediatric patients. The London and District Crippled Children's Centre has a two-floor clinic attached to the Hospital for the care of handicapped. A Child Guidance Clinic adjacent to the Hospital provides psychiatric out-patient services for children.

St. Joseph's Hospital

St. Joseph's is a general active treatment hospital owned and operated by the Sisters of St. Joseph. Its rated capacity is 545 beds with 90 bassinets. All patients are available for demonstration teaching and 344 beds are in Clinical Teaching Units under the supervision of 33 full-time teachers.

The Hospital is approved by the Canadian Council on Hospital Accreditation, by the Royal College of Physicians and Surgeons of Canada for graduate training as part of the University affiliated programs and by the Canadian Dental Association for training of dental internes.

Included in the Obstetrical Service is a 14-bed ante-natal unit with obstetrical neonatal intensive care units for supervision and delivery of patients with high risk pregnancies.

The paediatric department has 68 beds.

An advanced Training Program in Family Medicine is based at the Family Medical Centre located on Oxford Street.

Other educational programs include participation in training of Nursing Education, Laboratory Technicians and X-ray Technicians as well as Registered Nursing Assistants. The Hospital is also approved for the In-service training of Respiratory Technologists and Nuclear Medicine Technicians.

Westminster Hospital

This Hospital is situated at 777 Base Line Road and is operated by the Department of Veterans' Affairs. It is a hospital of 1,150 beds with three principal services—Medicine, Surgery, Psychiatry and Geriatrics. It is approved by The Royal College of Physicians and Surgeons of Canada for graduate training and accredited by The Canadian Council on Hospital Accreditation. Over 25,000 patients are seen in the out-patient clinics annually.

London Psychiatric Hospital

This Hospital is operated by the Ministry of Health for the treatment of psychiatric disorder. Approximately 500 beds provide both inpatient, day-care and outpatient services. Special services programs include Adolescent and Addiction Wards. A partial hospitalization program offers day, evening and weekend care. The Hospital is used for clinical instruction in Psychiatry as part of the training within the disciplines of Medicine, Psychology, Social Work, Nursing, Occupational Therapy and other allied health professions. As an Accreditated Hospital, it is recognized by The Royal College of Physicians and Surgeons of Canada for graduate training in Psychiatry.

St. Thomas Psychiatric Hospital

This 950-bed Hospital, situated on No. 4 Highway, one-and-a-half miles south of St. Thomas, is recognized by The Royal College of Physicians and Surgeons of Canada for graduate training in Psychiatry and is used for clinical teaching in Psychiatry for medical students, The University of Western Ontario, and for allied health professions. It provides in-patient, out-patient, day-care, and emergency services for all types of psychiatric disorders, mainly the major psychoses. Special Functional Units include Psychogeriatrics, Alcohol and Addiction, Adolescent, Medical and Physical Disability, and Retardation. There are programs of research and community education. The annual admission rate is approximately 800.

Sir Adam Beck Chest Diseases Unit

This Unit was formed at the site of the Sir Adam Beck Memorial Sanatorium in 1969 in order to expand the work of that hospital and to include all aspects of chest diseases including pulmonary tuberculosis. The Unit has now transferred to the University Hospital, London, and will consist of 30 beds for the investigation, diagnosis and treatment of all forms of chest diseases including pulmonary tuberculosis. In addition the Unit will include a further 18 beds for cardiothoracic surgery.

The Pulmonary Function laboratory is fully equipped for the investigation of all respiratory problems and is able to provide a complete service for patients in the wards and for those referred by physicians from outside the Hospital.

The Unit continues its Outpatient Services, which include a combined inhalation therapy and physiotherapy programme, for suitable patients after discharge from hospital or direct outpatient referrals. This programme is continued by home-care supervision and long-term follow-up for sufferers from chronic pulmonary disease.

Close relationship is maintained with the Provincial Chest Clinic for the treatment and follow-up of pulmonary tuberculosis.

St. Mary's Hospital

St. Mary's Hospital of 204 beds, owned and operated by the Sisters of St. Joseph of London, is for the care of long term illness. It operates an active department of Physical Medicine and Rehabilitation.

Bethesda Centre

Bethesda Centre provides a 12-bed unmarried mothers' program and a 20-bed half-way house program for women with emotional problems. Teaching is done in the weekly prenatal clinics conducted by physicians from the Victoria Hospital Obstetrical Department.

Parkwood Hospital

This Hospital, owned and operated by The Women's Christian Association of London, has 186 beds for patients suffering from chronic illness. Active medical rehabilitation services are part of the treatment facilities provided.

The Children's Psychiatric Research Institute

This is a Gold Award winning regional children's centre owned and operated by the Ontario Ministry of Health. There is an out-patient facility for children suspected of being mentally retarded, perceptually handicapped or emotionally disturbed. An inpatient and day-patient facility accommodates 150 children. The Institute offers clinical diagnosis, assessment, treatment and counselling, using a multi-discipline model. A broad range of research studies are carried out by C.P.R.I. staff in collaboration with The University of Western Ontario and postgraduate medical students in Psychiatry, Paediatrics and Family Medicine. Special training programs for other professions are also available. It has full accreditation by C. H. A.

Occasional use is made of the McCormick Home for Aged People and the various Orphanages, for clinical instruction.

ADMISSION REQUIREMENTS, FACULTY OF MEDICINE

Students in the following categories are eligible to apply for admission to the first year of the four-year program in the Faculty of Medicine:

1. Those who are in, or who have successfully completed, a second year program at an Ontario university, provided that the program has included a minimum of four honors courses or equivalent within the first ten courses attempted. All applicants must have successfully completed one full laboratory course in each of Biology, Chemistry and Physics and are advised that it is to their advantage to have successfully completed one course in Behavioral Science. (The Admissions Committee will consider applications from candidates who achieve exceptional standing in first year programs in the Faculty of Science at The University of Western Ontario.)
2. Those in the final year of, or who have successfully completed, a graduate or undergraduate degree program at a recognized university. Graduate students will be expected to have completed all requirements for their graduate degree prior to registration in the Faculty of Medicine. Candidates in this category are advised that it is to their advantage to have successfully completed one full laboratory course in Biology, Chemistry and Physics and one course in Behavioral Science.

Prior to being permitted to register in the Faculty of Medicine, applicants who are granted admission will be required to have demonstrated competence in Organic Chemistry to the level of the first full course in Organic Chemistry offered at The University of Western Ontario.

All applicants including undergraduate, graduate, special, makeup and qualifying students, are reminded that careful assessment will be made of their academic record throughout all years at University.

Priority is given, all other things being equal, to Canadian citizens or landed immigrants who are residents of Southwestern Ontario and those areas of Ontario not serviced by an Ontario Medical School. Applications will not be accepted from applicants who are not Canadian citizens or landed immigrants. (Two positions may be available for students supported by The Canadian International Development Agency.)

ADVANCED STANDING

Unless circumstances are exceptional applications from other than Canadian citizens or landed immigrants will not be considered; similarly applications will not be considered from students who have failed at another medical school.

Students registered at another medical school will not generally be considered for admission with advanced standing to the Faculty of Medicine unless they can provide evidence, acceptable to the Committee on Admission with Advanced Standing, of compassionate or other reasons for wishing to transfer. A letter of support from the Dean of the medical school at which such students are studying should accompany the application.

All students applying for admission with advanced standing may be required by the Committee on Admission with Advanced Standing to submit the results of the Medical College Admission Test. In addition, they may be required to attend for interviews with members of the Committee.

Applicants from universities accredited by the Association of Canadian Medical Colleges or the Association of American Medical Colleges may be considered for admission with advanced standing without having to write examinations. However, the Committee on Admission with Advanced Standing reserves the right to review an individual application and to impose any conditions which it considers appropriate before admission will be granted.

Applications from students or graduates of universities which are not accredited by the Association of Canadian Medical Colleges or the Association of American Medical Colleges may be considered for admission with advanced standing if they successfully pass examinations required by the Committee.

Admission may be granted with advanced standing for the work of the First and Second Years, but advanced standing shall not be granted towards the work of the Third or Fourth Years.

APPLICATION FOR ADMISSION

1. First Year

Application for admission to the Faculty of Medicine must be made upon the regular application form which may be obtained from the Registrar's Office, The University of Western Ontario, London, Ontario, N6A 3K7. The completed application forms and the supporting documents (originals) are to be mailed to the Director of Admissions, The University of Western Ontario, London, Ontario, N6A

3K7, NOT LATER THAN DECEMBER 1 for the class starting the following September.

A student registered at The University of Western Ontario must:

(a) submit a completed application for admission form;

(b) write the Medical College Admission Test in October or May and request that his test scores be MAILED directly to the Director of Admissions. Students must make their own arrangements for the administration of this test by writing to The American College Testing Program, P.O. Box 168, Iowa City, Iowa 52240.

A student who has never registered at The University of Western Ontario must:

(a) attach to his completed application form all his Ontario Grade 13 certificates (originals) or certified transcript of his completed secondary or high school record;

(b) request the Registrars of all universities, colleges and other institutions of post-secondary education which he has attended or is attending, to mail directly to the Director of Admissions certified transcripts of his record;

(c) request the Registrar of the University which he is attending in 1973-74 to mail directly to the Director of Admissions a second transcript of his record at the end of his current registration;

(d) write the Medical College Admission Test in October or May and request that his test scores be MAILED directly to the Director of Admissions. A student must make his own arrangements for the administration of this test by writing to The American College Testing Program, P.O. Box 168, Iowa City, Iowa 52240.

2. Advanced Standing

A student of another Medical School who applies for admission to the Faculty of Medicine of this University with advanced standing must submit the following:

(a) the completed application form;

(b) certified transcripts of his secondary or high school record;

(c) certified transcripts of his record at all colleges, universities and medical schools attended;

(d) a Calendar of the Medical School in which he has studied.

REGISTRATION

Students accepted for admission into any year of Medicine will be advised directly by the Registrar's Office concerning registration.

No student will be registered after the designated registration date except by special permission of the Dean. Those who register late will pay a late registration fee (see FEES below).

FEES

Fees are payable in full at the time designated by the Office of the Registrar, but if necessary they may be divided into two instalments, $450 payable with Registration and $395.50 payable on the first day of the Third Quarter, January 13th, 1975. Students may not attend lectures or examinations, nor be recommended for any degree or diploma until their tuition fees, fines and other accounts owed to the University are paid, except by permission of the Dean and the Comptroller.

Undergraduate Students

For full-time intramural students $840.50*

The above fee includes a $67.00 non-academic charge for the University Community Centre, the Recreation and Athletic Building, the University Students' Council, Athletics, and Health Services.

Note: A student who, by reason of sickness or other cause, is in attendance one-half a year or less will be charged $450.00

For part-time or special students, fees are set by the Registrar.

Other Charges

Evaluation of non-Ontario certificates for admission ..... $ 2.00

Transcript of record, each copy ..... $ 1.00

Late registration ..... $ 25.00

Examination for the removal of conditions, each paper ..... $ 15.00

The above-mentioned fees represent within the University as a whole less than 15% of the cost of your medical education. The balance is provided by Government grants, endowment income and other grants and gifts.

* The sum is increased by $5.00 if payment is not made in one instalment.

NOTE: The Board of Governors reserves the right to amend the above-mentioned fee structure after the printing of this Announcement.

STUDENTS' EXPENSES

The following statement of expenses is given for the guidance of students who are not familiar with the cost of board, room, etc. These items vary from year to year, and depend also on the individual taste of students:

Room and Board

Approximately $32.00 per week ..... $1150.00 to $1,350.00

Tuition and Prescribed Accessory Fees $840.50

Books ..... Appr. $250.00

Microscope (needed first week of First Year) $280.00

Instruments ..... $150.00 to $200.00

Registration with The College of Physicians and Surgeons of Ontario, if qualifications obtained outside Canada $15.00

Fees in connection with Medical Council of Canada Examinations (Final Year Only) $125.00

The College of Physicians and Surgeons of Ontario fee for Enabling Certificate (Final Year Only) $10.00

MEDICINE

RESTRICTED BURSARIES

These bursaries are generally awarded to students having an average of B (70%) or better in their previous year's work. In every case it is absolutely essential that the applicant demonstrate genuine financial need. Completion of an application form for the Ontario Student Awards automatically gains consideration for all the restricted and unrestricted bursaries except where otherwise stated.

The following bursaries are restricted by residence, sex, course, year, as indicated:

The American Medical Association Education and Research Foundation Bursary: Up to $200 each. Available to students in any year of Medicine.

Dr. James L. Anderson Memorial Bursaries: Up to $250 each. Available to students in any year in the Faculty of Medicine. The fund for these bursaries was established by a bequest of the late Mrs. Clare Leland Anderson as a memorial to her husband, Dr. James L. Anderson, Meds '09.

Bradshaw-Errington Fund: Up to $250 each. Available to students in any year of Medicine who reside twenty-five miles or more beyond the corporation limits of the city of London.

The Dr. Frank M. Cole and Dr. John M. Cole Memorial Awards: $200 each. These Bursaries are available to students entering the third year of Medicine.

Co-operative Medical Association of Ontario Bursary: Value: $500 a year to a maximum of $2,000. Available to students in any year of Medicine who are members, or the sons or daughters of members, of one of the Medical Co-operatives of the Co-operative Medical Services Federation of Ontario. Apply by October 10th.

Essex County Medical Association Bursary: $750. Available to a resident of Essex County who has been accepted in the first year of Medicine at a Canadian university. Apply directly to: Ethics and Credentials Committee, Essex County Medical Association, 1427 Ouellette Avenue, Windsor, Ontario.

Dr. Arthur F. Haasz Medical Student-Aid Bursaries: Up to $250 each. Available to students in any year of Medicine.

I.O.D.E. Bursaries: Students entering Medicine are eligible for the following continuing I.O.D.E. Bursaries, valued at $100 each: The Colonel William Gartshore Chapter; Bishop Hellmuth Chapter; Nicholas Wilson Chapter.

The Bill McKibbon Bursary: $500 each year throughout Pre-medicine and Medicine. A male student, preferably from Southwestern Ontario, is to be selected by the Secretary of the Loans and Bursaries Committee and the donor. Academic standing and personality will count equally in the selection. This bursary was endowed by the late Dr. Walton McKibbon of Wingham, a medical graduate of this University, in memory of his son.

The Dr. Marilyn McKague Memorial Bursary: Up to $100 available to a student upon completion of first year medicine and awarded on the basis of financial need and reasonable academic proficiency. Prior to university entrance, the student's place of residence must have been in a non-urban area.

The Meds '50 Bursary Fund: Up to $300 each. Available to students in any year of Medicine.

The M. C. Mowry Memorial Bursary: $75. Available to students in the fourth year of Medicine.

Ontario Medical Association Bursary and Loan Fund: Up to $350 each. Available to students in the first and second years of Medicine.

Maud H. Smallman Awards: Two of $500 each. Available to students in any year of Medicine. The fund for these Awards was established by a bequest of the late Mrs. Maud H. Smallman of London, Ontario.

LOANS

To be eligible for a loan, a student must have a satisfactory academic record and be able to show that he cannot continue his studies without financial assistance. Application should be made to the Awards Officer.

Ontario Medical Association Grant-In-Aid Fund: Loans from this fund are interest-free and are on the honor system requiring no formal contract to repay. Available to students in the third and fourth years of Medicine.

The Dean Russell Medical Student-Aid Fund: Up to $400 each. Available to students in any year of Medicine. This fund was established by the late Mr. Dean Russell of Dean Russell Drugs Ltd. to provide small grants or interest-free loans.

Maude Abbott Memorial Scholarship Loan Fund: This fund has been established by the Federation of Medical Women of Canada. Small loans are available to any woman medical student or first year interne. In special cases, a loan up to $1,000 may be granted to a medical woman for recognized postgraduate training. Loans are payable within five years of date of issue, after which time interest will be charged at the rate of 5% compounded annually. Information regarding these loans may be obtained from The Secretariat, Federation of Medical Women of Canada, Box 8244, Ottawa, Ontario, K1G 3H7.

STUDENT REGULATIONS

Any statement in this Announcement applies only to the session 1974-1975. Students registering in the Faculty of Medicine are subject to any decisions which may be made by the Council of the Faculty of Medicine and by the Senate or Board of Governors of the University.

FINANCIAL RESPONSIBILITY

No senior student having an unsound financial record, either in the School or in his dealings with others, will be recommended for graduation. All other students who are reported as having an unsound financial record will be subject to special review by the Council of the Faculty of Medicine before being recommended for promotion.

A student or students will be held financially responsible for any actions of a negligent or wantonly destructive nature which result in the damage of University property. Such charges will form part of the amount due to the University. Nonpayment will result in disciplinary action by the Dean's Office.

ATTENDANCE

(a) Students registered in any year are expected to attend the courses of instruction and are required to take the examinations in all subjects prescribed for that year, unless otherwise permitted by the Chairman or Head of the Department concerned and the Dean of Medicine.

(b) Absence from lectures, laboratories, seminars or clinical work is excused if due to illness or by expressed permission of the instructor. The Office of the Dean should be notified of absence due to illness.

(c) Classes desiring a change of scheduling of any lecture, seminar, clinic or laboratory period must have the concurrence of the Chairman or Head of the Department(s) concerned and the Dean's Office.

ACADEMIC REQUIREMENTS

It is proposed that, subject to Senate approval, in the new curriculum, the pass mark for each course be 60%, and that 59% or under be a failure. If approved, this will apply to First and Second Years, 1974-1975 Session.

1. To complete each year's work and be permitted to register in the succeeding year of the medical course a student must:
   (a) Meet the attendance and conduct requirements described in the announcement;
   (b) Complete the prescribed assignments;
   (c) Obtain at least 50% in each subject in which a final examination is held;
   (d) Obtain a general average of 60% in each of the first, second and third years;
   (e) A necessary condition for academic progression through First and Second Years is that students be allowed to carry no more than two course failures, and that supplemental examinations must be passed within a maximum of six months from the time of first writing a course examination. For entry to Third Year all courses must have been passed.
   (f) In the fourth year only, for a pass in any subject, obtain a minimum mark of 50% in both the oral and written examinations. The final mark obtained in each subject must be 60% or over.
2. A student may be given permission by the Council of the Faculty of Medicine to write no more than two supplemental examinations, provided:
   (a) His general average is above 55% and below 60%;
   (b) His grades are below 50% in no more than two subjects.
3. A student will be considered to have failed to complete a year's work if:
   (a) His general average (in all subjects of that year) falls below 55%;
   (b) He has failed in more than two subjects;
   (c) He has been given permission to write supplemental examinations and has failed to meet the requirements under section 1 (c) or 1 (d) above.
4. A student who fails to complete a year may be permitted by the Council of the Faculty of Medicine to repeat that year. Permission is given only under

exceptional circumstances, and then only when a vacancy is available in that year. When a student is allowed to repeat a year he must pass that year without conditions to be allowed to continue in the course. Permission to repeat a year has been seldom given.

5. A student who obtains an average of 80% or over, in a year's work, is considered to have passed that year with honors. A student who passes with honors in each year in the Faculty of Medicine will be graduated *cum laude*.
6. In each subject the ratio of term grades to final examination grades is determined by the teaching staff of the Department concerned. Weighted grades, based on the teaching time in each subject, are used in computing the general average in the third and fourth years of the course.
7. In the case of the Combined Examination in Third Year, a student failing to obtain 50% of the marks assigned for any section will be required to rewrite the entire Combined Examination unless he has obtained at least 60% on the overall paper.
8. At the end of each academic year, a report will be mailed to each student, showing his grade in each subject and his general average grade for the year. Key to Grades is as follows:

   A 80-100%
   B 70-79%
   C 60-69%
   D 50-59%
   E 40-49%
   F Below 40%

REQUIREMENTS FOR DEGREE OF DOCTOR OF MEDICINE

Every candidate for graduation in Medicine must give satisfactory evidence:

1. That the entrance requirements of the Faculty of Medicine of The University of Western Ontario have been fully satisfied;
2. That he is at least twenty-one years of age, and has been engaged in the study of medicine for the period prescribed by the Senate of the University, during which he has completed the course of required instruction in this or some other recognized University, College or School of Medicine, at least two sessions of which must have been spent at this Faculty of Medicine;
3. That his attendance at lectures, seminars, clinics and laboratories as prescribed for the different years has been satisfactory to the Departments concerned and that he has met the requirements for the courses at the time of the examinations;
4. That he has attended the prescribed clinical services at the teaching hospitals of this University.

REQUIREMENTS FOR LICENCE TO PRACTISE MEDICINE

A university degree in medicine does not give the right to practise the profession of medicine. It is necessary to conform to the laws pertaining to the practice of medicine in the province, state or country in which it is proposed to begin practice. Each Province in Canada has its special requirements for licence. A licence to practise in any part of the Dominion may be obtained by passing the examination of The Medical Council of Canada; a certificate from one of the provincial medical councils is necessary for eligibility for this examination. To obtain such a certificate requires compliance with the regulations of the medical council of the province issuing the certificate, regarding: (1) Preliminary education; (2) Matriculation; (3) Medical Curriculum; (4) Graduation. Information relative to licences to practise in any one province may be obtained from the Registrar of that province. All questions relating to the requirements for the provincial certificate necessary as a preliminary to taking examination of The Medical Council of Canada should be similarly addressed.

Applicants (or students) who have received their premedical or any previous medical education in foreign medical schools must have their credentials confirmed by The College of Physicians and Surgeons of Ontario.

THE CANADIAN INTERNE MATCHING SERVICE

The Matching Service is a clearing-house designed to help final year medical students obtain the interneships of their choice, and to help hospitals and interneship program directors obtain the students of their choice. It provides an orderly method for students to decide where to interne and for hospitals to decide which applicants they wish to enrol. For both students and program directors, it removes the factors that generate unfair pressures and premature decisions.

The Matching Service acts as the student's agent on the instructions embodied in the student's confidential list of all the interneships for which he or she has applied, ranked in order of preference. Similarly, the Matching Service acts as the hospital's agent on the instructions embodied in its confidential list of all the students that have applied, ranked in order of the hospital's preference.

The CIMS is operated by the Association of Canadian Medical Colleges. Policy is under the control of an Advisory Committee on which seven national medical organizations directly involved in medical education are represented. Student representatives are invited to attend and to participate in the Advisory Committee meetings.

The CIMS brochure and relevant documents for participation in the matching program are distributed annually in June to all final year medical students through each Dean's Office. Further information is available from the CIMS Office, c/o ACMC, 151 Slater Street, Ottawa, Ontario, K1P 5H3 (telephone 613-237-0070).

MEDICAL LICENSING BODIES

The Provincial Medical Licensing Bodies are as follows:

The College of Physicians and Surgeons of British Columbia, Vancouver, B.C.;

The College of Physicians and Surgeons of Alberta, Edmonton, Alberta;

The College of Physicians and Surgeons of Saskatchewan, Saskatoon, Saskatchewan;

The College of Physicians and Surgeons of Manitoba, Winnipeg, Manitoba;

The College of Physicians and Surgeons of Ontario, Toronto, Ontario;

The College of Physicians and Surgeons of Quebec, Montreal, Quebec;

The Medical Council of New Brunswick, Saint John, New Brunswick;

The Provincial Medical Board of Nova Scotia, Halifax, Nova Scotia;

The Medical Council of Prince Edward Island, Charlottetown, P.E.I.;

The Newfoundland Medical Board, St. John's, Newfoundland.

N.B. When writing to any of the above, address the letter to The Registrar.

Information concerning The Medical Council of Canada, its licence, examinations, fees, etc., may be obtained from The Registrar, Box 8234, 1867 Alta Vista Drive, Ottawa, Ontario, K1G 3H7.

DEPORTMENT AND APPEARANCE OF MEDICAL STUDENTS IN TEACHING HOSPITALS

The matter of Deportment and Appearance of medical students is of concern to teaching hospitals. The following statement has been endorsed by the Board of Trustees of Victoria Hospital and the Medical Advisory Committees of St. Joseph's and Westminster Hospitals:

"Students are reminded that, since they are now members of the treatment team in which the patients must place their entire trust, they no longer have complete freedom in matters of dress, deportment and grooming. Illness in hospital is a very major event in a patient's life, accompanied by a great deal of apprehension and emotional disturbance. There is no justification for doctors and clerks to add to the patient's fears by adopting what the patient may, rightly or wrongly, regard as bizarre dress, behavior or grooming. Attending physicians and surgeons, since they bear full responsibility for their patient's welfare, are entitled to deny students the right to work with their patients if they feel a student's appearance or behavior to be unacceptable. Most patients in general hospitals are a good deal older than student physicians. Consideration for their feelings in this matter is not only a sign of courtesy and good manners, but is also evidence of their willingness to put the patient's interest ahead of their own, which is the mark of a good doctor."

HONORS PROGRAMS LEADING TO THE BSc IN ONE OF THE BASIC HEALTH SCIENCES

The Departments of Anatomy, Bacteriology and Immunology, Biochemistry, Biophysics and Physiology offer programs in the Faculty of Science leading to the degree of BSc with Honors in their respective disciplines and cooperate in the offering of a fourth year honors program in Genetics. The Department of Physiology in collaboration with the Department of Pharmacology also offers an honors program in Physiology with a Pharmacology Option. In all cases, these programs consist of a Fourth Year Honors following successful completion of the Three-Year BSc Biology Program. In addition, however, the Departments of

Biochemistry and Biophysics provide a two-year program following successful completion of the second year in Honors Chemistry or Physics respectively. The Department of Physiology also offers a Physiology-Psychology program in collaboration with the Department of Psychology. The Announcement of the Faculty of Science and the Department concerned should be consulted for the details of the Programs and their prerequisites.

GRADUATE STUDIES

The Basic Health Sciences

Information concerning graduate studies in the basic health sciences may be obtained from the Announcement of the Faculty of Graduate Studies. Studies leading to the degrees of MSc and PhD may be carried out in the following Departments: Anatomy, Bacteriology and Immunology, Biochemistry, Biophysics, Epidemiology and Preventive Medicine, Pathology, Pharmacology and Physiology.

The Clinical Sciences

Graduates in Medicine, who have completed the required graduate and post-graduate training in a clinical department of the Faculty of Medicine, are eligible for the Degree of Master of Clinical Science, MClSc. The Announcement of the Faculty of Graduate Studies contains further details.

PhD-MD and MSc-MD Combined Programs

The Faculties of Medicine and Graduate Studies have established combined PhD-MD and MSc-MD programs, in which the research curriculum of the Graduate Program is integrated into the program leading to a medical degree.

The aim of such programs is the development of future medical teacher-scientists, within an investigative discipline while contact still exists between the medical student and the basic medical sciences.

Candidates must be accepted by the Committee on Admissions of the Faculty of Medicine prior to commencing the combined program and must be accepted by the relevant basic health science department and the Faculty of Graduate Studies prior to commencing the graduate research program. The prerequisite training and academic standing required for admission to these programs are:

(a) A Bachelor's degree (Honors), with at least a "B" average in a science related to the proposed research program, or

(b) A Bachelor's degree (General) plus the successful completion of one year of the medical curriculum with at least a "B" average, plus an "A" average in courses of the chosen discipline, or

(c) The successful completion of two years of the medical curriculum, with at least a "B" average for those who have been accepted into Medicine following the two-year premedical program, plus an "A" average in courses of the chosen discipline.

A candidate with a Bachelor's degree (Honors) who elects to complete one or two years of the medical curriculum prior to entering the PhD or MSc portion of the program, will require a "B" average with an "A" average in courses of the chosen discipline, during the medical curriculum.

The minimum residence requirement for the PhD degree in this program consists of six consecutive terms plus at least one additional summer term; the minimum residence requirement for the MSc degree in this program consists of at least three consecutive terms. This minimum residence requirement will apply whether or not the candidate possesses a previous undergraduate degree.

The student will be re-admitted to the appropriate year of the undergraduate medical course when he has completed the MSc or PhD program.

Inquiries should be directed to the offices of the Deans of the Faculties of Graduate Studies and of Medicine.

POSTGRADUATE EDUCATION

Postgraduate Education and training at the University is offered in the following disciplines: Anaesthesia, Clinical Microbiology, Family Medicine, Medicine, Neurology, Neurosurgery, Obstetrics and Gynaecology, Ophthalmology, Otolaryngology, Paediatrics, Pathology, Medical Biochemistry, Haematologic Pathology, Physical Medicine and Rehabilitation, Psychiatry, General Surgery, Cardiovascular and Thoracic Surgery, Orthopaedic Surgery, Plastic and Reconstructive Surgery, Urology, Diagnostic Radiology and Therapeutic Radiology.

All programs are accredited by The Royal College of Physicians and Surgeons of Canada. The training program in Family Medicine fulfills the requirements for the Certification examination of the College of Family Physicians of Canada. The Committee on Postgraduate Education, the Assistant Dean—Postgraduate Education, the Program Directors of the Clinical Departments and the Directors of Medical Education at all of the major teaching hospitals co-operate in the co-ordination of clinical postgraduate education.

The clinical programs utilize the facilities both within and outside London.

Appointments are made at least six months prior to the July 1st beginning of the academic year.

CONTINUING EDUCATION

All the basic science and clinical departments participate in an active program of continuing education for family practitioners and specialists. Special lectureships, seminars, refresher days and short courses are arranged in conjunction with the Committee on Continuing Medical Education. Inquiries should be made to the Assistant Dean—Continuing Education. The Committee is continuing to experiment with the use of modern communication media in continuing medical education. A concerted effort continues to be made to develop ongoing programs of continuing medical education in several centres in Southwestern Ontario. The program of continuing medical education is assisting in the organization and administration of these programs, and members of the Faculty of Medicine are involved in regular visits to these communities, where they take part in ward rounds, lectures, case demonstrations and other forms of instruction.

LECTURESHIPS

The Dr. F. R. Eccles Memorial Medical Alumni Lectureship

This Lectureship in the Faculty of Medicine was inaugurated through the support of the Medical Alumni and a fund established by the will of the late Dr. F. R. Eccles. An outstanding clinician is invited to deliver the memorial lecture and participate in a clinical program presented annually in rotation by one of the clinical departments.

The John A. Macgregor Memorial Lectureship

The Lectureship was initiated in 1946 by friends of the late Dr. Macgregor, former Professor of Medicine, and by medical alumni, and is now supported by the Continuing Education funds of the Faculty. The lecture is given annually by an eminent pathologist and is open to all medical students and members of the medical profession.

The F. J. H. Campbell Lectureship

This Lectureship was established by Dr. Georges Lachapelle, Meds '45. The income from this fund is to be used to bring outstanding physicians, chosen by the Department of Medicine, to lecture to the Faculty, students and members of the medical profession; or on occasion to provide travel funds for a member of the Department of Medicine to attend a meeting in another Medical Centre, or with a medical group, to bring back to his colleagues the benefit of his findings.

The Doctor William Banghart Memorial Lectureship

This Lectureship was established in 1965 with funds transferred to The University of Western Ontario from the London Academy of Medicine and contributed by friends of the late Dr. Banghart. The lecture is arranged by the Department of Paediatrics in conjunction with the Continuing Education program.

RESEARCH

An active research program in the various departments is supported by grants from the Medical Research Council, the Department of National Health and Welfare, the Defence Research Board, the Ontario Ministry of Health and voluntary organizations. A limited number of Medical Research Council Summer Undergraduate Medical Scholarships are available for undergraduate students annually.

Within the Faculty of Medicine three research funds have been established:

(a) The John McClary Memorial Fund for research in Industrial Medicine;

(b) The George Routledge Herman Fellowship for research in Heart Disease;

(c) The Ruth Knox Herman Fellowship for research in the general field of Cardiovascular Disease.

Information about any of the above may be obtained from the office of the Dean.

SCHOLARSHIPS AND PRIZES, 1974-1975 SESSION

Monetary prizes in each year are arranged in descending order of dollar value and are awarded in this order. No one student in any year will be awarded more than one prize of monetary value, excluding competitive essay prizes and certain other prizes awarded by selection. Should a student qualify for more than one prize, he will be awarded the prize of greatest monetary value and any lesser prizes will then revert to the next eligible students.

London Academy of Medicine Memorial Scholarship

This Scholarship, value $250, is endowed by the London Academy of Medicine as a memorial to deceased Academy members. It is awarded annually to the student entering First Year in the Faculty of Medicine, from a program in The University of Western Ontario, who in the opinion of the Senate Scholarship Committee has demonstrated the highest scholarship for admission to the Medical Program.

The Verda Taylor Vincent Scholarship

This Scholarship, value $1,000, was established by the late Miss Verda Taylor Vincent, a graduate of The University of Western Ontario. It is to be awarded annually to the student achieving the highest standing in the examinations at the conclusion of the first year.

The J. B. Campbell Memorial Scholarship in Physiology

The J. B. Campbell Memorial Scholarship in Physiology, value $100, will be given to the student obtaining the highest marks in the examination in Physiology. The late Dr. J. B. Campbell was Professor of Physiology from 1910 to 1913.

Hippocratic Society Award in Anatomy

The Hippocratic Society has provided a sum of $50 to be awarded annually as a prize to the student doing the best work in Gross Anatomy in the first year.

C. V. Mosby Company Scholarship Awards, First Year

A book to the value of $30 will be given to the student obtaining the highest standing in each of the following first year subjects: Biochemistry, Histology.

The Lange Awards, First Year

Prizes of two books published by Lange Medical Publications to each of two outstanding students as selected by Council of the Faculty.

The Rowntree Prizes in Medical History

The sum of $150 is given annually in memory of the late Dr. L. G. Rowntree, for essays in Medical History. Essays may be submitted by students in any year, and students in the first year class are particularly encouraged to do so. The students writing the three best essays will be awarded prizes of $75, $50 and $25 respectively. These essays will be judged on the basis of historical content, style, accuracy and originality. The essays are to be submitted to the Chairman of the Department of History of Medicine and Science on or before March 31st of each year.

The Rachel Slobasky Kaplan Scholarship

This Scholarship of $300 has been established by Mrs. Kaplan of Windsor, Ontario. It is to be awarded annually to the student achieving the highest standing in the examinations at the conclusion of the second year of the medical course.

The Alexander Hotson Memorial Scholarship

This Scholarship, in the amount of $250, was established by the late Miss Aletha L. Hotson in memory of her father, the late Alexander Hotson, MD, a graduate of The University of Western Ontario. It is awarded to the student achieving the

second highest standing in the examinations at the conclusion of the second year of the medical course.

Will Pharmaceuticals Prizes

In order to promote interest in Pharmacology, a Fund has been established by Will Pharmaceuticals, which is made available for student competition. The Fund is to be used in the following manner:

(1) Will Pharmaceuticals First Prize in Pharmacology, valued at $100 to be awarded to the student obtaining the highest marks in Pharmacology.

(2) Will Pharmaceuticals Second Prize in Pharmacology, valued at $75 to be awarded to the student obtaining the second highest marks in Pharmacology.

(3) The First Will Pharmaceuticals Prize for an Essay in Pharmacology, valued at $75.

(4) The Second Will Pharmaceuticals Prize for an Essay in Pharmacology, valued at $50.

Undergraduate students standing in the upper third of the class will be eligible for the essay competition, the subjects to be chosen by the students competing for the prizes. Essays in duplicate are to be submitted to the Dean's office on or about February 15th of each year. The first and second prize winners (3 and 4) will be decided by a special committee, which shall include the Professor of Pharmacology and the Professor of Medicine. The quality of the essays must be such that they will warrant publication in a recognized journal or review.

The Ciba Prize

This Prize, consisting of a set of the Ciba Collection of Medical Illustrations, is awarded to a student in the second year, at the discretion of the Council of the Faculty.

The B'Nai Brith Scholarship in Pathology

The sum of $50 is to be awarded annually by the London Lodge of the B'Nai Brith Society to the second year student with the highest standing in Pathology.

The Dean Russell Prizes in Neurological Science

Combination Ophthalmoscope and Otoscope sets are to be given annually to the two second year students obtaining the highest standings in Neurological Science.

C. V. Mosby Company Scholarship Awards, Second Year

A book to the value of $30 will be given to the student obtaining the highest standing in each of the following second year subjects: Bacteriology and Immunology, Psychiatry.

The Lange Awards, Second Year

Prizes of two books published by Lange Medical Publications to each of two outstanding students as selected by Council of the Faculty.

The Charles E. Frosst Medical Scholarship

Charles E. Frosst and Company will award a Scholarship of $500 and a bronze Medal at the end of the Third Year to a medical student who has shown most promise in the field of Therapeutics.

The Dr. I. W. Mann Award

This Award of $250 established by the late Dr. I. W. Mann, Meds '37, is awarded to the third year medical student showing superior achievement in studies in Family Medicine and demonstrating personal monetary need.

The Leonard Sutcliffe Memorial Scholarship

This Scholarship of $150 is to be awarded to the student with the highest standing in the third year of the medical course.

The Carleton C. Whittaker Memorial Scholarship in Psychiatry

This Scholarship, value $125, established by the late Miss Edith M. Whittaker, will be awarded to a student in the third year with high standing in Psychiatry and other evidence of interest in the subject.

The Bristol Prize in Medicine

Medical Texts in Therapy and/or Pharmacology to the value of $125 will be awarded annually by Bristol Laboratories to the Third Year student selected on the basis of meritorious performance in Clinical Medicine.

The Ontario Medical Association Prize in Preventive Medicine

This Prize, value $100, is awarded by the Ontario Medical Association to the most able student in the Third Year as selected by the Chairman of the Department of Epidemiology and Preventive Medicine.

The Borden Award in Paediatrics

This Award, value $100, is granted by the Borden Company, Limited, to the student showing the greatest merit in Paediatrics in the third year.

The Ciba Prize in Medicine

This is a Prize of $75 to be awarded to the third year student in the Faculty of Medicine who shows the greatest proficiency in Medicine.

The Dr. William Zaharia Memorial Prize in Endocrinology

This Prize, value $65, is awarded to a student in the Third Year of the Faculty of Medicine who has shown the greatest competence in the laboratory and/or clinical aspects of Endocrinology, as selected by the Council of the Faculty of Medicine.

C. V. Mosby Company Scholarship Award, Third Year

A book to the value of $30 will be given to the student obtaining the highest standing in Clinical Biochemistry.

The Lange Awards, Third Year

Prizes of two books published by Lange Medical Publications to each of two outstanding students as selected by Council of the Faculty.

The W. H. McGuffin Scholarships in Radiology

Two Scholarships, consisting of awards of $75 and $50, will be given to the students of either of the two final years presenting the best essays on a subject pertaining to Radiology. The essays are to be in the Dean's office on or before February 15th of each year.

The Medical Alumni Gold Medal

A medal is to be given annually to the student graduating in Medicine with the highest aggregate marks during his full course taken exclusively at The University of Western Ontario.

The Alpha Kappa Kappa Gold Medal

A medal provided for in Alpha Kappa Kappa's contribution to the University Endowment Fund will be awarded to the student taking the highest standing in the final year.

The Dr. F. R. Eccles Scholarship

The late Dr. Eccles established a Scholarship fund to enable students of medicine to study abroad following graduation. An award of $1,200 is to be made annually

to the student obtaining the highest standing in the final year of the medical course.

The Dr. Glen S. Wither Memorial Award

This Award, established by the family, classmates and friends of the late Dr. Glen S. Wither, Meds '68, is awarded to the final year medical student who, in the opinion of his peers and associates, demonstrates the highest attributes of the physician—integrity, concern for his patients, compassion, and a devotion to his profession. The amount of the Award will be $400.

The Class of '55 Prize

An annual Prize of $200 is provided by the Class of Meds '55 to be awarded at the discretion of the Dean and Faculty to a student in the final year showing outstanding promise in the practice of Clinical Medicine.

The Dr. R. A. H. Kinch Prize in the Community Aspects of Medicine

This Prize of $150 established by Dr. R. A. H. Kinch will be awarded annually to the final year medical student who demonstrates the greatest competence in the community aspects of medicine, as determined by the Department of Epidemiology and Preventive Medicine and the Department of Family Medicine.

The Abbott Prize in Anaesthesia

This Prize of $150, awarded by the Abbott Laboratories Limited, will be given to the fourth year student who has shown outstanding interest in the Specialty of Anaesthesia. For the Prize the marks in the third year examination and the performance during the fourth year clerkship as judged by the Clinical Instructors shall be taken into consideration.

The Dr. Fred N. Hagerman Memorial Prize in Surgery

This Prize of $150 established by the family and friends of the late Dr. Fred N. Hagerman, Meds '63, is awarded to the final year student showing the greatest merit in Surgery during the third and fourth years as assessed both by marks in written examinations and performance in clinics.

The John C. Rathbun Memorial Prize in Paediatrics

This Prize of $150 established by the family and friends of the late Dr. John C. Rathbun is awarded to the graduating student achieving the highest standing in Paediatrics in the third and fourth years.

The Pearl Devenow Fox Memorial Prize in Obstetrics and Gynaecology

This Prize of $100 will be awarded by the London Section of the National Council of Jewish Women of Canada to the final year student showing the greatest merit in Obstetrics and Gynaecology during the third and fourth years as assessed by both marks in written examinations and performance in clinics.

The J. B. Campbell Memorial Scholarship in Medicine

The J. B. Campbell Memorial Scholarship in Medicine, value $100, will be given to the student obtaining the highest marks in the combined examinations in Medicine and Clinical Medicine in the final year. The late Dr. J. B. Campbell was Associate Professor of Medicine from 1913 to 1919.

The Kingswood Scholarship

A Scholarship of $100 is awarded annually to such student in the graduating year in Medicine as the authorities of the University consider most proficient. The fund was established by a bequest of the late Mr. Isaac William Kingswood.

The Elena B. Wolf Memorial Awards

The sum of $100 is awarded annually in memory of Mrs. Elena B. Wolf for essays in the field of cancer research or treatment submitted by final year medical students. Awards in the amount of $60 and $40 will be presented for the two best essays as judged by a special committee appointed by the Dean of Medicine. Essays are to be submitted to the Office of the Dean of Medicine on or before March 31st of each year.

The Ivan Hamilton Smith Memorial Prize

This Prize of $100 for books donated by the friends of the late Dr. Ivan Hamilton Smith is awarded to the final year student obtaining the highest mark in Therapeutic Radiology.

The Class of 1917 Prize

An award of $100 will be given to the student in the final year keeping the best case records on patients on the wards and in the out-patient departments.

The Dr. T. H. Coffey Memorial Prize in Physical Medicine and Rehabilitation

This Prize of $50 and a book has been established by Dr. M. G. P. Cameron in memory of the late Dr. T. H. Coffey. It will be awarded to a third or fourth year medical student for the best essay in the field of clinical investigation or research related to Physical Medicine and Rehabilitation. Essays are to be submitted to the Office of the Dean of Medicine on or before March 31st of each year.

The Roche Scholarship

This Scholarship, value $50, is to be awarded to a final year student at graduation, on the work of the two final years of the course. It will be based on the general lines of the Rhodes Scholarship, in which proficiency, progress and leadership will be evaluated by a board of assessors.

The Lange Awards, Fourth Year

Prizes of four books published by Lange Medical Publications to each of two outstanding students as selected by Council of the Faculty.

The Horner Medals in Ophthalmology and Otolaryngology

Frank W. Horner Limited will award silver medals to the final year medical students showing the highest proficiency in Ophthalmology and Otolaryngology in all years of the medical course.

The Khaki University and Y.M.C.A. Scholarship

Applications for the Khaki University and Y.M.C.A. Scholarship, value $200, will be received by the Dean from the sons or daughters of veterans of the Canadian Armed Forces. In the event that no applications are received from any veteran's dependents, then applications will be accepted from other students. The Scholarship will be awarded at the discretion of the Council of the Faculty of Medicine.

Nellie L. Farthing Memorial Fellowship

This Fellowship in the Medical Sciences, value $2,000 per academic year, is available to students engaged in postgraduate work or medical research. Applications should be submitted to the Dean of Medicine no later than March 15th.

Advanced Graduate Scholarships

There are several scholarships tenable abroad for highly qualified students to do further postgraduate work. Information concerning these scholarships can be obtained from the Dean's Office.

MEDICAL SOCIETIES

The Hippocratic Society

The Hippocratic Society is the official undergraduate Medical Society of the University. The membership consists of all medical students in the first, second, third and fourth years. It is governed by the Hippocratic Council which is elected annually from the members of the Society. This Council consists of an executive and the year presidents, and handles all student affairs. It sponsors the U.W.O. Medical Journal, the Osler Society, the Meds' Merrymakers and *"Tachycardia"*, the annual variety show. The social program of the Hippocratic Society includes the annual Meds' picnic, the Annual Hippocratic Banquet and the Meds' At Home. The Council provides certain services for the students, including current newspapers and magazines, a telephone and current non-medical books. The University of Western Ontario Undergraduate Medical Journal is published, edited and controlled by the student body through the Hippocratic Council. A consulting editorial staff is appointed each year by the Council of the Faculty to assist the students in this publication. A Staff-Student Liaison Committee and a Mentor System provide lines of communication between students and faculty. A two-dollar fee for membership in the Society is payable on registration day.

Osler Society

The Osler Society is an organization open to all medical students, academic staff and local physicians. The aims of the Society are to perpetuate the name of the great Canadian physician, Sir William Osler, and to provide an opportunity for the presentation and discussion of papers on medical history and various aspects of medicine.

Alpha Omega Alpha

This is an Honor Society for medical students, membership in which is based on scholarship and character. It was first organized at the College of Medicine, University of Illinois, in 1902. The Beta Chapter of The University of Western Ontario was organized in 1942. The aim of the Society is to encourage the spirit of medical research. Chapter meetings are devoted to the presentation of scientific papers.

PLAN OF INSTRUCTION

The undergraduate medical curriculum provided by the Faculty of Medicine is designed to permit the acquisition by the student of a core of fundamental knowledge and the basic technical skills, and to assist in developing attitudes which will form a basis for further postgraduate or graduate study leading to family medicine, other clinical specialties or basic or clinical research, etc.

Students who entered the first year in September, 1973, subsequently will follow the new curriculum. Approximately 40% of the timetable in the first two years of the new curriculum is unscheduled to permit the student to pursue various electives. A program of electives is available from the Office of Service and Research in Medical Education and the Office of the Dean.

The First Year will begin with an Introduction to Medicine where students will work with physicians, see several types of health care facilities, and discuss issues in the provision of Health Care. Students are introduced to patients in the first year in a Clinical Methods course where interviewing, history-taking and the physical examination will be taught. The problems and issues of Health Care Systems will be examined from a broad perspective in the Medicine and Society course. Other courses in the first year will include Gross Anatomy, Histology, Biochemistry, Biophysics, Physiology, Bacteriology and Pathology, and the relationships of these basic sciences will be examined in the Integrative Biology course. Several basic and clinical science departments will cooperate in an integrated Neuroscience and Mind course which will begin in the latter part of the first year.

During the Second Year, Neuroscience and Mind, Medicine and Society, and Pathology courses will be completed. The Clinical Methods course will focus on the acquisition and interpretation of clinical information from patients. The Clinical Science course will examine clinical problems and their solutions. A course in Pharmacology will be followed by the Therapeutics course in which the principles of therapy will be applied to clinical practice. The final twelve weeks will be an Introduction to the Clinical Clerkship. As a preparation for the Third Year, the basic and clinical science of each body system will be reviewed and diagnostic and therapeutic principles discussed in a practical application setting.

For the 1974-1975 Session, the third and fourth years of the course will continue as in the previous curriculum, as follows:

In Third Year the curriculum is devoted mainly to the Clinical Sciences and includes a course in Clinical Biochemistry. Short courses in legal medicine, medical ethics, Medical Jurisprudence, and an introduction to computer and information science are given in Third Year.

Students have considerable exposure to Family Medicine throughout the entire four years of the program.

The Fourth Year is a forty-eight-week clinical clerkship providing opportunity for rotation through the various clinical services in the teaching hospitals and including a nine-week elective period. The clinical clerk, as the junior member of the clinical team, is involved in the diagnosis, investigation and treatment of patients under the care of the team. The clerkship provides an opportunity for the student to relate the knowledge, skills and attitudes already acquired to the solution and management of clinical problems. The elective period permits the student to pursue further basic science or clinical studies and to explore future career choices. The 48-week clinical clerkship comprises five nine-week terms and three weeks for study, examinations, etc.

MEDICINE

DEPARTMENT OF ANAESTHESIA

Second Floor, University Hospital

Head of Department: W. E. G. A. Spoerel, MD Frankfurt-on-Main: FRCP(C)
PROFESSOR: Spoerel ASSOCIATE PROFESSORS: Aitken, Sellery, Varkey, Webster. CLINICAL ASSOCIATE PROFESSORS: Bain, Clancy, Keeri-Szanto, Russell. CLINICAL ASSISTANT PROFESSORS: Cameron, Glennie, Muir, Neilsen, Slater, Squire, Walker. LECTURERS: Groom, Heinrich, Hodgson. CLINICAL LECTURERS: Adamson, Butlin, Diamond, Hersey, Kandel, Lancaster, Millman, Norry, Stewart. HONORARY LECTURERS: Growse, Reid. INSTRUCTORS: Henderson, McFarlane RESEARCH ASSOCIATE: Leung

THIRD YEAR

Together with the Department of Pharmacology, twelve lectures are given in clinical pharmacology, with particular emphasis on aspects of acute medical condition and anaesthesia. Another twelve hours of lectures and demonstrations cover clinical anaesthesia and special patient care associated with it, including respirator care, inhalation therapy, and cardiopulmonary resuscitation.

FOURTH YEAR

During their Clinical Clerkship, students are assigned for one week to Anaesthesia. Instructions are given in practical anaesthesia, care of the airway and artificial ventilation, management of the unconscious patient and respirator treatment in the Intensive Care Unit.

ELECTIVES

Students interested in anaesthesia and intensive patient care are invited to use their elective time for further studies in this specialty.

DEPARTMENT OF ANATOMY

Departmental Office: MS 472

Professor and Chairman of the Department:
D. G. Montemurro, BA, MSc, PhD UWO
PROFESSORS: Barr, Buck, Montemurro. ASSOCIATE PROFESSORS: Altmann, Donisch, Gammal, Gwyn, Leyshon, Sergovich, Shaver, Singh, Soltan, Wilson. ASSISTANT PROFESSORS: Clattenburg, Flumerfelt, Galil, Kiernan. HONORARY LECTURERS: Robinow, Walden. LECTURER: Cline. INSTRUCTORS: Coates, Warma, Wise. VISITING ASSOCIATE PROFESSOR: Hidayet.

FIRST YEAR

1. Developmental and Definitive Anatomy.

(a) Definitive Anatomy is presented as a series of concepts each of which has developmental, definitive and applied aspects. Time strictures prevent comprehensive dissection by students but dissection of certain parts may be re-

tained. Class members will be permitted to use departmental teaching aids as they wish; these include film loops, steroscopic slides, radiographs, models and prosections. The general objective of the course is to equip the medical student with sufficient anatomical knowledge to permit his intelligent participation in more advanced courses whether in anatomy or in the clinical sciences.

(b) Lecture demonstrations will be presented mainly on a systemic basis. Experienced instructors will conduct groups of twenty students through learning sessions which make extensive use of prosected material and highlight the important morphological details in normal individuals; wherever possible, extrapolation to the 'living' state will be attempted and emphasis will be given to structuro-functional relationships.

144 hours.

2. Histology.

(a) The objective is to acquire sufficient knowledge of the microscopic structure of the various tissues and organs of the body so that the functioning (Physiology) and the disease processes (Pathology) can later be understood. Since histology is concerned with the structure and relationships of normal cells, tissues and organs, it serves as a basis for understanding and recognizing normality and normal variation, both of which are significant in health maintenance or disease prevention.

(b) A practical laboratory course in the structure of normal human tissue and organs.

60 hours.

SECOND YEAR

3. Neuroanatomy.

(a) A series of lectures dealing with the microscopic and gross features, internal structure and major fibre tracts of the human central nervous system. The dynamic approach is emphasized. This is part of a course in Neuroscience and Mind, in which the Departments of Anatomy, Pathology, Pharmacology, Physiology, Clinical Neurological Sciences and Psychiatry collaborate.

39 hours.

(b) A practical course in the dissection of the human brain, together with the study of sections of the brain stem and a review of the main aspects of Neurohistology. This is also part of the course in *Neuroscience and Mind*.

10 hours.

DEPARTMENT OF BACTERIOLOGY AND IMMUNOLOGY

Room 352, MSB

Head of the Department: R. G. E. Murray, BA, MA Cantab: MDCM McGill: FRSC PROFESSORS: Fitz-James, Murray, Robinow, Robinson, Whitby. CLINICAL PROFESSOR: Hatch. ASSOCIATE PROFESSORS: Chodirker, Ebisuzaki, Medzon, Rozanis, Sinclair, Strejan, Zajic. CLINICAL ASSOCIATE PROFESSOR: Bakerspigel. ASSISTANT PROFESSORS: Behne, Black, Cheevers, Percy, Singhal, Wilkins. CLINICAL ASSISTANT PROFESSOR: Campsall. LECTURER: Galsworthy. HONORARY LECTURERS: Abrahams, Bell, Hannay, Howson, Naylor, Roslycky, Toogood.

FIRST YEAR (NEW CURRICULUM)

1. **Medical Microbiology and Immunology Core Course.** A course of lectures and laboratory demonstrations which will outline attributes of man and of infectious agents that are relevant to the understanding of the causation, control and management of infectious diseases. Material will be grouped as follows: Infectious agents; Man as host to infectious agents, where Immunology will comprise the major part, but material on transmission of infection and sources of infection will also be included; Fundamentals of the causation of disease; selected examples of microbial epidemiology presented as coordinated sessions with the Department of Epidemiology and Preventive Medicine; Laboratory diagnosis of infection.
78 hours.

2. The Department will also contribute relevant sections to a number of other first and second year medical courses; in the Therapeutics Course on Antibiotics, in Integrative Biology and in Systems Courses, which constitute the Introduction to Clinical Clerkship. Here there will be an Immunology System Course and also material will be presented as appropriate on infections of the Respiratory, Genito-Urinary, Gastro-intestinal and Central Nervous Systems, and on Immunology in the Haematopoetic System.
30 hours.

DEPARTMENT OF BIOCHEMISTRY

Room 316, MSB

Chairman of the Department: B. D. Sanwal, BSc., MSc., PhD., India, Dr. Nat. Sci. Zurich
PROFESSORS: Bigelow, Carroll, Fitz-James, McCarter, McMurray, Rossiter, Sanwal, Smith, Stewart, Strickland. ASSOCIATE PROFESSORS: Ball, Donisch, Heagy, Henderson, Magee, Trevithick, Tustanoff, Walker. ASSISTANT PROFESSORS: Cook, Galswothy, Gatfield, Gordon, Guthrie, McDonald, Possmayer. HONORARY LECTURERS: Cheevers, Chefurka, Hudson, Krupka, MacPherson, Schincariol, Spencer, Vardanis, Wolfe. INSTRUCTOR: Lin.

DIVISION OF CLINICAL BIOCHEMISTRY

Chairman of Division: J. C. Griffiths, BS Wales: MB BCh Welsh National: FCSCC CLINICAL PROFESSORS: Brownstone, Hobkirk. CLINICAL ASSOCIATE PROFESSORS: Binns Smith, Griffiths, Haines, Haust. CLINICAL ASSISTANT PROFESSOR: Leung

FIRST YEAR (NEW CURRICULUM)

121. A Course of Lectures in General Biochemistry. Structures, functions and biosynthesis of macromolecules; the chemistry and metabolism of carbohydrates, lipids, amino acids and minerals; composition and properties of tissues and body fluids; structure and function of vitamins and hormones; regulation and integration of metabolism; introduction to clinical aspects of biochemistry.
4 hours (2 trimesters) Lecture and Laboratory, full course.

THIRD YEAR (PRESENT CURRICULUM)

121. Clinical Biochemistry. As a necessary complement to the acquisition of clinical skills, the student must become acquainted with laboratory medicine by exposure to Medical Biochemistry, Haematology, Blood Banking and other areas of laboratory medicine. This is accomplished as follows:

(1) Introductory sessions with the entire class will serve the purpose of scrutinizing the major principles of methodology currently available in the foregoing fields and surveying their wide range of clinical applicability.
(2) Students in small groups will then participate in the critical evaluation of laboratory data for diagnosis and management of disease.

DEPARTMENT OF BIOPHYSICS

Room 122, MSB

Chairman of the Department: Margot R. Roach, BSc New Brunswick; MD, CM McGill; PhD UWO; FRCP(C)
PROFESSORS: Burton (Part-Time), Groom, Roach. ASSOCIATE PROFESSORS: Canham, Inch, Sherebrin, Sutherland, Taylor. ASSISTANT PROFESSORS: Boughner, Duncan, Ferguson, Song, LECTURER: Gerson. HONORARY LECTURERS: Finlay, Johnson, Miller, Nagai.

FIRST YEAR

Aim: To show students how physical factors contribute to health and disease.

Contents: (1) Physical properties of tissues (elasticity, stability, isotropy, etc.). (2) Transport phenomena - how oxygen gets from the air to the cell with a discussion of the difference between diffusion and bulk flow and some comment on how this is altered by disease. (3) Biomechanics - including joint motion, trauma, head injuries, fractures. (4) Energy and work including temperature regulation and efficiency.

Evaluation: 2 assignments and 1 test. 24 hours in first trimester.

Other Medical Teaching: Integrative Biology, Clinical Methods, Clinical Science, Introduction to Clerkship. Electives.

CANCER RESEARCH LABORATORY

(A Unit of the National Cancer Institute of Canada)

Director: J. A. McCarter, BA, MA British Columbia; PhD Toronto; FRSC

The Cancer Research Laboratory was established by a grant from the Ontario Division of the Canadian Cancer Society, and is maintained chiefly by annual grants from the National Cancer Institute of Canada. It is housed on the main University campus. Activities are centred on a variety of problems in basic cancer research. Senior members of the Laboratory hold joint appointments in appropriate Departments of the Faculty of Medicine, and participate in the teaching of undergraduate and graduate students.

Graduate students may proceed to MSc and PhD degrees in the Laboratory, receiving their advanced degrees in whatever discipline their supervisor has his joint university appointment. These include at the present time Bacteriology and Immunology and Biochemistry.

Application should be made, in the first instance, to the Director of the Laboratory.

DEPARTMENT OF CLINICAL NEUROLOGICAL SCIENCES

7th Floor, University Hospital

Chairman of the Department: H. J. M. Barnett, MD Toronto; FRCP(C)

DIVISION OF NEUROLOGY

Chairman of the Division: H. J. M. Barnett, MD Toronto; FRCP(C)
PROFESSOR: Barnett ASSOCIATE PROFESSORS: Bolton, Hudson, Kertesz ASSISTANT PROFESSORS: W. F. Brown; Paty CLINICAL ASSISTANT PROFESSOR: McInnis LECTURERS: J. D. Brown; Jaatoul HONORARY LECTURER: Hinton CLINICAL LECTURER: McPherson

DIVISION OF NEUROSURGERY

Chairman of the Division: C.G. Drake, MD, MSc UWO; FRCS(C), MS, Toronto; LDSc Memorial Newfoundland
PROFESSOR: Drake ASSOCIATE PROFESSOR: Girvin CLINICAL ASSOCIATE PROFESSOR: Barr ASSISTANT PROFESSORS: Amacher, Ferguson

EXTRADIVISIONAL

PROFESSOR: Kaufmann. ASSISTANT PROFESSORS: Blume, Gilbert. CLINICAL ASSISTANT PROFESSOR: Allcock. HONORARY LECTURERS: Ball, Coates, Haust.

SECOND YEAR

Neuroscience and Mind

A combined course is given in conjunction with the Departments of Anatomy, Biochemistry, Pathology, Pharmacology, Physiology and Psychiatry. The course provides an integrated basic science and clinical study of the different regions of the nervous system in lectures, laboratories and clinical demonstrations.

193 hours.

DIVISION OF NEUROLOGY

1. **Clinical Sciences.** An introductory clinical course is given in the teaching hospitals, in conjunction with the Departments of Medicine, Obstetrics and Gynaecology, Paediatrics and Surgery. Emphasis is placed upon the physical examination.

THIRD YEAR

2. **Clinical Neurology.** Students will be assigned to the Neurological Service of the teaching hospitals for a period of eight weeks for a total of 28 hours. Emphasis will be placed on neurological history-taking and the elicitation of signs in the localization of neurological disease.

3. **Applied Therapeutics.** In the course of "Principles of Medicine and Applied Therapeutics" in the Departsment of Medicine, lectures and case assignment essays will be given in neurology as part of the general course.

FOURTH YEAR

4. **Clinical Clerkship.** Students will be assigned patients that are admitted or referred to the neurological service in the teaching hospitals and will assume responsibility for their care under the supervision of the attending staff. A complete history, physical examination, course of investigation and treatment will be required on all of the cases that have been assigned.

5. **Clinical Neurological Sciences Rounds.** The students are expected to attend the weekly combined rounds of the Division of Neurology and Neurosurgery, as well as Neurology, Neuroradiology, Neuropathology and basic science teaching sessions.

DIVISION OF NEUROSURGERY

SECOND YEAR

1. Clinical Science. The Division of Neurosurgery participates in an introductory course in clinical neurological examination and basic neurosurgical principles.
5 hours.

THIRD YEAR

2. Clinical Neurology. The Division of Neurosurgery participates in the program of clinical neurology.

FOURTH YEAR

3. Clinical Clerkship. Students are assigned to the neurosurgical service for one week. Patients are assigned for examination and subsequent clinical study at the bedside. In addition, the student is attached to the resident staff for daily rounds, investigation of cases and appropriately in the operating room as an observer or assistant.

4. Seminars. Students participate in each of the four neurosurgical seminars at Victoria Hospital and at St. Joseph's Hospital.

5. Clinical Neurological Sciences Rounds. Students are expected to attend the weekly combined rounds of the Division of Neurology and Neurosurgery as well as Neuroradiology, Neuropathology and basic science rounds.

THIRD AND FOURTH YEARS

An elective is offered in the Department for both the Third and Fourth Years.

DEPARTMENT OF EPIDEMIOLOGY AND PREVENTIVE MEDICINE

Medical Sciences Building, Room 115

Professor and Chairman of the Department
Carol W. Buck, MD, PhD UWO; DPH London, England
M. F. FALLON MEMORIAL PROFESSOR OF PREVENTIVE MEDICINE: Buck ASSOCIATE PROFESSORS: Rand, Stavraky, Wanklin, Williams CLINICAL ASSOCIATE PROFESSOR: Hutchison ASSISTANT PROFESSORS: Robertson, Sangal, Thurlow, Watson CLINICAL ASSISTANT PROFESSOR: McKim CLINICAL LECTURERS: Aldis, Cram, Evans, Harris, Leake, Smith HONORARY LECTURERS: Banting, Martinello, Neilson INSTRUCTORS: Donaldson, Mumby

FIRST YEAR

The Department participates in the integrated course, Medicine and Society, and is responsible for the component, Present Health Problems and Determinants of Health Status. Here the student learns how to assess the nature and extent of current health problems, and how to critically evaluate the role of physical, biological and socio-cultural factors.
17 hours

THIRD YEAR

Community Medicine. A course given mainly by seminar discussions of assigned reading on the comprehensive approach to the prevention, detection and control of health problems.
32 weeks, 2 hours per week.

FOURTH YEAR

Field experience in preventive medicine is included in the Family Medicine Clinical Clerkship.

ELECTIVE COURSES

May be arranged for students in all years.

DEPARTMENT OF FAMILY MEDICINE

Room 118, Middlesex College

Professor and Chairman of the Department:
I. R. McWhinney, MB BCh, MRCP, MD, CCFP
PROFESSORS: McWhinney, Pratt ASSOCIATE PROFESSORS: Brennan, Hennen, Orchard CLINICAL ASSOCIATE PROFESSOR: Butson ASSISTANT PROFESSORS: Baxter, Biehn, Dickie, Molineux, Morrissy, Newell, Vinger, Williams CLINICAL ASSISTANT PROFESSORS: Fraser, Gambrill, Gay, Gibson, Hanna, J. S. McKim, Sangster, Weston. LECTURERS: Bass, Spence. CLINICAL LECTURERS: Annett, Bernstein, Brady, Brown, Brubacher, W. E. Bryant, W. H. Bryant, Butler, Collyer, Connolly, Dillon, Elliott, Ellyatt, Fuller, D. Gingrich, R. Gingrich, Halliday, Hickey, Johnston, Keidan, Lamb, Leeson, Mailloux, Marchuk, McCallum, McCue, McGhie, Meredith, Merritt, Moulton, Naftolin, O'Connor, O'Neil, Patten, Pennington, Piper, Ragula, Robinson, Seguin, Shaw, Shearer, Southwood, Suffel, Thompson, Wilson, Zaltz. HONORARY LECTURERS: Austrup, Buck, A. B. Chernick, B. A. Chernick, Clarke, Edwards, Fletcher, Fraser, Hain, Hutchison, Johri, Liang, Nurse, O'Brien, Sehl, Uffelman, Wittig. INSTRUCTORS: Cornelius, Hiscock, J. C. McKim, Schachter, Warren.

SECOND YEAR

The Family Health Care Program. An elective for 20 students. Each student is assigned a family from one of the Family Medical Centres. The student provides continuing care for the family under the supervision of a member of faculty.

THIRD YEAR

Students have a course of half-day sessions with instructors in their offices.

2 hours a week for 24 weeks.

FOURTH YEAR

(1) **Clinical clerkship.** Students are assigned to one of the Family Medical Centres or to a teaching practice in the community. Working as a member of the health care team they have experience of primary and continuing care of patients. They also have the opportunity to study community health services.

(2) **Rounds and seminars.** During their clerkship, students attend the program of rounds and seminars put on by the department.

(3) **Teaching practice program.** For their elective, students are offered a choice of teaching practices which have been selected in all parts of Ontario.

DEPARTMENT OF HISTORY OF MEDICINE AND SCIENCE

Room 3331, Social Sciences Building

Professor and Chairman of the Department:
F. L. Holmes, BS MIT; MA, PhD Harvard
PROFESSOR: Holmes ASSOCIATE PROFESSOR: Richardson ASSISTANT PROFESSOR: Plotkin HONORARY LECTURERS: Balderston, Lewis, Nicholas, Warwick

FIRST YEAR

The Department participates in the teaching of the course Medicine and Society, which includes a historical component. For description see "First Year Integrated Courses" at the end of the Medicine section of this calendar.

ELECTIVE COURSES

An elective is offered for students in first, second or third years. The Department offers courses as options to honors students in the Health Sciences and Faculty of Science, to students in the Faculty of Social Sciences and the Faculty of Arts. For description of these courses see Department of History of Medicine and Science Section under Faculty of Science.

DEPARTMENT OF MEDICINE

Room 5-Of-5, University Hospital

Chairman of the Department:
R. W. Gunton, MD UWO; DPhil Oxon; FRCP(C), FACP; Richard Ivey Professor of Medicine.

PROFESSORS: Barnett, Barton, Bocking, Bondy, Gunton, Hession, Lefcoe, Lewis, Linton, Manning, Smith, Warwick, Watson CLINICAL PROFESSORS: Meltzer, Pace, Rechnitzer, Walker ASSOCIATE PROFESSORS: Ahuja, Bolton, Borda, W. M. Cameron, Chamberlain, Chodirker, Clarke, Green, Harth, Hudson, McDonald, Roach, Rodger, Stuart, Thompson, Toogood, Ulan, Wolfe, Wood CLINICAL ASSOCIATE PROFESSORS: Aikenhead, Chertkow, Coulter, Fisher, Pickard, Sears, White ASSISTANT PROFESSORS: Ahmad, Austin, Barr, Bell, Boughner, Cain, Cordy, Goddard, Jones, Kertesz, Kostuk, McCourtie, Plunkett, Redinger, Stiller, Tevaarwerk CLINICAL ASSISTANT PROFESSORS: Albers, Cholod, Driedger, Hagerman, Lohmann, McInnis, Purres HONORARY PROFESSOR: Brien HONORARY LECTURERS: Bartram, Brooke, M. G. P. Cameron, England, Hobbs, Kennedy, Middleton, Neufeld, Newell, Parker, Rand, Robinson, Sexton, Sinclair, Wilcox, Whitby LECTURERS: J. Brown, W. F. Brown, Jaatoul, Theoret CLINICAL LECTURERS: Douglas, Ferguson, Southern, Veldhuis, Zohrab INSTRUCTOR: Pattison

FIRST AND SECOND YEARS

The Department of Medicine participates in Clinical Methods and Clinical Science in the first two years..

THIRD YEAR

2. Clinical Science. Continuing instruction and experience in physical diagnosis and history taking.
32 hours, (First semester).

3. Principles of Medicine and Applied Therapeutics. A course of systematic lectures and case assignment essays on the principles of Medicine and Therapeutics.
78 hours.

4. Clinical Medicine. For a five-week period students will be assigned supervised hospital ward duties, three half-days per week. Patients will be assigned to each student and bedside teaching by members of the staff will occur at each session.
60 hours, (Second semester).

5. Noon Rounds. Students are expected to attend noon-hour and other Staff Conferences in the various hospitals when the scheduled time of the Conference and the timetable permit.

FOURTH YEAR

6. Clinical Medicine.

(1) Clinical Clerkship. Students will be assigned patients in one of the major teaching hospitals, with increasing responsibility, with advice and supervision from staff members in attendance on the ward and at the bedside. They will have the opportunity of performing histories and physical examinations, and discussing diagnostic and therapeutic techniques with Residents and Staff on a formal as well as informal basis. Seminars are conducted by staff members in sub-specialties, on both formal and informal bases.
366 hours.

(2) Out-Patient Department. Students attend clinics one half-day per week.
36 hours.

(3) Noon Rounds. Students are expected to attend the noon-hour and other staff Conferences in the various hospitals when the scheduled time of the Conferences and the timetable permit.

7. Interdisciplinary Conferences (Third and Fourth Years). Interdisciplinary Conferences are held in the Third and Fourth Quarters and may involve several Departments at one session. All students are expected to attend.

DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY

9th Floor, University Hospital

Chairman of the Department:
E. R. Plunkett, MD, PhD UWO; FRCP(C), FACOG
PROFESSORS: Armstrong, Plunkett CLINICAL PROFESSOR: Allen ASSOCIATE PROFESSOR: Harding CLINICAL ASSOCIATE PROFESSORS: Collins, Ramzy, Wearing ASSISTANT PROFESSORS: Anderson, Gammal, Milne, Possmayer, Raud, Silcox, Yuzpe CLINICAL ASSISTANT PROFESSORS: Copeland, Girvan, Manners, Prueter CLINICAL LECTURERS: Lawrence, King, Robinson, Sloan, Tew, Wright HONORARY LECTURER: Johnson, Roberts

First and Second Years (New Curriculum)

Introductory material relating to Obstetrics and Gynaecology is introduced in several courses in First Year and continued in Second Year. This includes instruction concerning clinical basics of the reproductive history taking and physical examination. Opportunities for patient contact are provided in smaller group teaching.

PRESENT CURRICULUM

THIRD AND FOURTH YEARS—THE CLINICAL YEARS

During this time clinical [illegible] dominates with only twenty-three didactic lectures scheduled for third year and none in the fourth. The third year, divided into small groups, spends two weeks on the Service during the first semester and three weeks during the second semester. Selected seminar topics, in part prepared by the student, are used to augment the clinical experience. The remainder of the time is devoted to clinical clerking. Accommodation is available in both St. Joseph's and Victoria Hospitals for the students to "live in" and permit the close follow-up of patients in labour. Out-patient clinics in both hospitals provide additional opportunity for learning.

The intention is to have the student see the patients on the private teaching service and follow their progress while in hospital. Special aspects of the subject will be covered by seminars and discussion groups.

During the Fourth Year, students spend four-and-a-half weeks on this Service as Clinical Clerks.

Electives are available to all four years. These include clinical instruction and patient exposure which is graded according to the students' experience and interests. In addition, individual research oriented electives are available.

DEPARTMENT OF OPHTHALMOLOGY

3 North, Victoria Hospital

Head of the Department:
C. Dyson, MD UWO; DOph McGill; CRCS(C)
CLINICAL PROFESSOR: Dyson ASSOCIATE PROFESSOR: McKinna CLINICAL ASSOCIATE PROFESSORS: Collyer, Nicholls, Thompson CLINICAL ASSISTANT PROFESSORS: McFarlane, Mills, Oliver CLINICAL LECTURERS: Burt, Willis

FIRST YEAR

Three two-hour periods, at weekly intervals, will be devoted to clinical examination of the eye, and a discussion of the more common disease entities of the visual system. This will be on a "small group" basis, with examples drawn from both live patients and visual aids.

THIRD YEAR

1. A course of lectures dealing with the anatomy, physiology, methods of examination, and the commoner diseases of the eye.
12 hours.

FOURTH YEAR

2. Each student will be attached to the Ophthalmology service of one of the teaching hospitals for one week. During this period, he will participate in daily dressing rounds, observe in the clinics and operating room, and be present at the examination of inpatients by the residents and staff. He will be given the opportunity to acquire some of the basic skills of ophthalmic examinations, particularly fundoscopy, tonometry, analysis of strabismus, and the treatment of the commoner ophthalmic emergencies.

DEPARTMENT OF OTOLARYNGOLOGY

6th Floor, University Hospital

Head of the Department:
F. J. Rounthwaite, BSc, MDCM McGill; FRCS(C),FACS
PROFESSORS: Rounthwaite, Greenway ASSOCIATE PROFESSOR: Ruby CLINICAL ASSOCIATE PROFESSORS: Babb, Burnett ASSISTANT PROFESSORS: Heeneman, McClure CLINICAL ASSISTANT PROFESSOR: Leboldus CLINICAL LECTURERS: MacRae, Smith, Wong INSTRUCTOR: Janzen HONORARY LECTURER: Gettas

FIRST AND SECOND YEARS

The Department takes part in the integrated courses of Neuroscience and Mind, Clinical Science and Clinical Methods. Each student in first year has six hours of the study of physical diagnostic techniques in the ear, nose and throat.

THIRD YEAR

1. Otology, Rhinology and Laryngology. A course of lectures dealing with anatomy, physiology, methods of examination, and the commoner diseases of the ear, nose and throat.
12 hours.

FOURTH YEAR

2. Each student will spend one week taking part in the day-to-day activities of the Department.

DEPARTMENT OF PAEDIATRICS

War Memorial Children's Hospital

Professor and Chairman:
J. E. Boone, MD Toronto; FAAP, FRCP(C)
PROFESSORS: Boone, Haust, Jaco, Valentine. ASSOCIATE PROFESSORS: de Veber, Hinton, M. D. Li. CLINICAL ASSOCIATE PROFESSOR: Vincent. ASSISTANT PROFESSORS: Amacher, Blume, Bolton, Ecclestone, Hardie, Jenner, Reid. CLINICAL ASSISTANT PROFESSORS: Cram, Dubois, K. T. Li, Lubell, McKim, Nicholson, Rajic, Riese, Sergovich, Walker, Whelen. LECTURER: Donald. CLINICAL LECTURERS: Atkinson, Marshall, Pozsonyi, Randall, Trout. HONORARY LECTURERS: Feasby, McAlpine. INSTRUCTORS: Carson, Robinson.

DIVISION OF MEDICAL GENETICS

Clinical Associate Professor and Chairman of the Division:
H. C. Soltan
Honorary Lecturers: Gatfield, Gordon, Sergovich, Singh, Walden, Walker

1. FIRST AND SECOND YEARS (New Curriculum) Under the new curriculum paediatric teaching will become part of the new multidisciplinary courses of Clinical Methods and Clinical Science. The student will be introduced to the parent and child interview and to examination and assessment of small infants and children. There will be clinical demonstrations of common paediatric problems.

THIRD YEAR (PRESENT CURRICULUM)

2. A series of twenty-four lectures is given covering Nutrition, Diseases of the Newborn, Infancy and Childhood. The differences between the infant and the child's response to disease when compared with the adult are pointed out. Electives are available.
24 hours.

3. **Bedside Teaching.** Each clinic group is given a block of bedside teaching in Paediatrics, mainly in the second semester. Some further demonstrations are given in clinical science. Students are given the opportunity to examine sick children, noting the effect of disease on the young patient. Signs and symptoms of disease are demonstrated by members of the paediatric staff and discussion held with the groups on management.
42 hours.

FOURTH YEAR

4. Final year students are expected to attend and participate at thirty weekly Paediatric Rounds held in the Busby Room, Victoria Hospital, and thirty weekly Staff Rounds held in the Classroom of War Memorial Children's Hospital. Interesting cases presently undergoing treatment in Children's Hospital are discussed.
60 hours.

5. **Clinical Clerking.** Each student is required to act as a clinical clerk for one 5-week period, writing histories, examining patients, making physical diagnoses and doing laboratory tests under the direction of members of the staff. He also attends clinics given by members of the staff in the Out-Patient Department at War Memorial Children's Hospital. Students are on call in the evenings in order to see acute admissions. The student is required to present the findings in these cases to attending physicians on ward rounds. Four-week or eight-week electives are available along with an opportunity for each student to attend

and participate in clinics held at the Muncey Indian Reservation. While on paediatrics, students are expected to prepare and present a weekly seminar on a topic of current paediatric interest.

6. The Department of Paediatrics participates in interdisciplinary teaching throughout all years.

7. In addition to bedside teaching formal teaching is given daily by a member of the staff on his specialty within paediatrics. A paediatric x-ray unit, situated in the War Memorial Children's Hospital, allows for instruction of the student in Paediatric Radiology. Students are expected to attend and participate in a weekly paediatric radiology round. A paediatric E.E.G. laboratory is also available in Children's Hospital. A Paediatric Immunohaematology Research Laboratory is situated in an annex to the Children's Hospital. This permits research in this growing field.

DEPARTMENT OF PATHOLOGY

4th Floor, Dental Sciences Building

Head of the Department:
A. C. Wallace, BA MD UWO; FACP, FRCP(C)
PROFESSORS: Haust, Kaufmann, McCaughey, Wallace CLINICAL PROFESSORS: Mills, Smout ASSOCIATE PROFESSORS: Anderson, Frei, Warren CLINICAL ASSOCIATE PROFESSORS: Davies, Ramzy, Slinger, Turnbull ASSISTANT PROFESSORS: Ball, Beattie, Gilbert, Lewis CLINICAL ASSISTANT PROFESSORS: Enriquez, Troster INSTRUCTORS: Adilman, Armstrong, Frishette, Rota

DIVISION OF ORAL PATHOLOGY

Chairman of the Division:
D. G. Gardner, DDS Toronto; MSD Indiana
PROFESSOR: Gardner ASSOCIATE PROFESSOR: Sapp ASSISTANT PROFESSOR: Wysocki

1. GENERAL PATHOLOGY (First Year Medicine). A course of lectures, demonstrations and laboratory periods dealing with fundamental aspects of disease processes. Subjects include inflammation, repair, regressive changes, vascular disturbances, neoplasia, alterations in growth and specific examples of inflammation.
60 hours.

2. SPECIAL PATHOLOGY (Second Year Medicine). A course in systemic human pathology dealing with common diseases. The course is taught by means of lectures, gross and microscopic demonstrations and tutorials in small groups.
120 hours.

3. ELECTIVES IN PATHOLOGY. Courses in systemic pathology involving reading assignments, attendance at specified lectures and tutorials.

4. MEDICAL JURISPRUDENCE. Lectures dealing with the law as related to the practice of medicine, duties of a coroner, the coroner's autopsy, matters of medico-legal importance.

5. CLINICAL PATHOLOGICAL CONFERENCES. In co-operation with the clinical departments, conferences are held throughout the academic year for the discussion of selected autopsies in each of the teaching hospitals. Students present the clinical history, physical findings, laboratory and radiological investigations, the differential diagnosis and preferred diagnosis. The professor in the clinical department concerned discusses and comments upon the case. The pathologist discusses the pathological findings particularly from the standpoint of cause of death, the mode of death and clinical pathological correlations.
16 hours.

6. PATHOLOGY FOR NURSING, MEDICAL REHABILITATION AND NON-MEDICAL HONORS STUDENTS. This is a survey course of 12 lectures and demonstrations dealing with the basic components of general pathology. It is designed to introduce the student to the common disease processes. The course is appropriate for students of Nursing and Medical Rehabilitation and, combined with Course 512, for graduate and honors science students.
18 hours.

7. METHODS IN PATHOLOGY. This course of twelve lectures and demonstrations deals with modern methods of investigating disease processes using the techniques of experimental pathology. It is appropriate for medical or non-medical graduates who desire some understanding of the investigation of disease processes from the point of view of experimental pathology.
24 hours.

8. The Department contributes to a number of integrated courses including Neuroscience and Mind course, Integrative Biology and the Introduction to the Clinical Clerkship.

DEPARTMENT OF PHARMACOLOGY

Departmental Office MS 275

Professor and Head of the Department:
C. W. Gowdey, BA, MSc UWO; DPhil Oxon
PROFESSORS: Gowdey, Hamilton, Parker, Philp ASSOCIATE PROFESSORS: Colhoun, Hirst ASSISTANT PROFESSOR: Hersey LECTURERS: Borda, Lovegrove, Meltzer, Spoerel, White INSTRUCTORS: Geddes, Parks

SECOND YEAR

Basic and Clinical Pharmacology. Lectures and demonstration-tutorial sessions designed to help the student learn the pharmacological basis for therapeutics — principles of drug action and the properties of important drug classes — and acquire the basic knowledge and critical judgment necessary for the effective use of drugs in clinical situations.
84 hours, full course.

THIRD YEAR

Toxicology. A short series of lectures dealing with the general problem of toxic substances in the environment as well as the toxic effect of drugs, both from their use and misuse. Prevention and treatment are discussed.
5 lectures.

Clinical Pharmacology. A series of colloquia given in collaboration with the Department of Anaesthesia. Subjects include: clinical trials, placebos,

general sedation, autonomic blockade, muscle relaxants, therapeutic gases, electrolyte balance, and the management of pain, hypotension, shock, convulsions and drug intoxication.
13 hours.

NURSES

Pharmacology for Nurses. Lectures, demonstrations and tutorials dealing with the properties of drugs, their mechanisms of action, therapeutic uses, limitations and toxicity. This course is taught by the Department of Pharmacology.
68 hours, full course.

DEPARTMENT OF PHYSICAL MEDICINE AND REHABILITATION

University Hospital, 4th Floor

Head of the Department:
M. G. P. Cameron, MD Toronto; FRCP(C)
PROFESSOR: Cameron ASSISTANT PROFESSORS: Durnin, Krysztofiak, Stewart LECTURER: Newell CLINICAL LECTURER: Berkeley HONORARY LECTURERS: Donisch, Robinson

THIRD YEAR

Lecture-demonstrations will be given on medical, surgical and paediatric problems in rehabilitation. Techniques of electrodiagnosis, physical therapy and the use of braces and prostheses will be shown. Physical therapy prescription writing will be stressed. The social, economic and psychological effects of chronic disability will be discussed with various members of the rehabilitation team.
16 hours.

FOURTH YEAR

During a one week period, each student will act a s a clinical clerk on the rehabilitation service. There will be opportunities to study electrodiagnostic techniques, amputees and prosthetics, and to participate in assessing and writing physiotherapy prescriptions for patients in an out-patient setting.
20 hours.

DEPARTMENT OF PHYSIOLOGY

M.S.B. 223

Chairman of the Department:
V. B. Brooks, BA PhD Toronto; MS Chicago
PROFESSORS: Armstrong, Brooks, Calaresu, Dellow, Mogenson ASSOCIATE PROFESSORS: Bondy, Harding, Mercer, Seguin, Squires, Wiesendanger ASSISTANT PROFESSORS: Cooke, Cunningham, Girvin, Kline, Lodge, Weick LECTURERS (Sessional): Kenny, O'Hea, Sellery HONORARY LECTURERS: Chess, Manning, Rounthwaite, Steele

FIRST YEAR

Human Physiology. The course is composed of lectures, informal group discussions, demonstrations, laboratory work, and assigned study. The general objective of the course is to develop a basic core knowledge of human physiology, utilizing the main general themes of homeostasis and control mechanisms of bodily functions. Attention will be given to basic material necessary for the understanding of human physiology as a medical discipline and for the applied physiology of the "Introduction to Clinical Clerkship" and the "Neuroscience and Mind" programmes. The course of study involves: Man and his environment; Neuronal mechanisms and an introduction to the Central nervous system; Cardiovascular system; Respiratory system; Endocrine system; Renal system; Gastrointestinal system; Sex and reproduction; and Integrative mechanisms. A student is expected to acquire a fundamental knowledge of all the body systems, of the interrelations among these systems, and of man as an integrated organism capable of adjusting to his environment. It is also expected that the student will acquire knowledge of the parameters of health at all ages, and will be able to predict those changes that will occur during both internal and external stresses.
This course is taught jointly to Medical and Dental Students.
96 hours.

Laboratory Physiology Elective. This course consists of laboratory exercises in mammalian and human physiology and is aimed at providing instruction in experimental methods and techniques.
Limited enrolment (for details consult the Department of Physiology).
96 hours.

SECOND YEAR

Advanced Physiology Elective. This course consists of tutorials, reading assignments, and laboratory and clinical demonstrations designed to provide students with in-depth study of specific body systems.
Limited enrolment (for details consult the Department of Physiology).
96 hours.

THIRD YEAR

Advanced Physiology Elective. This course consists of tutorials, reading assignments and laboratory and clinical demonstrations designed to provide student with in-depth study of specific body systems.
Limited enrolment (for details consult the Department of Physiology).
96 hours.

FIRST, SECOND AND THIRD YEARS

Interdisciplinary Teaching. The study of physiology of bodily systems is part of other courses in the Medical curriculum, i.e. Integrative Biology, Neuroscience and Mind, Clinical Science, and Introduction to Clinical

Clerkship and consists of interdisciplinary coverage of normal and abnormal function correlated to the presentation of clinical cases.
Hours not assigned (see under various interdisciplinary courses).

201. Physiology: (Second or Third Year Nursing, Second Year Physical Therapy, First Year Occupational Therapy, and Second Year Communicative Disorders). A course of lectures covering the principles of Physiology; general properties of the living cell and tissue, peripheral nerve and muscle, blood, metabolism and nutrition, digestion, circulation, respiration, kidney and body fluids, and endocrine glands and reproduction. Concurrent with the lectures, a course of laboratory exercises and conferences to demonstrate and analyse the function of the various physiological systems.
130 hours.

FOURTH YEAR (PHYSICAL THERAPY)

442. Physiology. Advanced course in neuromuscular and exercise physiology.
52 hours, half course.

443. Physiology. Advanced course in neurophysiology.
26 hours, half course.

DEPARTMENT OF PSYCHIATRY

10th Floor, University Hospital

Chairman of the Department:
G. F. D. Heseltine, BA Manitoba; LMSA West London; DPsych McGill; FRCP(C); MRC Psych(Eng); FAPA
PROFESSORS: J. J. Aufreiter, Heseltine, Tillmann HONORARY PROFESSOR: Hobbs CLINICAL PROFESSOR: Kral ASSOCIATE PROFESSORS: Bacal, Keil, MacPherson, Mai, Max, Wickware CLINICAL ASSOCIATE PROFESSOR: Goldberg ASSISTANT PROFESSORS: Frelick, Gort, Jurjans, McLeish, Marin CLINICAL ASSISTANT PROFESSORS: G. Aufreiter, Boyce, Conlon, Deinum, Dubois, D. A. Galbraith, F. G. Johnson, Summerby, Thompson LECTURERS: Heath, Mount, Stewart, Thurlow CLINICAL LECTURERS: Andrews, Babiak, R. C. Corrin, Covvey, Dolan, H. C. Galbraith, Jenkins, D. M. Johnson, Kalb, Kaufman, King, Lapp, McKenzie, Palmer, Parmar, Patterson, A. Russell, N. C. Russell, Sanders, Silcox, Stenn, Tobin; INSTRUCTORS: B. N. Corrin, R. L. Dingus, R. M. Dingus, Hoover, Lovegrove, McKim, Mountain, Nugent, Rai, Riese

FIRST AND SECOND YEARS

1. Neuroscience and Mind. An integrated approach with Neurosciences emphasizing normal and abnormal psychological concepts, their recognition as psychiatric entities, and general principles of management.

SECOND YEAR

2. The Department participates in the Introduction to Clinical Clerkship Course.

THIRD YEAR

3. A series of lectures emphasizing the background knowledge essential in the understanding of the psychiatric case in the first term and the various therapies in the second term.

4. During the first term, there is one clinic on the psychiatric examination. During the second term there are twelve three-hour clinics in the various psychiatric facilities associated with the Department.

FOURTH YEAR

5. For a three-week period students will act as clinical clerks in the psychiatric wards of the general hospitals.

6. Clinical experience with psychiatric disorders of children will be provided during the clerkship in Paediatrics.

DEPARTMENT OF DIAGNOSTIC RADIOLOGY

University Hospital - 2nd Floor

Chairman of the Department:
L. S. Carey, MD, CM, MSc(Med) Queen's: MS Minnesota; DABR; CRCP(C)
PROFESSORS: Allcock, Carey ASSISTANT PROFESSOR: Gold CLINICAL PROFESSORS: Johnston, Wilkins CLINICAL ASSOCIATE PROFESSOR: Agnos CLINICAL ASSISTANT PROFESSORS: R. K. Coates, MacDonald, Nicol, Rajic LECTURERS: Fumerton, Munro CLINICAL LECTURERS: Black, Brown, Edgar, Greenhow, Hamilton, Harwood, Linsdell, Reid-Smith HONORARY LECTURERS: Hauch, Hill INSTRUCTORS (P.T.): Cable, C. F. Coates, Eakins, Lefcoe, McCallum

A course in Diagnostic Radiology is given in the Third Year. This consists of sixteen hours of instruction in weekly sessions, the first few of which are devoted to didactic lectures. In the remaining sessions the class is divided into small groups, each assigned to an instructor with whom current Radiological cases are studied in detail and in which System Study is stressed.

A weekly elective program is also available.

The staff of the Department contributes to interdisciplinary conferences, mainly in the Third and Fourth Years. There is as well active participation on the part of the departmental staff within the Department of Anatomy.

FOURTH YEAR

Clinical Clerkship. In the Fourth Year, each student spends one week in the Department of Diagnostic Radiology at the University Hospital, Victoria Hospital or St. Joseph's Hospital. During this period he will have the opportunity to observe the practice of Radiology by attending patient examinations in General Radiology, Cardiovascular Radiology, Neuroradiology, and Diagnostic Ultrasound.

DEPARTMENT OF THERAPEUTIC RADIOLOGY

c/o The Ontario Cancer Foundation London Clinic, Victoria Hospital

Head of the Department:
T. A. Watson, MB, ChB New Zealand; DMR London; MD Saskatchewan; FACR, CRCP(C), FFR
PROFESSOR: Inch CLINICAL PROFESSOR: Watson ASSOCIATE PROFESSORS: Heagy, MacDonald CLINICAL ASSOCIATE PROFESSOR: Thomson CLINICAL ASSISTANT PROFESSORS: Banerjee, Fetterly LECTURER: Sutherland HONORARY LECTURERS: Barton, McCredie, Plunkett, Reese, Warwick, White CLINICAL LECTURER: Dawson INSTRUCTORS: Driedger, Gilchrist, Willan

Instruction for the most part is built around clinical material which is available through The Ontario Cancer Foundation's London Clinic at Victoria Hospital. Joint teaching sessions in conjunction with the clinical departments are arranged. Each Fourth Year student rotates through this Department for five half-days for instruction in radiation therapy, the medical uses of radioisotopes and general experience in cancer. A limited number of electives in radiotherapy, radiobiology, nuclear medicine and chemotherapy is available.

DEPARTMENT OF SURGERY

Professor and Head of the Department:
C. G. Drake, MD, MSc UWO; FRCS(C), MS Toronto; DSc Memorial, Newfoundland

Division of Cardiovascular and Thoracic Surgery

Clinical Professor and Chairman of the Division:
J. C. G. Coles, BA, MD, MSc UWO; FRCS(C)
PROFESSOR: Heimbecker CLINICAL PROFESSOR: Coles CLINICAL LECTURER: Gergely

Division of General Surgery

Professor and Chairman of the Division:
J. H. Duff, BA, MD Toronto; FRCS(C)
PROFESSORS: Carroll, Duff, A. D. McLachlin CLINICAL PROFESSOR: Johnston ASSOCIATE PROFESSOR: McCredie CLINICAL ASSOCIATE PROFESSOR: McLarty ASSISTANT PROFESSORS: Grace, Holliday, Passi CLINICAL ASSISTANT PROFESSORS: Jamieson, MacKenzie CLINICAL LECTURERS: Marshall, J. A. McLachlin, Meads, Walker INSTRUCTOR P.T.: Sweeney

Division of Neurosurgery

(See Department of Clinical Neurological Sciences)

Division of Orthopaedic Surgery

Clinical Professor and Chairman of the Division:
J. C. Kennedy, MD UWO; FRCS(C)
CLINICAL PROFESSOR: Kennedy CLINICAL ASSOCIATE PROFESSOR: Cameron ASSISTANT PROFESSORS: Brash, Repo CLINICAL LECTURERS: Bailey, Fowler, Grainger LECTURER P.T.: Ollerhead

Division of Plastic & Reconstructive Surgery

Clinical Professor and Chairman of the Division:
R. M. McFarlane, MD, MSc UWO; FRCS(C), FACS
CLINICAL PROFESSOR: McFarlane ASSISTANT PROFESSOR: Hurst CLINICAL LECTURERS: Colcleugh, Stavraky

Division of Urology

Professor and Chairman of the Division:
L. N. McAninch, MD UWO; FRCS(C), FACS
PROFESSOR: McAninch CLINICAL ASSOCIATE PROFESSOR: Wyatt ASSISTANT PROFESSOR: Sharpe CLINICAL ASSISTANT PROFESSORS: Reese, Sales CLINICAL LECTURERS: Busby, Hayman, Shepherd INSTRUCTOR: Downham

The course content and method of teaching have been changed extensively. Greater emphasis is placed on the principles of surgery and the contribution by the Basic Sciences. The anatomical and technical aspects play a much smaller role. Acquiring knowledge from clinical contact and discussion is encouraged. Few didactic lectures are given.

FIRST AND SECOND YEARS (New Curriculum)

The Department participates in the integrated courses of Clinical Methods and Clinical Science.

THIRD YEAR

Lectures. The principles of surgery and course content are presented.
46 hours.

Clinical Teaching. This is mainly accomplished by ward rounds, clinical demonstrations and seminars. The ability to take a good history and perform an adequate physical examination are regularly checked.
96 hours.

FOURTH YEAR

Clinical Clerkship. Each student works in general surgery and one Surgical specialty. Students are required to take the history, make physical examination, and write orders under supervision on patients assigned to them. Two-hour seminars are held each morning on topics covering the major fields in surgery.
140 hours.

Interdisciplinary and Clinical Pathological Conferences. These are presented weekly. There are no formal lectures.
38 hours.

FIRST AND SECOND YEARS INTEGRATED COURSES (New Curriculum)

Introduction to Medicine. This course will begin the week prior to the formal teaching of first year and will give the students an unequalled opportunity to hear about the health care system and those involved in it. They will spend the first day in health care facilities, another day with a physician discovering some of the roles that are required of health care personnel and another day discussing and exploring problems and issues in health care.

Clinical Methods. In the first of two years of instruction in the acquisition of clinical data employing interview techniques, history development and physical examination, there will be an evolution from the teaching of basic interviewing and examination skills to a clinical approach to patient presentations, using clinical data in problem definition. During the second year a systems review will be completed and clinical problem-solving stressed in tutorial sessions.

Medicine and Society. This course, which is interdepartmental in design and presentation, is given during the first two years of the medical curriculum. It comprises the following topics: the history of medical science, the health of society, the health care system, ethical values in medicine and medicine in relation to the law.

Integrative Biology. An interdisciplinary approach to human biology emphasizing problems in medicine. Illustrative topics will include intra and intercellular control systems, differentiation and embryogenesis, total body control, energy balance, aging, inborn errors of metabolism and selected aspects of basic and applied human genetics.

Clinical Sciences. This course is designed to present a wide spectrum of common clinical problems from an interdisciplinary viewpoint. Classroom discussions and small group clinical sessions will demonstrate logical methods of problem solving. This interdisciplinary course begins in First Year and continues through the first two Trimesters of Second Year.

Neuroscience and Mind. An interdisciplinary course involving mainly Neuroanatomy, Neurophysiology, Neuropharmacology, Neuropathology, Neurology, Neurosurgery and Psychiatry. Instruction takes the form of lectures, clinical demonstrations and laboratory work, the immediate objective being to enable students to use their core of basic and clinical knowledge in the clinical clerkship years.

Therapeutics

(A) Principles of Therapeutics. This Course deals with fundamental knowledge and skills necessary for the choice and evaluation of therapy. In addition to sessions dealing with core material, several sessions are devoted to Instructional Packages illustrating the application of the important principles of therapeutics in selected disorders.
24 hours.

(B) Therapeutic Integration. The Therapeutics Course Committee administers this Course, consisting of twelve hours assigned to this Course Committee, supplemented by time made available by the Introduction to Clinical Clerkship Committees, to give students experience in integrating and applying knowledge obtained in basic and systems courses by assigning specific Therapeutic Case Presentation Exercises.

Introduction to Clinical Clerkship. This Course will constitute the instructional package for the last twelve weeks of Second Year. The I.C.C. is planned as a multidisciplinary and

problem-solving approach to common diseases. The diseases will be taught in sub-groups belonging to different systems, which are as follows: Respiratory, Endocrine and Metabolism, Musculoskeletal, Haematopoietic, Genito-urinary, Immunology, Gastro-intestinal, Emotional Disorders, Growth and Development, Dermatology, Cardiovascular.

SPECIAL LECTURES

Legal Medicine. Special Lecturer: H. Krever.
A course of lectures to the students of the Third Year on law and its relation to the practice of medicine.
5 hours.

Medical Ethics. Special Lecturer: J. B. C. Robinson.
A series of nine lectures is given by Dr. J. B. C. Robinson on medical ethics and problems of practice to the Third Year.
9 hours.

Information and Computer Science. A series of four lectures introducing students to the field of Information and Computer Science will be given in the third year with the co-operation of the Department of Computer Science.

TIMETABLE 1974-1975 SESSION

FIRST YEAR

First Trimester	September 4 to November 29 (includes extra week at the beginning for "Introduction to Medicine" Course)
Second Trimester	December 2 to March 7
Third Trimester	March 10 to May 30

SECOND YEAR

First Trimester	September 9 to November 29
Second Trimester	December 2 to March 7
Third Trimester	March 10 to May 30

THIRD YEAR

First Quarter	September 9 to November 1
Second Quarter	November 4 to January 10
Third Quarter	January 13 to March 7
Fourth Quarter	March 10 to May 2

FOURTH YEAR

The Fourth Year will be a 48-week Clinical Clerkship, broken into five nine-week Terms as follows:

First Term	Monday, May 27th to Sunday, July 28th, inclusive:
Second Term	Monday, August 26th, to Sunday, October 27th, inclusive:

Third Term	Monday, October 28th, to Sunday, January 5th, inclusive:*
Fourth Term	Monday, January 6th, to Sunday, March 9th, inclusive:
Fifth Term	Monday, March 10th, to Sunday, May 11th, inclusive.

*This Term is ten weeks to allow one week's leave during the Christmas holiday period.

Four-week summer vacation period begins July 29th.

The students will rotate through the various Departments so that each student will be on the various Services for the length of time specified below:

SERVICE	NUMBER OF WEEKS
Anaesthesia	1
Family Medicine (including Preventive Medicine and Physical Medicine)	3 1/2
Medicine	9
Obstetrics and Gynaecology	4 1/2
Ophthalmology	1
Otolaryngology	1
Paediatrics	4 1/2
Psychiatry	3**
Diagnostic Radiology	1
Therapeutic Radiology	1/2
Surgery	7

The remaining twelve weeks will be utilized as follows:

Elective	8
Travel Time with Elective	1
Examinations and Study Time	2
Christmas Leave* (see note above)	1

*To be arranged by the Head of the Department concerned in each case.

**In order to comply with the regulations of The College of Physicians and Surgeons of Ontario, all students contemplating a Straight Interneship rather than a Rotating Interneship must arrange to take a fourth week of Psychiatry during Elective or vacation time.

Interdisciplinary Conferences will be held, jointly with Third Year, at 0800 hours, Thursday morning, at Victoria Hospital, weekly beginning Thursday, January 16th. Clinical Pathological Conferences will be held at the various hospitals, students being expected to attend at the hospital where they are working at the time.

All students will be provided with detailed schedules and instructions for each Term before the beginning of the Session.

PROGRAM IN COMMUNICATIVE DISORDERS

Room 8400, Social Science Centre

Director:

J. L. Stouffer, BSc Buffalo State; MSc, PhD Pennsylvania State

ASSOCIATE PROFESSOR: Stouffer

ASSISTANT PROFESSORS: Booth, Tuomi, Winkelaar, Yovetich HONORARY LECTURERS: Rounthwaite, Kertesz. CLINICAL LECTURERS: Billger, Craig, Mateer.

GENERAL INFORMATION

Communicative Disorders is a four-year course of study. The first year of study is in a general university program, and students are not eligible to apply to Communicative Disorders until their first year of university training is completed. The aim of the program is to provide students with an education in the sciences and social sciences and simultaneously prepare students for a career in Audiology and Speech Pathology. The Program in Communicative Disorders is designed to develop a broad theoretical background in Audiology and Speech Pathology and to provide students with practical experience in Audiology and Speech Pathology. Graduates of the program receive a Bachelor of Science degree in Communicative Disorders, BSc(CD), and are encouraged to obtain a Master's degree to further develop their therapeutic, remedial and research skills.

ADMISSION REQUIREMENTS FOR COMMUNICATIVE DISORDERS (SECOND YEAR OF UNIVERSITY)

In the first year of university studies, Psychology 020 or 022 is required, and several science courses are recommended. The first university year can be completed at any accredited university and in addition to Psychology 020 or 022, it is suggested that applicants include courses equivalent to the following courses offered at the University of Western Ontario: Biology 020 or 021, Physics 020 or 022, Mathematics 020 or 024 or 027 or Applied Mathematics 020. Other non-terminal courses may be accepted upon individual consideration. The suggested courses will provide students with a good background for the Program and will also prepare students for many alternate programs of study if they are not accepted into Communicative Disorders.

NOTE: SOME OF THE SUGGESTED FIRST YEAR SCIENCE COURSES WILL NOT PREPARE STUDENTS FOR CERTAIN PROGRAMS OF STUDY. THUS, PROSPECTIVE STUDENTS SHOULD SELECT THEIR FIRST YEAR COURSES UNDER THE GUIDANCE OF THE DEPARTMENT IN WHICH THE ALTERNATE COURSE OF STUDY WILL BE PURSUED.

Admission Requirements to Communicative Disorders will be based on:

(a) First year achievement - Minimum "C" standing

(b) Achievement in Psychology 020 or 022 - Minimum of "C" standing.

Enrollment in the Program in Communicative Disorders is limited and admission to the first professional year (second year university) is by selection. In the past, the first year academic average of students admitted to the program has been in excess of 70%; interested students are advised to obtain the best grades possible. Application forms are available from the Director of Admissions. Final date for

application to First Year university studies: July 1. Final date for application to the Program in Communicative Disorders: May 15.

Prospective students are advised to schedule an interview with a member of the faculty by calling 519-679-6465.

FEES AND OTHER EXPENSES

Refer to the General Information section of this Calendar.

COURSES OF STUDY

SECOND YEAR

Introductory Audiology 216Y
Phonetics 223B
Survey of Speech Disorders 238
Anatomy 20A
Anatomy 202A
Anatomy 278B
Psychology 241
Physics 34
Physiology 020

THIRD YEAR

Hearing Aids 321B
Hearing Measurement 324
Remedial Principles 327
Aural Rehabilitation 330A/B
Diagnostic Methods in Speech Disorders 382
Psychology 342
ONE OF:
- Psychology 211
- Psychology 221a and 224b
- Psychology 261

Practicum 300

FOURTH YEAR

Stuttering 428A
The Auditory System 492
Speech Pathology 494
Speech Science 497A
Psychology 201A
Psychology 204B
ONE OPTION (free)
Two Electives (MUST BE CHOSEN FROM THE FOLLOWING):
- Special Topics in Communicative Disorders 484A
- Psychoacoustics 491Y
- Noise and Man 488B
- Research in Speech Pathology 496B

Practicum 400

STANDARDS OF ACHIEVEMENT

Students in Communicative Disorders automatically qualify for advancement to each subsequent year by obtaining a grade average of at least 70% and a passing grade in every course.

Students who obtain an 80% or better grade average in any year will pass that year with honors. Students who pass each year of the Program with honors will graduate cum laude.

Students who fail to qualify for automatic advancement but who have a grade average of at least 60% and a passing grade in every course may be permitted to progress at the discretion of the Program.

A professor, at his discretion, may allow a student to take one supplemental examination in professional courses in each academic year.

A student will fail a complete year if his average in all courses falls below 60%, or if he fails one or more professional courses. A student who has failed a year may be given permission, under special circumstances, to repeat that year. When a student is allowed to repeat a year, he must pass that year without condition in order to continue in the Program.

LICENSING

In Canada at the present time, only the Provinces of Manitoba and Quebec require that Audiologists and Speech Pathologists be licensed.

Regulations regarding eligibility for practice in Canada, Britain, the United States or other countries may be obtained by writing to the following:

The Canadian Speech and Hearing Association
48 San Paulo Drive
Hamilton, Ontario

The American Speech and Hearing Association
9030 Old Georgetown Road
Washington, D.C. 20014

Secretary
The College of Speech Therapists
47 St. John's Wood High Street
London, N.W.8
England

International Association of Logopedics and Phoniatrics
Svejagervij 52, Hellerup
Copenhagen, Denmark

DESCRIPTION OF COURSES

200. OBSERVATION.

216y. Introductory Audiology. Basic considerations of hearing impairment. Discussion of causes, types and measurement of hearing loss.
3 lecture hours, 2 laboratory hours, half course.

223b. Phonetics. Concepts and principles of phonetic transcription. Application of the International Phonetic Alphabet to the description of normal and atypical speech.
2 lecture hours, 2 laboratory hours, half course.

238. Survey of Speech Disorders. Development of speech and language. Introduction to the etiology, symptomatology, and nature of normal and defective speech and language development.
3 lecture hours.

321b. Hearing Aids. Study of the physical components and electroacoustic characteristics of hearing aids and amplifying systems. Factors in hearing aid selection and evaluation and the role of amplification in the total rehabilitative process. Professional relations, parental counselling and discussion of hearing aid orientation programs. Clinical experience in hearing aid selection and counselling.
3 lecture hours, half course.

324. Hearing Measurement. Advanced puretone and speech audiometry, psychophysics of audition related to clinical problems special tests and exploratory techniques for assessing the usefulness of residual hearing.
3 lecture hours.

327. Remedial Principles. Introduction of the scientific method as it relates to speech pathology and principal methods used in the rehabilitation of individuals manifesting disorders of articulation, voice and language.
3 lecture hours.

330a/b. Aural Rehabilitation. Historical and present day approaches to aural rehabilitation of the hearing handicapped. Topics include parental counselling, preschool and school age speech reading and auditory training programs and assessment procedures. Provides clinical experience in speech reading and auditory training. Antirequisite: Only one of 330a or b may be taken for credit.
3 lecture hours, half courses.

382. Diagnostic Methods in Speech Disorders. Clinical instrumentation; case history taking; examination procedures and materials used in diagnosing speech disorders; interpretation of findings; interviewing and counselling procedures; report preparation.
3 lecture hours.

Practicum 300

428a. Stuttering. Research and theory of stuttering behaviour, causes, developmental factors, and remedial procedures.
Students will be required to participate in the therapeutic process.
3 lecture hours, 2 laboratory hours, half course.

492. The Auditory System. Lectures and discussions on normal and pathological hearing processes. Topics include current issues and research in auditory theory.
3 lecture hours.

494. Speech Pathology. Theoretical and therapeutic concepts of the more commonly occurring special disorders within the categories of articulation, language, voice and fluency. These disorders include aphasia, cleft palate, cerebral palsy, hard of hearing, spastic dysphonia, and organically based dysfluencies.
3 lecture hours.

497a. Speech Science. Physiologic, acoustic and perceptual characteristics of speech. Principles and methods for the laboratory study of speech.
2 lecture hours, 2 laboratory hours.

Two Electives (must be chosen from the following):
half course.

484a. Special Topics in Communicative Disorders. Theory, therapy and related procedures used in the rehabilitation of specific disorders which have speech deviancy as one of their manifestations. These disorders include, twinning language, mental retardation, emotional disturbance, dialectical differences, etc.
3 lecture hours, half course.

496b. Research in Speech Pathology. Critical study of current literature and research in Speech Pathology. Basic concepts in clinical research.
3 lecture hours, half course.

488b. Noise and Man. Environmental noise; its characteristics, effects on hearing and its control; associated topics.
2 lecture hours, 2 laboratory hours, half course.

491y. Psychoacoustics. Lectures and discussion on the psychological correlates of the physical parameters of sound.
2 lecture hours, 2 laboratory hours, half course.

Practicum 400

Practicum. During May and June following the third and fourth years, students in Communicative Disorders will be required to participate in practicum at various clinics. Students will observe and participate in diagnostic, therapeutic, counselling, etc. procedures under the supervision of the therapist in charge.

PROGRAM IN OCCUPATIONAL THERAPY

Health Science Centre, The University of Western Ontario, London

Director:
Margaret F. Trider, O.T.Reg
ASSOCIATE PROFESSOR: Trider ASSISTANT PROFESSORS: Ernest, Mack, Parker, Posthuma, Shimeld LECTURER: Verma INSTRUCTORS: Allison, Kydd, O'Brien, Sommerfreund, Stevenson, Woolcock SPECIAL LECTURERS: Abrams, Finlay, Huston, McCordic, Tate HONORARY LECTURERS: Bolton, Cameron, Clattenburg, Dubois, Harth, Hooker, Riese.

The objective of the four-year undergraduate Program in Occupational Therapy is to offer students a general education through the study of appropriate biological, medical and behavioral sciences, in conjunction with professional courses, in preparation for the practice of occupational therapy. The curriculum is designed to prepare future practitioners to provide a service directed towards the prevention, reduction or elimination of incapacity resulting from physical, psychosocial or environmental stress. The course of study leads to the degree of Bachelor of Science in Occupational Therapy (BSc (OT).

ADMISSION REQUIREMENTS: UNDERGRADUATE PROGRAM

FIRST YEAR

Enrollment in Occupational Therapy is limited. The candidate is advised to have an alternate plan should he not gain entry into the Program. Applications for the Program should be submitted to the Director of Admissions by March 31.

A full Ontario Grade XIII program, or its equivalent, as described in the 1973-74 General Information Booklet, plus satisfactory completion of the tests of the Service for Admission to College and University (SACU) administered through the

Ontario high schools, OR the tests of the College Entrance Examination Board (CEEB). A minimum acceptable Grade XIII average is not specified since enrollment in this program is limited. Applicants will be considered by the Admissions Committee on the basis of individual merit and in competition with other applicants to the Program. Preference will be given to Canadian Citizens and Landed Immigrants.

Candidates are advised to include Biology in their Grade XIII courses.

An interview is given by members of the Faculty of the Program to ensure that applicants have full knowledge of the Program and of his chosen profession, and is personally suited for the practice of occupational therapy.

The final choice made by the Admissions Committee of the Program is dependent upon the academic record of the student, plus his personal suitability. The Admissions Committee reserves the right to reject candidates who have obtained the published minimum requirements.

ADMISSION REQUIREMENTS: POST-DIPLOMA PROGRAM

Candidates holding a Diploma from a school of Occupational Therapy accredited by the World Federation of Occupational Therapists and recognized as the equivalent of the Canadian Schools of Occupational Therapy, and who hold Canadian citizenship or Landed Immigrant status, may apply for admission to the Post-Diploma Program which consists of 10 credits, and leads to the baccalaureate degree. This Program is four semesters in length and may include summer sessions.

Applications for the Program should be submitted to the Director of Admissions by March 31.

FEES

Each Year:

Payable at registration	$623.50
Laboratory fee	$45.00

If paid in two instalments -

Registration Day (including Laboratory fee)	$410.00
First Day of Second Term	$263.50

NOTE: The Board of Governors reserves the right to amend the above mentioned fee structure after the printing of this announcement.

ADDITIONAL EXPENSES

Books, instruments, travel, stationery, uniforms, approximately $150.00.

COURSES OF STUDY

FIRST YEAR

Sociology 020
Psychology 020
Anatomy 020a
Anatomy 023
Physiology 020
Occupational Therapy 020a
Occupational Therapy 080b

MEDICINE

SECOND YEAR

Psychology 241
Sociology 140
Anthropology 020
Psychology 251
Anatomy 278b
Occupational Therapy 221
Occupational Therapy 223

THIRD YEAR

Paediatrics 360y
Pathology 240a
Occupational Therapy 331
Occupational Therapy 240a
Occupational Therapy 341
Occupational Therapy 343
Occupational Therapy 345
Occupational Therapy 361
Occupational Therapy 370
Occupational Therapy 353 (Field Placement during summer months)

FOURTH YEAR

Psychology 262a
Psychology 263b
Occupational Therapy 410
Occupational Therapy 413
Occupational Therapy 415
Occupational Therapy 422
Occupational Therapy 454
Occupational Therapy 471
Occupational Therapy 480
Occupational Therapy 490
Selective: One of
Psychology 351
Psychology 342
Anatomy 414
Physiology 020
Sociology 234
Anthropology 020
Engineering 290
Mathematics 137a and 138b

REQUIREMENTS FOR STANDING

ATTENDANCE

80% attendance at lectures and laboratories is required. 100% attendance is required for field placements. Students may be denied the right to write examinations because of unsatisfactory attendance at lectures or laboratories, or unsatisfactory work.

EXAMINATIONS

(a) Each examination subject is weighted according to its value and number of lecture-laboratory hours.

(b) Tests, assignments and practical work will account for a certain percent of the total mark, the remainder being accounted for by the final examination in the Spring.

(c) Grades:

80 - 100% A
70 - 79% B
60 - 69% C
50 - 59% D
40 - 49% E
0 - 39% F

A, B, C and D are passing grades.

(d) One supplemental examination is permitted in professional courses in each academic year.

(e) Examinations may be of an oral, written, practical, subjective or objective nature. The fourth year final examinations in the professional subjects are comprehensive examinations, and are designed to cover the whole four years work, and to determine whether the student has sufficient general knowledge to become a competent occupational therapist. These examinations may be written or oral, or both, and are additional to the course examinations.

(f) The student is advised that a failed paper has been read at least twice. Note statement on "Appeal" in the General Information Booklet.

ADVANCEMENT

ADVANCEMENT TO SECOND YEAR

A student qualifies for admission automatically if, for the previous year he has obtained a grade of at least 70% in each required course, and an overall grade average of at least 60%, with a passing grade in any subsidiary course. A student who fails to qualify for automatic admission but has a grade of at least 60% in each required course, and an overall grade average of at least 60%, and a passing grade in any subsidiary course, may be permitted to advance at the discretion of the Program.

ADVANCEMENT TO SUBSEQUENT YEARS

A student qualifies for admission automatically to each subsequent year, if he has obtained a grade average of at least 70% and a passing grade in every course. A student who fails to qualify for automatic admission but who has a grade average of at least 60% and a passing grade in every course may be permitted to progress at the discretion of the Program.

(One supplemental examination is permitted in professional courses in each academic year.)

A student who obtains an average grade of 80% or better in a years work is considered to have passed that year with honors. A student who passes with honors in each year in the Program in Occupational Therapy will be graduated cum laude.

A student will be considered to have failed to complete a years work if:

(1) His general average (in all courses of that year) falls below 60%, or

(2) He has failed in more than one professional course.

A student may be given permission by the Program in Occupational Therapy to write a supplemental examination in a professional course. (Note that supplemental examinations are not offered by the Faculties of Arts, Science, or Social Science.)

GRADUATE INFORMATION

The governing and registering body is the Canadian Association of Occupational Therapists. Applicants for registration must have successfully completed a University program in Occupational Therapy.

Registration permits the therapist to practice in Britain, the United States, or other countries and information may be obtained by writing to the following:

Canadian Association of Occupational Therapists
Suite M19, 4 New Street
Toronto 189, Ontario

The American Occupational Therapy Association
251 Park Avenue South
New York, New York 10010, U. S. A.

The Association of Occupational Therapists
251 Brompton Road
London S.W.3, England

The World Federation of Occupational Therapists
29 Sherbrooke Avenue
Glasgow S.1, Scotland.

DESCRIPTION OF PROFESSIONAL COURSES

FIRST YEAR

020a (Former 100a). Introduction to the philosophy and history of Occupational Therapy; orientation to the Health Sciences and Behavioral Sciences; survey of systems of delivering health care.
3 lecture/demonstration hours, full course.

080b (Former 180b). Research design and elementary statistics. An introduction to empirical methods in Occupational Therapy including normal distribution, frequency distribution, probability testing and experimental design.
Antirequisites: See Statistics pages in Academic Programs and Policy section of calendar.
3 lecture hours, full course.

SECOND YEAR

221. An introduction to clinical kinesiology utilizing the essentials of gross anatomy, and the principles of biomechanics and neurophysiology as

they apply to an integrated study of motor function under normal and pathological conditions. Techniques preparatory to the assessment of physical disability and the kinetic analysis of activities are explored.
2 lecture hours, 2 laboratory hours.

223. The theory and practice of occupational therapy emphasizing techniques of kinetic analysis of activity including kinesiological and electromyographic approaches. Introductory topics relating to industrial euthenics, tool and workplace design, lifting theory, etc., are discussed. Included also are the principles of construction and design as related to adaptive equipment for the disabled.
2 lecture hours, 2 laboratory hours.

THIRD YEAR

Paediatrics 360y (Former y). An introduction to Child Health.
1 lecture hour, half course.

Pathology 240a (Former b). A brief description of general pathological processes enabling the student to comprehend the pathology of disease.
1 lecture hour, half course.

345 (Former 198). Medical and Surgical Lectures. Lectures and demonstrations emphasizing the aetiology, symptomatology and treatment of diseases, emphasizing those of particular interest to the occupational therapist.
3 lecture/demonstration hours.

331. Introduction to the analysis of occupational roles and occupational behavior.
2 lecture hour, 2 laboratory hour.

240a (Former 340a). Special clinical procedures, tests and measurements, first aid, disaster planning.
3 lecture/demonstration hours, half course.

341. Introduction to principles of orthotics and prosthetics; to include study of materials, and the design and fabrication of orthotic devices, as well as a study of prosthesis, and training procedures.
2 lecture/demonstration hours.

343. Theory and practice of Occupational Therapy related to the evaluation and management of medical, surgical (including orthopaedic), neurosurgical and neurological conditions; specific assessment and management techniques.
Corequisite: OT345.
1 lecture hour, 2 laboratory hours.

353. Field Work.

Occupational Therapy 361. Advanced Child Health. The theory and practice of occupational therapy as applied to child health. Study of normal growth and development precedes consideration of childhood disorders, both congenital and acquired.
Corequisite: Paediatrics 360y.
1 lecture hour, 2 laboratory hours.

370. Introductory Mental Health. An introduction to the theory of object relations, including the application to an understanding of normal behavior, and to clinical syndromes. Students will be exposed to the use of projective techniques and to the psychological analysis of activity, in First Term. Second Term will include an introduction to the practice of dynamically oriented occupational therapy in the mental health field with emphasis on techniques and procedures utilized in the treatment of emotional dysfunction, including group processes.
1 lecture, 2 laboratory hours.

FOURTH YEAR

410. Case Method. Special studies of selected topics, including gerontology, mental retardation, preventive occupational therapy. Emphasis will be placed on the community setting. Includes field placement.
1 lecture hour, 4 laboratory/demonstration hours.

413. Advanced theory and practice. Analysis of occupational behavior.

Current trends in Occupational Therapy practice. Includes field placement.
1 lecture hour, 2 laboratory/demonstration hours.

415. Administration. Studies of selected topics including Program planning, Administration, Ethics and Jurisprudence, and Techniques of providing consultation.
3 seminar hours.

454. Field work.
5 hours.

471. Selected Topics in Mental Health. Consideration of current theoretical frames of reference in Occupational Therapy in the mental health field. Specific therapeutic techniques as applied to various theoretical positions.
3 seminar hours.

490. Thesis. A comprehensive report or study done by the student on some aspect of Occupational Therapy. The subject must be approved by the Program. One hour per week will be assigned for preparation, at which time faculty members will be available for consultation.
1 hour.

NOTE: The above outline of courses is subject to change.

POST-DIPLOMA PROGRAM

The course of study shall be determined by the Director, who shall appoint one advisor for each candidate. Successful completion of this Program leads to the degree of Bachelor of Science in Occupational Therapy BSc(O.T.).

Sociology 231

Psychology 271

Occupational Therapy 480 (1 1/2 courses)

Occupational Therapy 490

Five full course electives from:

Anatomy 414

Anatomy 278b

Occupational Therapy 422 (1 1/2 courses)

Philosophy 144

Engineering Science 290

1 senior Anthropology

1 senior Psychology

1 senior Sociology

1 Elective

422. Advanced Topics in Kinesiology. Seminar with emphasis placed on implications for clinical practice in occupational therapy.
One and a half courses (weight).

480. Supervised Research. Special studies in depth on selected topics of inquiry in an applied bioscience, behavioral science or clinical field related to occupational therapy.
One and a half courses (weight).

490. Thesis. Incorporating the results of an investigation in an appropriate field, as approved by the candidate's advisor.

PROGRAM IN PHYSICAL THERAPY

Room B-RE 28, University Hospital, London, Ontario, N6G 2K3

Director:
S. Morgan, Teacher's Diploma in Physiotherapy; BA (U.W.O.)
ASSOCIATE PROFESSOR: Morgan ASSISTANT PROFESSORS: Edwardson, Grantham; INSTRUCTOR: Lord LECTURER: Holness CLINICAL ASSISTANT PROFESSORS: Cameron, Gilroy, MacRae, Read, Thiruchelvam, Valentine CLINICAL LECTURER: Scott

PHYSICAL THERAPY PROGRAM

INTRODUCTION

A Bachelor of Science in Physical Therapy (BSc (P.T.) is offered upon successful bcompletion of a First Year General Program and three years of specialised studies in physical therapy. The program is designed to include courses in the Social, Natural and Health Sciences which will provide a basis for and supplement the physical therapy subjects. It recognizes that the needs of the individual and the community are interwoven. Therefore, it endeavors to provide the opportunity for each student to develop physical therapeutic skill and knowledge according to his needs and desires, yet to also provide physical therapists trained to meet the needs of the community.

CAREER OPPORTUNITIES

Graduates who have satisfactorily completed the required clinical experience are eligible for membership in the professional association and for provincial licensing. Practice is possible in almost all facilities which provide patient care; many diverse areas of specialisation are developing.

Regulations regarding work in Britain, the United States of America, or other countries may be obtained by writing to one of the following addresses:

The Canadian Physiotherapy Association
25 Imperial Street
Toronto, Ontario, M5P 1B9

The Chartered Society of Physiotherapy
14 Bedford Row
London W.C. 1, England

The American Physical Therapy Association
1156 15th St., N.W.
Washington, D.C. 20005

The World Confederation of Physical Therapy
Secretary General
Brigray House
20/22 Mortimer St.
London W.1, England

MEDICINE

EXPENSES

a) Fees

Payable at registration annually $630.50

If paid in two instalments—

Registration Day $367.00

First Day of Second Term $268.50

The fee includes Student Activity and Health Insurance fees totalling $54.

A $50 non-refundable tuition deposit is required of all freshmen students.

b) Other expenses over 3 years: Texts, uniforms, travel, instruments—$700.

c) Interning

Financial support may not be provided during summer internship periods.

ADMISSION

a) Admission Requirements:

Completion of First Year university studies, which must include full courses in the following:

1 in Psychology, Sociology, or Anthropology

2 laboratory, non-terminal courses in 2 of Chemistry, Physics or Biology

2 electives

It is suggested that the candidate choose subjects in his final year in secondary school which will best prepare him for this first university year. He should choose his electives in the First Year so that he assures himself of eligibility for alternative programs.

b) Basis for Admission:

(a) First year achievement - Minimum: overall "C" standing.

(b) achievement in required courses - Minimum: overall "C" standing.

(c) counselling: Before applying, prospective candidates are asked to consult the Program Director concerning personal suitability requirements.

Candidates are advised that enrolment in the program is limited, and that minimum achievement will not necessarily be adequate for admission.

Application forms are available from the Director of Admissions.

Final date for application to First Year university studies: August 1, 1974.

Final date for application to Physical Therapy Program: April 30, 1974.

c) Admission with Advanced Standing:

Applicants eligible for membership in the Canadian Physiotherapy Association may be granted advanced standing. Summer Session courses in the Program are available to acceptable applicants with advanced standing.

Applications for admission with advanced standing for the Winter Session must be submitted to the Director of Admissions by April 30, 1974.

Applications for admission with advanced standing for the 1974 Summer Session must be submitted to the Director of Admissions by December 15, 1973.

PROGRAM OF STUDY

SECOND YEAR

Anatomy 020a
Anatomy 201
Anatomy 278b
Pathology 240a
Physiology 020
Physical Therapy 210
Physical Therapy 220
Physical Therapy 230
Occupational Therapy 240a
Elective (recommended)
Clinical Physical Therapy 270b
Practicum 280
Approximate hours 30 per week

THIRD YEAR

Physical Therapy 390
Physical Therapy 300
Physical Therapy 310y
Physical Therapy 320
Physical Therapy 330
Physical Therapy 340y
Elective (recommended)
Clinical Physical Therapy 370
Practicum 380
Approximate hours: 35 per week

FOURTH YEAR

Physical Therapy 410a
Physical Therapy 420b
Physical Therapy 440
Physical Therapy Project 491y
Physiology 442a
Physiology 443b
Elective: (required)
Elective: (recommended)
Clinical Physical Therapy 470
Approximate hours: 30 per week.

NOTE: Above outline of courses is subject to change.

ACADEMIC REGULATIONS

Progression in the Program will be based on each year's achievement, the minimum for which is:

an overall course average of "C", "C" in each of principal courses (physical therapy subjects), and satisfactory clinical performance; 80% attendance at lecture and

laboratory courses as prescribed for the different years, such attendance to be attested by the Program Director before admission to examinations; 100% attendance in Hospital placements; examination privileges may be cancelled for failure to meet any of the above requirements.

Tests, assignments and practical work, as well as performance in final examinations will constitute final mark in each course.

EXAMINATIONS

Examinations may be oral, subjective, objective, or practical. The Fourth Year examinations in the professional subjects are designed to cover the whole three years' work, and to determine whether the student has sufficient knowledge and skill to become an effective Physical Therapist.

SUPPLEMENTAL EXAMINATIONS

The privilege of a supplemental examination in a course in Physical Therapy may be extended to a student who obtains an overall average of at least 60% when failed subject is excluded from average.

Privilege of deferred or special examination may be granted by the Program Director for illness or other reasons.

FAILED YEAR

Failure to obtain "C" standing average

Failure to obtain "C" standing in a principal course, or "D" standing in a required course

Failure in more than one elective

Unsatisfactory clinical performance.

COURSES (Physical Therapy only - for others see specific Departments)

SECOND YEAR

Pathology 240a. Pathology of Disease. Offered by the Department of Pathology; an introduction to disease processes, with emphasis on inflammation.
1 1/2 hours per week; lecture-slide demonstration, half course, first term.

210. Physical Therapy: Introductory Therapeutic Exercise. A study of the development and control of normal and abnormal movement, and of the rationale and application of therapeutic exercise.
4 hours per week; lecture-laboratory, full course.

220. Physical Therapy: Assessment of Movement. An introduction to the structural and functional units concerned with movement; methods of evaluating and recording normal muscle action and joint movement, in preparation for assessment of disability.
4 hours per week; lecture-laboratory, full course.

230. Physical Therapy: Patient Management. A course designed to give the student the opportunity to gain skill in the application of basic rehabilitation and patient care procedures, and massage.
4 hours per week; lecture-laboratory, full course.

270b. Clinical Physical Therapy I: 3 hours a week in second term. No weight.

280. Practicum I: 3weeks at end of second term. No weight.

THIRD YEAR

300. Physical Therapy: Electrotherapy. A study of the production, effects and uses of electrical energy. Demonstration and practice in the application of various forms of electrical energy, heat and cold.
4 hours per week; lecture-laboratory, full course.

310y. Physical Therapy: Advanced Therapeutic Exercise. Analysis and application of advanced techniques of therapeutic exercise.
2 hours per week; laboratory, half course.

320. Physical Therapy: Physical Therapy in Orthopaedics. A study of orthopaedic conditions, with emphasis on assessment and treatment approaches.
5 hours per week; lecture-laboratory, full course.

330. Physical Therapy: Physical Therapy in Neurology. A study of neurological conditions, with emphasis on assessment and treatment approaches.
4 hours per week; lecture-laboratory, full course.

340y. Physical Therapy: Physical Therapy in Cardiovascular and Pulmonary Affections. A study of cardiovascular, pulmonary and other conditions, and treatment approaches.
2 1/2 hours per week; lecture-laboratory, seminar, half course.

370. Clinical Physical Therapy II: 5 half days a week. No weight.

380. Practicum II: Two months' summer internship. No weight.

390. Medicine and Surgery: Offered by the Faculty of Medicine. Core courses and special lectures on the medical and surgical aspects of conditions referred to physical therapy.
3 hours per week; lecture, full course.
Prerequisite: Pathology 240a.

FOURTH YEAR

410a. Physical Therapy: Rehabilitation. A seminar approach to a study of roles of personnel in the health field, and problems relating to community health and rehabilitation.
2 hours per week; seminar, half course, first term.

420b. Physical Therapy: Administration. Introduction to departmental administration and planning, and the responsibilities of the graduate physical therapist.
2 hours per week; lecture-seminar, half course, second term.

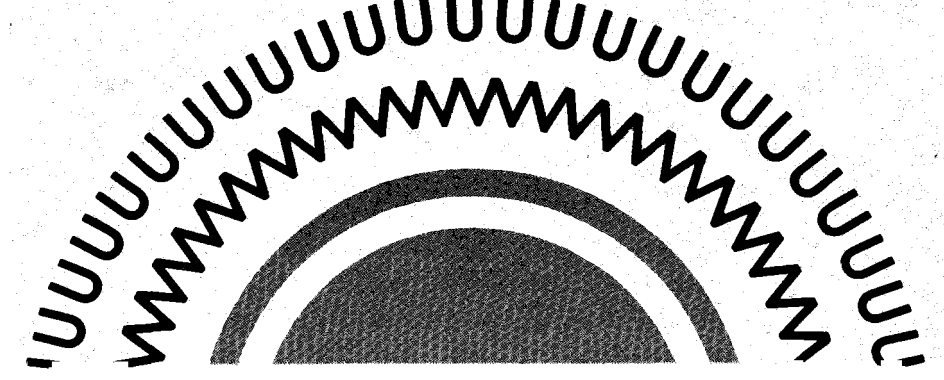
440. Physical Therapy: Advanced Clinical Studies. Advanced techniques and approaches; discussion of problems relating to clinical physical therapy; introduction to clinical studies and research.
4 hours per week; lecture-laboratory, seminar, full course.

491y. Physical Therapy: project. A study or project in an area related to Physical Therapy.
2 hours per week; tutorial, half course.

470. Clinical Physical Therapy III: 5 half days a week. No weight.
NOTE: a)Program and course content are subject to change.

b) Clinical Physical Therapy and Practicum total 1200 hours, and provide supervised clinical experience in a variety of treatment areas:- Canadian Arthritis Society, Children's Psychiatric Research Institute, Crippled Children's Treatment Centre, Parkwood Hospital, St. Joseph's Hospital, St. Mary's Hospital, University Hospital, Victoria Hospital, Westminster Hospital, etc..

Faculty of Nursing



Officers of Administration	Location	Phone
Dean		
M. Josephine Flaherty, RegN; BScN, BA, MA, PhD, Toronto	107	679-3876
Health Sciences Librarian		
M. Anne Seheult, BA; BLS	193HC	679-3912
Administrative Assistant		
G. W. Graham	109	679-3885
Coordinator Graduate Programs		
Amy E. Griffin, RegN; BA Toronto; MSc Wayne State; EdD Columbia	110	679-3874
Coordinator Basic Nursing Degree Program		
Jean Forrest, RegN; BN McGill; BA Laurentian; MS Boston	209	679-3869
Coordinator Program for Registered Nurses		
Caroline Dauk, RegN; BN McGill; MA Columbia	208	679-3875

Faculty of Nursing

PROFESSORS: Aikin, Flaherty, Griffin, Hibbert, Wood ASSOCIATE PROFESSORS: Brown, Forrest, Horn, Mantle ASSISTANT PROFESSORS: Brown, Creeggan, Dauk, Fraleigh, Gerhard, Given, Gow, Roberts, Shea, Wynne LECTURERS: Anonsen, Bramwell, Jasinski, Laman, Lenhardt, Melchior, Pfisterer INSTRUCTORS: Kelly, MacMaster, Rosen, Titherington, Wilson

ACADEMIC CALENDAR

1974

September 9	Classes start for Years 2, 3, and 4, Basic Nursing Program
September 11	Classes start for Year 2, Registered Nurse Program
September 16	Classes start for all other B.Sc.N. Students
December 13	Classes end for all B.Sc.N. students except Year 2, Registered Nurse Program
December 14-21	Mid-Year Examinations
December 18	Classes end for Year 2, Registered Nurse Program

1975

January 6	Term 2 classes start
February 24 - March 1	Conference Week
April 11	Term 2 ends
April 14 - May 3	Examinations
April 21	Term 3 starts for Year 3 Basic Nursing Program Starting date of Term 3 for Years 1, 2, and 4, Basic Nursing Program to be determined by examination dates of courses involved

SIGNIFICANT EVENTS IN THE HISTORY OF THE FACULTY OF NURSING

1920 Public Health Nursing Program inaugurated.

Canadian Red Cross provided financial assistance for a three-year period.

Division of Studies for Graduate Nurses created within the Faculty of Public Health.

1924 Five-year Bachelor of Science in Nursing Program launched.

1925 Certificate Program in Teaching initiated.

1946 School of Nursing established as an autonomous unit within the Constituent University.

W. K. Kellogg Foundation provided financial assistance to strengthen programs.

1957 Diploma Program in Nursing Service Administration initiated.

1959 Master of Science in Nursing (administration) Program established.

W. K. Kellogg Foundation provided financial assistance over a six-year period.

1960 School of Nursing Building opened.

Kresge Foundation provided a generous grant.

1966 Diploma programs in public health nursing, teacher preparation and nursing service administration discontinued.

Five-year Bachelor of Science in Nursing Program replaced by a four-year Bachelor of Science in Nursing Program.

1967 Bachelor of Science in Nursing Program for Registered Nurses established.

1968 Master of Science in Nursing (education) Program established.

1969 School of Nursing designation replaced by Faculty of Nursing.

1970 50th Anniversary of Faculty of Nursing celebrated.

UNDERGRADUATE PROGRAMS OF THE FACULTY OF NURSING

Interpretation

Nursing is one of the health science disciplines whose central concern is the health of people. Nurses assist people to maintain health by intervening in situations which lead to illness and disability by giving care to the ill and injured in order to aid their return to wellness, and by promoting optimal health. To do this, the nurse must understand the needs and capacities of people. Nursing is carried out through the systematic application of problem-solving methods. Nurses work in collaboration with individuals and families and the other members of the health science team.

Programs

The Faculty of Nursing offers two undergraduate programs:

(a) a four-year program leading to the degree of Bachelor of Science in Nursing (B.Sc.N.). This program qualifies graduates to apply for registration with the College of Nurses of Ontario.

(b) a three-year program leading to the degree of Bachelor of Science in Nursing (B.Sc.N.) for registered nurses.

Basic Nursing Program

The purpose of the program is to prepare the nurse to assume professional responsibilities in nursing practice within hospital and health agencies.

The graduate, in fulfilling her professional role, will:

1. Demonstrate an understanding of values and attitudes affecting patterns of health and illness for herself and others.
2. Demonstrate skill in utilizing concepts and theories related to human needs.
3. Demonstrate knowledge and skill in interpersonal communication by
   (a) describing various theories of interpersonal communication
   (b) exhibiting flexibility in the utilization of theories
   (c) utilizing communication skills in both the patient and colleague relationships.
4. Demonstrate knowledge of the interdependent nature of biopsychosocial forces and the significance of this in the life cycle of the individual and the family.
5. Consider various courses of action in the delivery of health care.
6. Collaborate with others involved in the delivery of health care to the individual/family.

7. Use the nursing process in the care of individuals/families, that is,
   (a) assess needs
   (b) make the nursing diagnosis
   (c) plan nursing intervention
   (d) implement the plan
   (e) evaluate the outcomes.

Requirements for Registration to Practice Nursing*

The Council of the College of Nurses of Ontario shall register as a nurse any person who,

(a) has successfully completed the course of instruction at a school of nursing in Ontario.

(b) has passed the examinations for nurses as specified under Section 8 of the Nurses Act, 1961-62**.

(c) has paid the registration fee.

Notes:

*Nurses Act, 1961-62

Amended October 1972.

**Examinations - Section 8

(1) The Council shall conduct or cause to be conducted examinations for registration as a nurse and for registration as a nursing assistant at least once a year at such times and places as the Council deems necessary.

(2) Where an applicant for registration as a nurse or as a nursing assistant does not pass one or more of the examinations, she may rewrite such additional examinations and under such conditions as the Council directs.

Academic Admission Requirements

All enquiries and applications should be submitted to the office of the Registrar of this University.

Applicants with Ontario Grade 13 Standing

Students who meet the general admission requirements of this university must have completed:

Grade 12 Mathematics

6 Level Five credits - Grade 13

Grade 13 Chemistry - 60% average

Grade 13 Biology - 60% average

Applicants with High School Standing from other Canadian Provinces

Students from other provinces in Canada are eligible to apply for admission to this Faculty on the basis of senior matriculation if their academic records meet, in subject matter and standing obtained, both the requirements for admission to this Faculty and the requirements for admission to a recognized university in their own province.

Submission of Applications for Admission

Applications for admission to the Basic Nursing Program must be submitted to the Registrar, The University of Western Ontario, by May 1. Because of the large number of applicants, it is recommended that application be made early. The enrolment in this program is limited. Possession of published minimum requirements does not guarantee admission.

NURSING

Length of Academic Year

The academic year for the Basic Nursing Program conforms generally to that for the general university with the following exceptions:

Year 1 is followed by an additional term of four weeks

Year 2 is preceded by one week and followed by an additional four weeks

Year 3 is preceded by one week and followed by an additional five weeks

Year 4 is preceded by one week and followed by an additional four weeks.

These additional periods provide an opportunity for concentrated emphasis on nursing.

Program Requirements

The program is focused on nursing theory and the clinical practice of nursing. To achieve a synthesis, required and optional courses are available from the arts, sciences, and social sciences. Students are required to select an area of concentration other than nursing consisting of three elective courses. Electives are selected at the 020 or above level. Because of the requirements for clinical nursing theory and practice, students must complete all courses for each year before proceeding to the next year.

Year 1

Anatomy	020a
Anatomy	021b
Chemistry	025
Nursing	020
Psychology	020
Sociology	020

Year 2

Biochemistry	206b
Chemistry	133a
Nursing	230
Physiology	020
One elective from Sociology, Psychology or Anthropology	
Two additional electives	

Year 3

Nursing	335
Biology	306
Nursing	330
Nursing	340
Nursing	228
Pharmacology	306

Year 4

Community Medicine	465
Nursing	450
Nursing	460
Nursing	470a
Psychiatry	455
Two electives	

The above is the normal course load. In exceptional cases, additional courses may be taken with the permission of the Dean.

COURSE DESCRIPTIONS (Nursing only - For other courses see specific Department)

Community Medicine 465 (Former 206). Community Health - Epidemiology. Seminar discussion of control of health problems. Taught by the Faculty of Medicine.
Corequisite: N460.
2 hrs. lecture, Terms 1 and 2.

335 (Former 167). Medical Science. An introductory course including the study of general pathophysiological processes and the biopsychosocial basis of signs, symptoms, medical diagnosis and therapy for selected disease conditions.
Prerequisites: Anatomy 020a and 021b, Biochemistry 206b, Physiology 020
Corequisites: N330 and N340.
2 1/2 hrs. lecture, Term 1.

020. Introduction to Nursing. Introduces all aspects of the nursing process. Theories of need and development and theories of communication are considered. Nursing intervention is planned and carried out with one or more patients on several occasions. Study is made of nursing as a profession and of the role of nursing in health care.
80 hrs. lecture, 40 hrs. lab, 90 hrs. practicum, Terms 1 and 2, 105 hrs. practicum, Term 3.

230. Nursing and the Childbearing and Childrearing Family, Part One. A family-oriented approach to nursing throughout the maternity cycle and to the study of growth and development of children. Experience to develop skills in assessing, promoting, and protecting maternal, child, and family health is provided in hospital and community settings.
Prerequisite: N020
17 hrs. lecture preceding Term 1, 4 hrs. lecture and seminar, 1 hr. lab, 1/2 hr. tutorial, Terms 1 and 2. Practicum varies weekly, averages 4 hrs./wk., 48 hrs. practicum, Term 3.

330. Nursing and the Childbearing and Childrearing Family, Part Two. A family-oriented approach to nursing during the childrearing years. Focus is on the prevention and nursing intervention related to the illness crisis of the younger members. Experience is provided with selected children and families in hospital and community.
Prerequisite: N230
3 hrs. lecture, 10 hrs. lab, preceding Term 1, 2 hrs. lecture, 1 hr. lab, Terms 1 and 2, Practicum varies weekly, averages 3 hrs./wk..

340. Nursing of the Adult in Illness Crisis. Emphasis is the utilization of the nursing process in giving care to the adult client during illness. Selected clinical experiences are provided in hospitals and community. Term 3 provides the student with the opportunity to consider the leadership role in hospital nursing.
Prerequisite: N230
Corequisites: Medical Science 335 and N330
10 hrs. lecture, 10 hrs. lab, preceding Term 1, 2 hrs. lecture, 1 hr. lab, 10 hrs. practicum, Terms 1 and 2; 14 hrs. lecture, 160 hrs. practicum, Term 3.

450. Psychosocial Nursing. Nursing of the individual and his family with emotional health problems and nursing assessment of the family dynamics. Promotion of psychotherapeutic nursing with emphasis on group process and collaborative relationships with the health team. Nursing practice is developed in the nursing of selected individuals and families in hospital and community.
Prerequisite: N330 and N340
Corequisite: Psychopathology 455
30 hrs. lab, preceding Term 1, 1 hr. lab, 5 hrs. practicum, 3 hrs. seminar, Terms 1 and 2.

460. Community Nursing Theory and Synthesis. Nursing practice in complex family groups. Exploration of collaborative role with the medical group and other health workers in the community to facilitate nursing/health care and family participation in their own health care. Development of framework of theory for practice and assessment of nursing role with complex families.
Prerequisites: N330 and N340
Corequisite: Community Health 465
15 hrs. lab, preceding Term 1, 1 hr. lab, 3 hrs. practicum, 1 hr. seminar, 1 hr. tutorial, Terms 1 and 2, 30 hrs. practicum, Term 3.

470a. Professional Aspects of Nursing. Study is made of the beginning professional nurse and the role of nursing in health care.
2 hrs. lecture and seminar, Term 1; Half course.

Psychiatry 455 (Former 206). Psychopathology. A lecture course with demonstration clinics covering the clinical syndromes of psychiatry. Taught by the Faculty of Medicine.
Corequisite: N450
2 hrs. lecture, Terms 1 and 2.

228 (Former 28). Research and Statistics. Introduction to research methodology, evaluation, utilization; the contribution of research to the theory and practice of nursing; basic statistical concepts related to sampling, measures of central tendency, variability, probability, correlation and significance.
Prerequisite: N020
2 hr. lecture, 1 hr. lab, Terms 1 and 2.

Description of courses offered by other Faculties, such as Arts, Science, Social Science, are given in Academic Calendar of the University.

THE PROGRAM FOR REGISTERED NURSES

The purpose of the program is to prepare the nurse to assume professional responsibilities in nursing practice within hospitals and health agencies.

The nursing courses focus on six interfacing modules which are studied at different levels in each of the three years. Application of theory is made during concurrent practicums.

The graduate of the program will demonstrate the knowledge and ability to:

1. Use the problem-solving process in nursing practice, i.e.,
   - assess health status and needs through study of relevant data
   - initiate appropriate nursing intervention with participation by other health professionals as indicated
   - give care or provide guidance for that care, initially and over time
   - evaluate the effectiveness of the nursing care.
2. Establish and maintain helping relationships, i.e.,
   - enter into therapeutic interactions
   - participate in the planning of shared goals with an individual and family
   - collaborate with colleagues in the delivery of health-related services
   - function as a participant and as a beginning leader in the provision of health care to individuals, families and community groups.
3. Implement the learning-teaching process, i.e.,
   - provide learning experiences in relation to health needs of the individual and family
   - facilitate the learning of self and co-workers.

4. Assume responsibility for continuing professional development, i.e.,
   - strive toward the improvement of nursing through involvement in the profession and health-related services
   - interpret changing nursing roles and functions
   - take action to increase competence.
5. Participate as a consumer and as a professional in changes occurring in the health care system, i.e.,
   - analyze the interrelationships of multiple factors, external and internal, which determine the nature of a health care system
   - interpret the changes occurring in health care systems
   - take part in epidemiological and community projects.
6. Use scientific and nursing theory in the practice of nursing, i.e.,
   - function in situations where problem-solving requires a broad base of knowledge
   - work with individuals and families who, during any stage in their development cycle, require assistance in meeting health-related needs.

ADMISSION REQUIREMENTS

A. ACADEMIC

Applicants with Ontario Grade 13 Standing

Registered nurse applicants who meet the general admission requirements of this University must have completed Ontario Grade 13 Chemistry with a 60% standing.

Applicants with High School Standing from other Canadian Provinces

Students from other provinces in Canada are eligible to apply for admission to this Faculty on the basis of senior matriculation if their academic records meet, in subject matter and standing obtained, both the requirements for admission to this Faculty and the requirements for admission to a recognized university in their own province.

Mature Applicants

An applicant who is 21 years of age during the calendar year of his/her application and who does not hold the required Grade 13 or equivalent standing may be considered for admission as a mature applicant if he/she has obtained the equivalent of Ontario Grade 13 Chemistry with a 60% standing.

B. PROFESSIONAL

1. Registration as a nurse in good standing with the College of Nurses of Ontario. Conditional admission up to December 31 of year of admission may be granted to applicants who have applied to the College of Nurses of Ontario but whose registration is not completed at time of application.

   If registration has not been completed by December 31, continuation in the program shall be only with special permission of the Dean, Faculty of Nursing. Students are encouraged to be members of the Registered Nurses' Association of Ontario and to carry malpractice insurance.
2. Evidence of satisfactory nursing experience within the last five years.

INQUIRIES AND APPLICATIONS FOR ADMISSION

1. All correspondence should be addressed to Coordinator, B.Sc.N. Program for Registered Nurses.

2. Requests for application forms should be accompanied by high school transcript showing courses taken and marks obtained.
3. Application forms should be returned with available required documents and an accompanying letter should state action taken to have missing documents submitted.

NOTE: Applications should be submitted prior to July 1. Enrolment in this program is limited. Possession of published minimum requirements does not guarantee admission.

LENGTH OF ACADEMIC YEAR

Each of the three years of the program consists of two terms which correspond to those of the Faculties of Arts, Science and Social Science. The Faculty of Nursing reserves the right to require additional periods of time before or after the regular academic year in any year of the B.Sc.N. Program for Registered Nurses. Additional requirements for a given year will be as specified in the Academic Calendar of the Nursing Calendar.

PROGRAM REQUIREMENTS

Year 2

Chemistry	025
Nursing	221
Nursing	228
Three electives	

Year 3

Biochemistry	206b
Chemistry	133a
Nursing	321
Nursing	361
Physiology	020
Two electives	

Year 4

Biology	306
Nursing	471
Pharmacology	306
Three electives	

From the total of eight electives in the program, a minimum of five full courses or equivalent must be selected from those offered by the Faculties of Arts and Social Science and three of these five courses must be chosen from those offered by one of the following Social Science Departments: Anthropology, Psychology, Sociology.

NOTE:

1. In exceptional circumstances and only with special permission of the Dean, a student may take an additional course during the academic year.
2. While the program lends itself to part-time study, full-time study is recommended strongly. Part-time students and those who have withdrawn should note that,
   (a) ordinarily, students must complete each year of the program before proceeding to the next year

(b) the program must be completed within five years following registration in the first nursing course. A candidate who fails to complete requirements for the degree within the five-year period will be required to undertake additional courses. A similar regulation, subject to the collaborative decision of the Faculty of Nursing and the department(s) concerned, may apply to other courses in the program.

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221. Core Concepts. Designed to extend the nurse's understanding of interaction, learning-teaching, the theoretical basis for practice, and health care services. A workshop on the problem-solving process in nursing practice precedes the concurrent practicum in Term 2. Issues affecting the nursing profession are considered in a seminar series.
3 hrs. class, 1 hr. lab, Term 1; 2 hrs. class, 1 hr. lab or practicum, 1 hr. tutorial, Term 2.

321. Interaction-Learning.
Theoretical bases for functioning within a helping relationship will be explored. Group activity will be analyzed, considering the role of nurse as leader. Principles of learning combined with a systematic approach to instructional planning will be applied to development of an instructional unit for patient teaching. Issues affecting the nursing profession are considered in a seminar series.
Prerequisite: N221
Corequisite: N361
3 hrs. class, 1 hr. lab, Terms 1 and 2.

361. Community Nursing Practice. The theory and concurrent practicum are focused on family development. The role of the nurse in family health services is examined.
Prerequisite: N221
Corequisite: N321
2 hrs. class, 1 hr. practicum, 1 hr. tutorial, Terms 1 and 2.

471. Nursing Synthesis. Through concentrated clinical practice in an acute-care institutional setting and in a community setting, the student critically examines his/her practice of nursing in the light of increased professional and general knowledge gained in the program. Specific nursing authors' views about nursing are considered in a seminar series. Nursing roles are assessed.
Prerequisite: N321 and N361, Biochemistry 206b and Physiology 020
Corequisite: Pharmacology 306
3 hrs. class, 2 hrs. tutorial, 3 hrs. practicum, Terms 1 and 2.

228 (Former 28). Research and Statistics. Introduction to research methodology, evaluation and utilization; the contribution of research to the theory and practice of nursing; basic statistical concepts related to sampling, measures of central tendency, variability, probability, correlation and significance.
2 hrs. class, 1 hr. lab, Terms 1 and 2.

Description of courses offered by other Faculties such as Arts, Science, and Social Science, are given in the Academic Calendar of the University.

NURSING

GENERAL INFORMATION, UNDERGRADUATE PROGRAMS

1. Counselling. The Faculty of Nursing offers academic counselling to all interested candidates and students throughout the year. Early academic counselling is recommended strongly.

2. Proficiency in English. Lectures, seminars and examinations are conducted in English and it is essential that all students have an adequate knowledge of written and spoken English. An applicant whose mother tongue is not English must provide evidence of proficiency in the English language. This must be done before the student arrives at this University. Tests of English language are available from either of the following:

Test of English as a Foreign Language (TOEFL)

Educational Testing Service

Princeton, New Jersey, U.S.A.

English Language Proficiency Test

English Language Institute

University of Michigan

Ann Arbor, Michigan, U.S.A.

A student may be able to make arrangements through a local university to take these tests. The nature of nursing is such that facility in English is of utmost importance. The Faculty of Nursing reserves the right to require an interview in addition to the results of the language test.

3. Immunization. Prior to enrolling in the Faculty of Nursing, all students should submit record of immunization against diphtheria, tetanus, poliomyelitis and smallpox. This immunity should be at a maximum level of protection through the administration of a booster or reinforcing dose where indicated.

4. Library Services. The Nursing Library is a fully integrated part of the Health Sciences Library serving Nursing, Dentistry, Medicine and associated basic sciences. The collection of the Health Sciences Library contains about 107,000 volumes and the library regularly receives the leading Health Sciences periodicals. Within the collection is a section of several thousand volumes dealing with the history of the medical sciences.

5. Clinical Facilities - Basic Nursing Program

Clinical experience may be arranged at the following hospitals and agencies for the Basic Nursing students:

Children's Psychiatric Research Institute

London Psychiatric Hospital

Middlesex-London District Health Unit

Nursery Schools

Parkwood Hospital

Physicians' Offices

St. Joseph's Hospital

St. Mary's Hospital

University Hospital

Victoria Hospital

Victorian Order of Nurses

Westminster Hospital

and such other agencies as the Faculty of Nursing may designate.

ACADEMIC POLICIES, UNDERGRADUATE PROGRAMS

All students must achieve a satisfactory level of performance in academic work undertaken. Eligibility for continued progression in the nursing program is conditional on the attainment of specified minimum levels of achievement.

Advanced Standing (Credit)

Decisions regarding advanced standing and transfer of credit will always be governed by the policy of this University.

(a) In exceptional circumstances, a student registered in a B.Sc.N. program in another university may be able to transfer into the program offered by this University. Permission must be granted by the Dean, Faculty of Nursing.

(b) An applicant may request transfer for credit toward the degree at this University for courses taken prior to admission to the B.Sc.N. programs at this University. The Faculty of Nursing reserves the right to determine what advanced standing will be granted.

(c) After admission to the Faculty of Nursing, a student intending to take courses at another university is required to obtain a letter of permission from the Dean of the Faculty for credit in his/her B.Sc.N. program.

Satisfactory Clinical Performance

In a professional program, certain commitments on the part of the students are required. Satisfactory performance in the clinical area is of prime importance. All appointments made with assigned patients, families, hospital clinical areas and faculty must be kept. It is the responsibility of the student to advise appropriate personnel of an inability to keep these appointments. Appointments also include attendance at lectures, seminars, clinical practice areas, tutorials or supervisory conferences. A student who, because of illness or other valid reasons, must be absent from a nursing laboratory or clinical experience should notify the instructor prior to experience. The Faculty of Nursing is responsible for safety of nursing practice and therefore reserves the right to ask the student to seek medical assessment of physical and emotional health problems when he/she demonstrates unsatisfactory clinical practice. The student's continuance in the program may be influenced by the medical assessment.

Late Assignments

Only under exceptional circumstances will late assignments be accepted for grading.

Requirements for Admission to Examination

The right to sit for examinations is conditional upon regular attendance at classes, completion of required assignments on due date and satisfactory clinical performance. A student will be refused permission to write the final examination for failure to maintain satisfactory clinical performance throughout the year.

Final examination papers will not be returned to students.

Mid-Term Examinations or Assignments

Mid-term examinations or assignments are given in some courses. Such examinations and papers provide opportunity for periodic evaluation of the student's progress. Subsequent conferences with members of the Faculty afford an opportunity for the student to discuss problems encountered. Clinical evaluation is done concurrently throughout the year.

Final Grade

The final grade for most nursing courses is based upon individual assignments, group projects, satisfactory clinical performance and written examinations.

Supplemental Examinations

Supplemental examinations are not given in nursing courses. Supplemental examinations may be allowed in courses taught by the Faculty of Medicine. When supplemental examinations are allowed, the student writing a supplemental examination will receive either a Pass or Fail grade for the course. A Pass will give the student credit for the course but will not change the average for the year.

Special Examination

A special examination is any examination other than the regular examination and may be offered only with consent of the Dean, Faculty of Nursing. A special examination must be written at this University.

Deferred Examination

Permission to defer an examination may be given by the Dean, Faculty of Nursing on compassionate grounds. No examination fee is charged for deferred examinations.

A deferred examination must be written at this University.

Grading System

The following grading system is used:

90% - 100%	A+
80% - 89%	A
70% - 79%	B
60% - 69%	C - passing grade in nursing courses
50% - 59%	D - passing grade in non-nursing courses
40% - 49%	E - supplemental privileges in a few courses only
0% - 39%	F - failure

REQUIREMENTS FOR PROGRESSION

A. BASIC NURSING STUDENTS - YEARS 3 AND 4

Students may proceed to the next year of their program if the following conditions are met:

1. Satisfactory clinical performance. A student must pass clinical performance before she can pass a nursing course.
2. An overall average of 60% in each year.
3. A grade of 60% or above in each nursing course.
4. A grade of 50% or above in all non-nursing courses.

B. BASIC NURSING STUDENTS - YEARS 1 AND 2

Students may proceed to the next year of their program if the following conditions are met:

1. Satisfactory clinical performance. A student must pass clinical performance before she can pass a nursing course.
2. An average of at least 70% in principal courses. No grade of less than 60% in the principal courses. A passing grade of at least 50% in other courses. Students with an average of 60% to 69% in the principal courses and a passing grade in other courses may be permitted to progress in the program with special permission of the Dean, Faculty of Nursing.

3. Principal courses are:

Year 1 - Nursing 020
Anatomy 020a and 021b
Psychology 020 or Sociology 020

Year 2 - Nursing 230
Physiology 020
Senior course in same Social Science discipline elected in Year 1.

If all of the above conditions are met with the exception of one failure, a student may be granted permission to proceed to the next year of the program. If a student has a failure in a nursing course, she may only proceed with permission of the Dean, Faculty of Nursing.

Regardless of the timetable, a student carrying a failed course must obtain satisfactory standing in that course during the next academic year or an adjacent summer session. Only one failed course may be carried in any one year.

Students in good standing who withdraw from a program will be considered for readmission subject to the regulations in force at the time they apply to re-enter.

C. REGISTERED NURSE STUDENTS

Students may proceed to the next year of their program if the following conditions are met:

1. A grade of 60% or above in each nursing course. When clinical experience is an integral part of the nursing course, a student must pass in clinical performance before she can pass a nursing course.
2. A grade of 50% or above in all non-nursing courses.
3. An overall average of 60%.

A student with an average of less than 70% will be required to seek counselling in relation to program planning.

If all of the conditions are met with the exception of one failure, a student may be permitted to proceed to the next year of the program totally or in part. If a student has a failure in a nursing course, she may only proceed with permission of the Dean, Faculty of Nursing. Regardless of the timetable, a student carrying a failed course must obtain satisfactory standing in that course during the next academic year or an adjacent summer session. Only one failed course may be carried in any one year.

Students in good standing who withdraw from a program will be considered for readmission subject to the regulations in force at the time they apply to re-enter.

Unsatisfactory Performance and Withdrawal

Students who fail to achieve satisfactory performance will be required to withdraw from the program except as follows:

1. The Dean of the Faculty of Nursing may waive the regulation, on academic or compassionate grounds, in which case it shall be her responsibility to specify the requirements for regaining satisfactory standing on the regular "progression ladder" and to notify the Registrar in writing of this decision. Permission is given only under exceptional circumstances and then only when a vacancy is available in that year. When a student is allowed to repeat a year, she must pass that year without conditions to be allowed to continue in the program.
2. Should an appeal be made to the Senate on the ruling of the Dean based on academic or compassionate grounds, the appeal will be considered on behalf of

Senate by Senate Review Board (Academic) or by such other body which may be established by the Senate.

Readmission to Nursing Program

Students who fail to achieve satisfactory clinical performance will not be considered for readmission; however, the Faculty of Nursing would give consideration to a student who, with supporting documents, provides evidence that health problems affected his/her performance.

STUDENT EXPENSES

A statement of approximate annual expenses is given in the summary below; personal items such as laundry, clothes, recreation and transportation are not included.

Tuition and incidental fees	$623.50
Board and room (Terms 1 & 2)	$1,095.00 to 1,275.00
Books and Supplies	subject to yearly change

Additional expenses to be considered differ for each year of the program, e.g., approximately $25.00 to $32.00 is required for room and board for each week the course of studies precedes or extends beyond Term 1 and Term 2. Approximately $100.00 is required by students registered in the first year of Basic Nursing Program for purchase of the Faculty of Nursing uniform. (Instructions for obtaining the Faculty of Nursing uniform will be provided upon enrolment).

Registered nurses are expected to provide their own uniforms.

Cost of transportation related to required clinical experience and for laundering uniforms is an annual expense item for all students.

In addition to the above, some equipment may be required by the students as indicated for the nursing assessment and care of individuals and/or families in the community.

LIVING ACCOMMODATION

Students will have experiences in hospital and community agencies in day and evening hours so that the availability of suitable transportation is mandatory.

Application forms for the single student residences may be obtained at the Residence Admissions Office, Room 29, Middlesex College, The University of Western Ontario, London, Ontario, N6A 3K7. The student housing complex, Windermere Road, has accommodation for married students including 300 one-bedroom apartments and 100 two-bedroom apartments. For information and application forms write to: The Business Manager, Married Students' Apartments, The University of Western Ontario, London, Ontario, N6A 3K7.

The Off-Campus Housing and Student Placement Office has over 2000 listings of student accommodation within the London Area. These listings include:

Apartments	-furnished and unfurnished
Houses	-furnished and unfurnished
Rooms	-with and without board and housekeeping.

For further information, students should apply in person to the office in the University Community Centre.

SPECIAL UNDERGRADUATE YEAR FOR APPLICANTS TO THE M.Sc.N. PROGRAMS

The Faculty of Nursing offers two graduate programs leading to the Master's degree. In the M.Sc.N. (Administration) program, the student specializes in either administration of nursing education or administration of nursing service in the hospital or in the community. The M.Sc.N. (Education) program prepares candidates for teaching nursing. Detailed information about the Master's programs is contained in the Faculty of Graduate Studies Calendar.

Length of Program

Each applicant will be assessed individually. The length of the program will depend on the candidate's previous education and experience. Ordinarily, the program consists of a special undergraduate year followed by a graduate year. Part or all of the special undergraduate year may be waived for candidates whose baccalaureate was completed at The University of Western Ontario in 1970 or later and who obtained an overall B standing in that baccalaureate program. Although full-time study is desirable, it is possible to complete the program on a part-time basis. Students coming directly from countries outside North America may be required to attend summer school to complete at least one course at a designated level of achievement and/or to achieve satisfactory performance in a planned clinical experience in nursing.

Admission Requirements

The usual requirements for admission to the Master's programs are as follows:

(a) A Bachelor of Science in Nursing Degree from The University of Western Ontario or an equivalent degree, completed with an overall B standing or better and acceptable to The University of Western Ontario.

(b) Registration as a nurse with The College of Nurses of Ontario.

(c) For students whose first language is not English, evidence of proficiency in written and spoken English. (See note on English Language requirements in section on General Information for the Faculty of Nursing).

Candidates who do not meet these requirements and who wish to have their credentials assessed, should apply in writing to the Coordinator of the Master's Programs, Faculty of Nursing, specifying to which program admission is being sought. Such inquiries should be accompanied by:

(a) two copies of an official transcript, bearing marks obtained, of all undergraduate and graduate study to date;

(b) documents attesting to professional education, certification, licensing or registration and experience.

In the determination of a candidate's eligibility for admission to the graduate year, consideration will be given to the candidate's achievement in the special undergraduate year as well as to his past educational achievement.

All applications for admission to the Master's program and to the special undergraduate year must be submitted by August 1, 1974.

Courses Included in Special Undergraduate Year

A. Major in Administration

Nursing 400a

Nursing 405

Nursing 228

3 Electives*

*Two electives must be selected from the arts, science or social sciences (undergraduate or graduate) course offerings in this University. The third elective may be either in Nursing (undergraduate or graduate) or in the arts, science or social science divisions.

B. Major in Education

Nursing 400a
Nursing 405
Nursing 228
3 Electives**

**One Elective must be selected from the natural, biological or medical science (undergraduate or graduate) course offerings in this University. The two other electives must be selected from the arts, science or social science divisions.

Note: Students in either major may be required to undertake specified clinical experience either before commencing or concurrently with the special undergraduate year if their record of nursing experience indicates the need.

COURSE DESCRIPTIONS

400a (Former 500a). Health Services and Their Development. An historical approach to the study of current issues in health services, especially nursing; the significance of the past in relation to the problems of the present; society's concern for health; social, economic, political, legal and philosophical influences in health services.
Half course, Term 1.

405 (Former 505). Theory and Practice in Nursing. An examination of problem-solving, communication and theoretical frameworks for nursing practice. Class discussion of concepts is accompanied by concurrent clinical experience. A spring term practicum is utilized for synthesis of the content in the delivery of nursing care. Enrolment restricted to students intending to proceed to graduate study at U.W.O. Others considered on an individual basis.
3 hrs. per week + spring term practicum, Full course, Terms 1 and 2.

228 (Former 28). Research and Statistics. Introduction to research methodology, evaluation, utilization: the contribution of research to the theory and practice of nursing; basic statistical concepts related to sampling, measures of central tendency, variability, probability, correlation and significance.
Full course, Terms 1 and 2.

Registration

The fall term begins on September 1, 1974, which is the last day for registration and payment of fees. Courses offered by the Faculty of Nursing will begin during the third week of September. All elective courses will begin as scheduled by the departments concerned.

FEES

Definitions

A. Compulsory Fees

Compulsory Fees fall into three categories:

1. BASIC TUITION

- Governs admission, instruction, library facilities, examinations and diploma, use of laboratory supplies, and apparatus and all basic materials and articles of instruction **unless** a supplementary fee is specified (See paragraph 2 below):
- Is the fee which is reported to the Provincial Ministry of Colleges and Universities and used to determine the Provincial formula fee;
- May be claimed by the student as an income tax deduction.

2. SUPPLEMENTARY FEE

- May be assessed in certain courses or programs to cover specific apparatus, supplies or instructional aids required for these courses or programs; or
- May be assessed to recover the cost of certain services or procedures of registration or admission to the University or a faculty or school or department;
- Must be used specifically for the purpose designated:
- Is **not** part of the basic tuition fee reported to the Ministry of Colleges and Universities:
- Is **not** a fee which may be claimed as a deduction by a student in computing income tax.

3. ACTIVITY FEE

- Governs specific extra-curricular activities or services such as Athletics, Student Government, Health Services, University Community Centre, etc.;
- Is allocated to the specific purpose for which it is collected:
- Is **not** part of the basic tuition fee reported to the Ministry of Colleges and Universities:
- Is **not** deductible in computing income tax.

B. Non-Compulsory Fees, Charges or Expenses

In addition to the foregoing fees there are other charges, expenses, or fees, many of which are not totally avoidable, but which students may incur more or less at their discretion. Examples are expenditures on books, non-mandatory supplies, housing and living expenses whether in residence or not, and voluntary activity programs.

Ordinarily, these fees and expenses are not income tax deductible although under certain circumstances, some of them, such as residence fees may be actually sanctioned by the Board of Governors as to amount and collectability.

FEES SCHEDULE

Full-time students $623.50

Part-time students

Per course $125.00

* **The above fee includes a $60.00 non-academic charge for the University Community Centre, University Students' Council, Athletics and Health Services. This sum, by law, is not included in the student income tax certificate. The certificate will be available by the last day of February each year.**

Payment Procedure

Fees for full-time undergraduates are due and payable at the time of registration. A student may pay a minimum of $360.00 at the time of registration and the balance on or before the first day of the second term. There is a charge of $5.00 for payment of fees in two installments. If a $50.00 tuition deposit has been paid prior to registration, this amount will be applied against the first-term's tuition installment.

Students are advised to establish accounts in London banks well in advance of registration to ensure banking privileges for the payment of fees.

Other Charges

Late registration fee $25.00

Transfer from Constituent University to Affiliated College 50.00

Withdrawal during registration week (minimum) 50.00

Supplemental examination 10.00

Supplemental examination at outside centre 15.00

Special examination 15.00

Transcript of Academic record 1.00

The Board of Governors reserves the right to amend fees after the printing of this list.

Payment of Fees (Undergraduate)

(a) An "Intent to Register" will be recognized as complete only when it is accompanied by a deposit of $50.00 in the form of a cheque, money order, or bank draft (which is refundable only if the student is not admissible). The above-mentioned deposit does not apply to students entering directly from Grade 13, or to mature students, entering for the first time.

(b) (i) Payment of the balance of first-term fees (or full fees) may be made by mail not later than two weeks before the beginning of classes.

(ii) Payment of the balance of first-term fees (or full fees) or arranging of payment by means of loans, awards, or other special arrangements, may be completed on a designated day or days prior to the commencement of classes in a central location such as Thames Hall.

NOTE: Should a student who has selected courses and paid the $50.00 deposit fail to complete registration by either procedure (b i) or (b ii) by the date classes commence, he will be considered a late registrant and his course selections will be cancelled and his deposit forfeited. Reinstatement, if permitted by the Registrar, will require payment of $25.00 late fee which will permit the $50.00 deposit to be credited toward his tuition fee account. The late fee of $25.00 may be waived on the written recommendation of the Dean, Faculty of Nursing, on compassionate grounds.

Deferment of Fee Payments

Notwithstanding the regulation that fees must be paid either by mail not later than two weeks prior to the beginning of classes, or alternatively in person on the dates specified, exceptions may be permitted under the following circumstances:

a. A student who has evidence of having been awarded a Canada Student Loan which must be assigned to the University to pay the fees;

b. A student who has evidence of having been awarded a scholarship, bursary, or similar award, which may be used to pay the fees;

c. Deferment of fee payment may be granted by the Fees Supervisor in certain special circumstances provided that the student can show satisfactory evidence of ability to pay on or before October 15th.

Late Payments (Undergraduate)

First-Term Fees

It is the responsibility of each student who has, at the time of registration, made arrangements for late payment of fees, to pay at least first-term fees by October 15th of each year. A student who, for some reason, has not received his loan, award, or the like, must notify the Fees Supervisor and discuss with him a possible extension.

Second-Term Fees

It is the responsibility of each student to pay second-term fees by the due date of each year. A student who, for some reason, has not received his award or scholarship must notify the Fees Supervisor to discuss a possible extension.

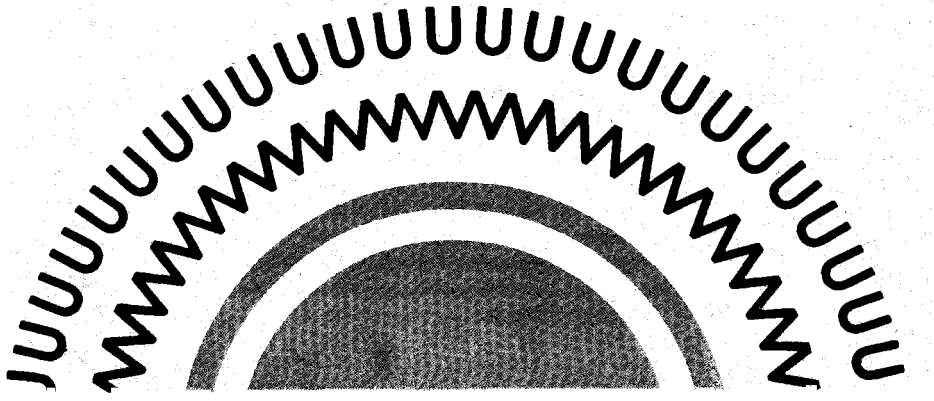
Cancellation of Registration

A student who has failed to comply with the above regulations may have his registration cancelled as of the date on which the unpaid fees were due.

Reinstatement

On the written recommendation of the Dean, Faculty of Nursing, a registration which has been cancelled under the regulation above may be reinstated only by the immediate payment of all fees due and a $25.00 late registration fee.

Faculty of Graduate Studies



OFFICERS OF THE FACULTY

Dean of the Faculty
H. B. Stewart, MD, PhD
Assistant Deans
R. G. Kidd, PhD
W. H. Stockdale, PhD
Administrative Officers
N. M. Davidson, MA
J. K. VanFleet, BA

Faculty of Graduate Studies

ACADEMIC CALENDAR

1973

September 1	Fall Term begins. Last day for registration and payment of fees for all graduate students who are in residence, or are receiving official instruction for the Fall Term. An administrative fee of $25.00 will be assessed each late registrant.
September 14	Last day for oral examinations of PhD and Master's candidates for Autumn Convocation.
September 28	Last day for submission of theses to the Faculty of Graduate Studies Office in time for Autumn Convocation.
October 1	Last day for enrolling in courses.
October 8	Thanksgiving Day.
October 17	Meeting of the Executive Committee of the Council of the Faculty of Graduate Studies for approval of candidates for Autumn Convocation.
October 19	Last day for submission of PhD theses to departments for examination in the Fall Term.
October 26	Autumn Convocation.
December 3	Last day for submission of Master's theses to departments for examination in the Fall Term.
December 3	Application deadline for Winter Term (see Application Procedure under General Admission Requirements).
December 14	Last day for oral examinations of PhD and Master's candidates in the Fall Term.
December 31	Fall Term ends.

APPLICANTS ARE ADVISED TO COMMUNICATE WITH THE DEPARTMENT IN WHICH THEY ARE INTERESTED AT THE EARLIEST POSSIBLE DATE, AS MANY DEPARTMENTS MAY HAVE CLOSING DATES FOR ACCEPTANCE OF NEW STUDENTS SIX TO SEVEN MONTHS BEFORE APPLICATION DEADLINES INDICATED BELOW.

1974

January 1	Winter Term begins. Last day for registration and payment of fees for all graduate students who are in residence, or are receiving official instruction for the Winter Term. An administrative fee of $25.00 will be assessed each late registrant.
February 1	Last day for enrolling in courses. Students who have not paid late registration fees by this date cannot receive academic credit for the Winter Term.

February 25	Last day for submission of PhD theses to departments for examination in time for Spring Convocation.
March 1	Final date for submission of Applications to Graduate. Students who do not file an Application to Graduate by this date will not be eligible to graduate in the Spring Convocation.
April 1	Last day for submission of Master's theses to departments for examination in time for Spring Convocation.
April 11	Last day for oral examinations of PhD and Master's candidates for Spring Convocation.
April 12	Good Friday.
April 15	Application deadline for Summer Term (see Application Procedure under General Admission Requirements).
April 30	Last day for submission of theses to the Faculty of Graduate Studies Office in time for Spring Convocation.
May 14	Winter Term ends.
May 15	Summer Term begins. Last day for registration and payment of fees for all graduate students who are in residence, or are receiving official instruction for the Summer Term. An administrative fee of $25.00 will be assessed each late registrant.
May 21	Meeting of the Executive Committee of the Council of the Faculty of Graduate Studies for approval of candidates for Spring Convocation.
June 7	Spring Convocation.
June 14	Last day for enrolling in courses. Students who have not paid late registration fees by this date cannot receive academic credit for the Summer Term.
July 19	Last day for submission of PhD theses to departments for examination in time for Autumn Convocation.
August 1	Final date for submission of Applications to Graduate. Students who do not file an Application to Graduate by this date will not be eligible to graduate in the Autumn Convocation.
August 15	Application deadline for Fall Term (see Application Procedure under General Admission Requirements).
August 23	Last day for submission of Master's theses to departments for examination in time for Autumn Convocation.

August 31	Summer Term ends
September 1	Fall Term begins. Last day for registration and payment of fees for all graduate students who are in residence, or are receiving official instruction for the Fall Term. An administrative fee of $25.00 will be assessed each late registrant.
September 13	Last day for oral examinations of PhD and Master's candidates for Autumn Convocation.
September 30	Last day for submission of theses to the Faculty of Graduate Studies Office in time for Autumn Convocation.
October 1	Last day for enrolling in courses. Students who have not paid late registration fees by this date cannot receive academic credit for the Winter Term.
October 14	Thanksgiving Day.
October 16	Meeting of the Executive Committee of the Council of the Faculty of Graduate Studies for approval of candidates for Autumn Convocation.
October 18	Last day for submission of PhD theses to departments for examination in the Fall Term.
October 25	Autumn Convocation.
December 2	Last day for submission of Master's theses to departments for examination in the Fall Term.
December 2	Application deadline for Winter Term (see Application Procedure under General Admission Requirements).
December 13	Last day for oral examinations of PhD and Master's candidates in the Fall Term.
December 31	End of Fall Term.

NOTE: Fees are due and payable on or before the designated date for each term. Notification of fees due will be mailed to each student in advance, provided he ensures that the Registrar's Office is always aware of his current address.

Administrative fees for late registration and late course enrolments are not wholly punitive, but reflect the additional cost to the University of registering students out of phase. They will, therefore, be assessed universally and without exception.

It is the student's responsibility to ensure that his fees are paid on time, and that other deadlines are met notwithstanding any attempts by the University to ensure that deadlines are advertised in advance. If a student knows he cannot personally register by the designated day, he should arrange for someone to register on his behalf. Alternatively, he may forward his fees by mail to the Fees Supervisor, Stevenson Hall. Cheques must be made payable to The University of Western Ontario.

ELIGIBILITY FOR CONVOCATION

The University holds regular Convocation ceremonies at which students may graduate in the Spring (June) and in the Fall (October) of each year. The deadline

timetables appearing below are provided for the benefit of those students in the final stages of completing a graduate program who wish to graduate at a particular Convocation ceremony. Program completion, for purposes of Convocation, requires the following:

i) Submission to the Registrar's Office of marks for all course requirements.

ii) Acceptance by the Faculty of Graduate Studies of an examined and corrected Thesis (if required).

iii) Submission by the Department of a Change of Status form signifying program completion.

SPRING CONVOCATION

In order to be eligible to graduate in the SPRING CONVOCATION a student must meet all conditions listed under "A." OR "B." below.

A. Option 1 - Spring Convocation

1. Registration in the Fall Term preceding Spring Convocation
2. All coursework and other requirements (e.g. language requirement) completed and marks submitted to the Registrar's Office before February 1.
3. Final, corrected Thesis submitted to the Faculty of Graduate Studies before February 1. (Except in Master's programs where no thesis is required.) NOTE: final thesis submission follows any required oral defense.
4. Change of Status Form, attesting to "completion of program", submitted by the Department to the Faculty of Graduate Studies before February 1.

NOTE: If conditions A 1-4 are met, registration in the Winter Term is NOT required.

B. Option 2 - Spring Convocation

1. Registration in the Winter Term preceding Spring Convocation.
2. All coursework and other requirements (e.g. language requirement) completed and marks submitted to the Registrar's Office one week before the end of the Winter Term (approximately May 8).
3. Final, corrected Thesis submitted to the Faculty of Graduate Studies by the deadline stated in the Graduate Studies Calendar (e.g. April 30th in 1974). (Except in Master's programs where no thesis is required). NOTE: final thesis submission follows any required oral defense.
4. Change of Status Form, attesting to "completion of program", submitted by the Department to the Faculty of Graduate Studies before May 8.

NOTE: If any of conditions B 1-4 CANNOT be met, see Section II - Fall Convocation, below.

FALL CONVOCATION

In order to be eligible to graduate in the FALL CONVOCATION a student must meet all conditions listed under "A." OR "B." below.

A. Option 1 - Fall Convocation

1. Registration in the Winter Term, but not meeting deadlines required for Spring Convocation.
2. All coursework and other requirements (e.g. language requirement) completed and marks submitted to the Registrar's Office before June 15.

3. Final, corrected thesis submitted to the Faculty of Graduate Studies before June 15. (Except in Master's programs where no thesis is required). NOTE: final thesis submission follows any required oral defense.
4. Change of Status Form, attesting to "completion of program", submitted to the Faculty of Graduate Studies before June 15.

NOTE: If conditions II. A. 1-4 are met, registration in the Summer Term is NOT required.

B. Option 2 - Fall Convocation

1. Registration in the Summer Term preceding Fall Convocation.
2. All coursework and other requirements (e.g. language requirement) completed and marks submitted to the Registrar's Office by September 30.
3. Final, corrected Thesis submitted to the Faculty of Graduate Studies by the deadline stated in the Graduate Studies Calendar (e.g. September 30th in 1974). (Except in Master's programs where no thesis is required). NOTE: final thesis submission follows any required oral defense.
4. Change of Status Form, attesting to "completion of program", submitted by the Department to the Faculty of Graduate Studies before September 30.

NOTE: If any of conditions II. B. 1-4 CANNOT be met, see Section I - Spring Convocation, above.

ORGANIZATION OF DIVISIONS

Arts Division

Departments of Classics, English, French, German, Music, Philosophy, and Spanish and Italian.

Divisional Committee

Ex officio Members

Dean of Graduate Studies, Assistant Dean of Graduate Studies (Arts and Social Sciences), Dean of Arts, Dean of Music.

Members

Representatives of Departments, Representatives of Professional Degree Committee, Faculty of Graduate Studies Representatives from the Arts Division on Senate, Graduate Student Representatives.

Social Sciences Division

Faculties of Business Administration, Library and Information Science, Nursing, Althouse College of Education and the Departments of Economics, Geography, History, Political Science and Sociology.

Divisional Committee

Ex officio Members

Dean of Graduate Studies, Assistant Dean of Graduate Studies (Arts and Social Sciences), Dean of Business Administration, Dean of Library and Information Science, Dean of Nursing, Dean of Social Science.

Members

Representatives of Departments, Representatives of Professional Degree Committees, Faculty of Graduate Studies Representatives from the Social Sciences Division on Senate, Graduate Student Representatives.

Biosciences Division

Departments of Anaesthesia, Anatomy, Bacteriology and Immunology, Biochemistry, Biophysics, Diagnostic Radiology, Epidemiology and Preventative Medicine, History of Medicine and Science, Medicine, Obstetrics and Gynaecology, Ophthalmology, Otolaryngology, Paediatric Dentistry, Paediatrics, Pathology, Pharmacology, Physical and Health Education, Physiology, Plant Sciences (Botany), Psychiatry, Psychology, Surgery, Therapeutic Radiology, and Zoology.

Divisional Committee

Ex officio Members

Dean of Graduate Studies, Assistant Dean of Graduate Studies (Biosciences and Physical Sciences), Dean of Dentistry, Dean of Medicine, Dean of Science, Dean of Social Science.

Members

Representatives of Departments, Representatives of Professional Degree Committee, Faculty of Graduate Studies Representatives from the Biosciences Division on Senate, Graduate Student Representatives.

Physical Sciences Division

Departments of Applied Mathematics, Astronomy, Chemistry, Computer Science, Engineering Science, Geology, Geophysics, Mathematics, and Physics.

Divisional Committee

Ex officio Members

Dean of Graduate Studies, Assistant Dean of Graduate Studies (Biosciences and Physical Sciences), Dean of Engineering Science, Dean of Science.

Members

Representatives of Departments, Representatives of Professional Degree Committee, Faculty of Graduate Studies Representatives from the Physical Sciences Division on Senate, Graduate Student Representatives.

COMMITTEES OF THE FACULTY COUNCIL

Executive Committee of the Faculty 1973-74

Chairman

Dean

Ex officio Members

President, Vice President (Academic), Assistant Deans of Graduate Studies, Chairmen of Standing Committees.

Members

Representatives of Faculty of Graduate Studies on Senate, Chairmen of Divisional Committees, Chairmen of Professional Degree Committees, Representatives of Divisions, Graduate Student Representatives.

Professional Degree Committees of the Faculty 1973-74

Master of Business Administration

Master of Clinical Dentistry

Master of Clinical Science

Master of Engineering

Master of Library Science

Master of Music

Master of Science in Nursing

Standing Committees of the Council of the Faculty 1973-74

Arts and Social Science Awards Committee

Biosciences and Physical Sciences Awards Committee

Committee on Planning and Operations

Committee on Post-doctoral Fellows

Internal Appraisals Committee

Note: The names of the members of committees are published in the Faculty of Graduate Studies Handbook.

PURPOSE OF GRADUATE STUDIES

The academic graduate programs leading to degrees are considered to provide advanced study in a general field of knowledge and not as specific training for a professional position. The candidate should be aware that, although this advanced education may better fit him for certain careers and positions, this is not a specific purpose of the program. A candidate should undertake advanced study only because of his personal interest in a chosen field and not as an assured entry to a professional career.

DEGREES AND COURSES OF STUDY OFFERED

The Faculty of Graduate Studies offers courses of study leading to graduate degrees as follows:

Doctor of Philosophy (PhD) in Anatomy, Applied Mathematics, Astronomy, Bacteriology and Immunology, Biochemistry, Biophysics, Business Administration, Chemistry, Economics, Engineering Science, English, Epidemiology, French, Geography, Geology, Geophysics, German, History, Library and Information Science (see Faculty entry), Mathematics, Pathology, Pharmacology, Philosophy, Physical Education (see Faculty entry), Physics, Physiology, Plant Science, Political Science, Psychology, Sociology (see Department entry), and Zoology.

Master of Arts (MA) in Classics, Economics, English, French, Geography, German, History, Mathematics, Musicology, Philosophy, Physical Education, Political Science, Psychology, Sociology, and Spanish.

Master of Arts in Teaching (MAT) in English, History, Mathematics, and Physical Education (see Education entry)

Master of Business Administration (MBA)

Master of Clinical Dentistry (MCID) in Paediatric Dentistry

Master of Clinical Science (MCISc) in Anaesthesia, Diagnostic Radiology, Medicine, Obstetrics and Gynaecology, Ophthalmology, Otolaryngology, Paediatrics, Psychiatry, Surgery, and Therapeutic Radiology.

Master of Engineering (MEng)

Master of Engineering Science (MESc) in Chemical Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering, and Materials Science.

Master of Library Science (MLS)

Master of Music (MMus) in Music Theory, Composition, Music Education, and Literature and Performance. (For Musicology, see Master of Arts above.)

Master of Science (MSc) in Anatomy, Applied Mathematics, Astronomy, Bacteriology and Immunology, Biochemistry, Biophysics, Geology, Geophysics, Pathology, Pharmacology, Physics, Physiology, Plant Science and Zoology.

Master of Science in Nursing (MScN) in Nursing Administration and Nursing Education.

GENERAL ADMISSION REQUIREMENTS

Applicants for admission normally must be graduates of a recognized University, College or Institute, and provide evidence or promise of scholarly achievement.

Admission to the Faculty of Graduate Studies is granted by the Dean only on recommendation of the Department or Division in which the applicant intends to work toward completion of degree requirements. Ordinarily at least second class (or B) standing (or equivalent grade point average) over the final two years of his undergraduate program is required; in exceptional cases, where high quality performance in post-baccalaureate work can be substantiated, admission may be granted without this requirement.

Admission with Full Standing is normally accorded applicants who are graduates of an Honors (or four year) program of an accredited institution, and who have intensive specialization in the subject matter of their chosen discipline.

Admission as a Special Graduate Student may be recommended for students whose background preparation is difficult to evaluate. Such students are not considered degree candidates until such time as their Department or Divisional Committee formally recommends to the Dean a change in their registration status. At that time a student may be granted retroactive credit toward a degree for courses completed and residence time fulfilled, up to one academic year.

Students classified as **Special Graduate Students** will be accorded all privileges of **Full Standing** and pay normal graduate fees.

Honors Bachelor's degree holders who, as a result of changing their field of specialization, are required to take all or a majority of undergraduate courses in their first year will be admitted with **Full Standing** and pay graduate fees. Normally such students will not complete their program in less than two years.

Students with an ordinary (three-year) degree (or equivalent) who wish to upgrade in order to become eligible for graduate admission consideration may be advised by the department to which they make application to seek admission as **Special (Undergraduate) Students.** A formal application must be filed in the Office of the Registrar (see admission requirements, pp. 30-31 of the Composite Calendar). Admission to the Faculty of Graduate Studies will be considered on the basis of achievement in that year of study, which should ordinarily be comprised of five undergraduate courses selected in consultation with the department concerned.

Students who have not a clearly expressed intention of proceeding to completion of all requirements of a graduate degree and who propose to take undergraduate courses (i.e. students attempting to 'upgrade' for Ontario Type A teaching certification and students attempting to improve their academic record for

application to a professional program) should register as special students in an undergraduate Faculty.

CHANGE OF DEGREE STATUS

Any change in the designation of the degree for which a student is a candidate will be made by the Dean only on the recommendation of the student's Department or Divisional Committee: retroactive registration may be granted for not more than one year. Such recommendations are to be submitted to the Dean using the change-of-status forms provided.

APPLICATION PROCEDURE

An APPLICATION FOR ADMISSION FORM may be obtained from the Faculty of Graduate Studies or from the Faculty or Department concerned. The completed forms should be returned to the appropriate Department or Faculty together with TWO COPIES OF CERTIFIED OFFICIAL UNDERGRADUATE AND GRADUATE TRANSCRIPTS covering all academic studies to date. It is the responsibilty of each applicant to ensure that all documents, i.e. transcripts and letters of recommendation, are submitted. A graduate of a university outside North America may be required to submit a description of all courses taken in his field of specialization and cognate fields. NO APPLICATION WILL BE CONSIDERED UNTIL IT IS COMPLETE. This procedure must be followed even if the applicant has corresponded with a Department and has been assured of space and facilities for research. If a student is admitted to the Faculty of Graduate Studies, he will receive notification from the Office of the Registrar; if the application is not approved for admission to the Faculty of Graduate Studies, the student will receive notification from the Department concerned.

APPLICATION DEADLINES, unless otherwise specified by the Department concerned, appear in the Academic Calendar, at the beginning of this Calendar. These deadlines represent the date by which the Department must submit the approved applications to the Faculty of Graduate Studies office for final approval. Therefore, applicants should ensure that their complete applications as described above are submitted to the appropriate Department well in advance of the dates shown in the Academic Calendar.

PROFICIENCY IN ENGLISH

Applicants for admission to the Faculty of Graduate Studies may be required to furnish evidence of their proficiency in the use of the English language by satisfactory achievement in the University of Cambridge Certificate of Proficiency in English examination or satisfactory scores on the Test of English as a Foreign Language (TOEFL) or the English Proficiency Test of the English Language Institute (ELI) of the University of Michigan.

Application forms for the TOEFL may be obtained from the Faculty of Graduate Studies or by writing to: Test of English as a Foreign Language, Box 899, Princeton, New Jersey 08540, U.S.A. The TOEFL is administered on four dates each year (October, January, March and June); registration forms must be submitted directly to the testing agency at least one month in advance of the test date. Arrangements to write the English Proficiency Test of the English Language Institute may be made by writing to: The English Language Institute, University of Michigan, Ann Arbor, Michigan, U.S.A.

Students who are required to present proof of proficiency in English must make their own arrangements to write the TOEFL or ELI test and to have the results sent directly to the Faculty of Graduate Studies by the testing agency.

GRADUATE RECORD EXAMINATIONS

Applicants for admission to Graduate Studies may be asked to take the Graduate Record Examinations which are prepared by the Educational Testing Service of Princeton, New Jersey and Berkeley, California and administered at most universities several times each year. The student will bear the cost of taking such examinations. Application forms are available in the office of the Faculty of Graduate Studies, The University of Western Ontario.

TRANSFER OF ACADEMIC CREDITS

Under the procedures established by the Ontario Council on Graduate Studies, a student may continue registration at his home university while receiving instruction in a course offered by another university in the Province of Ontario. The procedure requires the prior approval of the Deans and Department Chairmen of both the host and the home universities on a form obtainable from the Dean of Graduate Studies. The student will pay no fees to the host university where he is classed as a transfer student, but will pay the tuition fee to his home university.

Unless the host chairman agrees, the transfer will not take place. IF THE HOST UNIVERSITY AGREES TO ACCEPT THE TRANSFER STUDENT, THERE WILL BE NO FURTHER ADMISSION REQUIREMENTS.

A transfer student must enroll and pay regular fees in his home university and register in a course but pay no fees to the host university. The home university will accept the grade reported by the host university and will grant appropriate course credit on the student's program. Work done as a transfer student will be credited towards the residence requirement. Student awards will not be affected by transfers.

REGISTRATION

INITIAL REGISTRATION

A candidate whose application has been accepted by the Faculty of Graduate Studies may register for the first time at the beginning of the Fall, Winter, or Spring Terms, immediately following such acceptance. Candidates wishing to register more than three terms after date of acceptance will be required to submit a new application for approval. The student should consult his Department concerning the requirements of the program of study for which he wishes to register.

Graduate students are required to register on or before the date designated in the Academic Calendar. All registration materials will be mailed to the student by the Registrar's Office in care of the department in which he is to be enrolled. The fee bill and remittance should be mailed to the Fees Supervisor in the envelope provided, or may be submitted in person to the Fees Office, Stevenson-Lawson Building. Courses must be recorded on the Course Enrolment Form and approved by the Department Chairman or Faculty Advisor. The completed Course Enrolment Form must be submitted to the Registrar's Office. Student identification cards may be obtained at the Registrar's Office upon presentation of evidence that fees have been paid.

Late Registration will be subject to an additional fee as specified elsewhere in the Calendar.

Students are reminded that they will not receive any credit for courses for which they are not properly enrolled. **The onus to ensure that registration is completed satisfactorily lies with the student.** If a student is not certain about the status of his registration at any time, he should be sure to consult the Registrar's Office.

FULL-TIME STUDENT

A student who is engaged in his degree program on a full-time basis during a given term and who meets the following criteria will be registered as a full-time student:

a) identifies himself as a full-time graduate student

b) is geographically available and visits the campus regularly.

It is understood that a graduate student may be absent from the University while still under supervision, eg. visiting libraries, attending a graduate course at another institution, field work, etc. If such period of absence exceeds four weeks in any term, written evidence shall be available in the Graduate Studies Office to the effect that the absence has the approval of the Department Chairman and the Dean of Graduate Studies.

c) is not regularly employed on other work, or by the University, for more than an average of 10 hours per week and **is not employed outside the University except by written permission of the Supervisor.**

It should be noted that if a student is employed as a teaching assistant or demonstrator, the 10 hours per week should represent the TOTAL time spent by the student in connection with the appointment, i.e. it includes time spent on preparative work, reading set assignments, marking examinations, etc.

Notwithstanding the above criteria, any student initially registering in his current graduate program after May 1, 1971 who receives for services rendered to the University income exceeding $1200 for any single term or $2400 for any set of three consecutive terms is not eligible for full-time status during that term or that set of three terms respectively.

PART-TIME STUDENT

All graduate students other than those eligible to register as full-time students will register as part-time students. This will include:

a) those whose hours of employment or whose University-based remuneration makes them ineligible for full-time registration.

b) those taking graduate courses on a part-time basis.

c) those who have fulfilled the residence requirements for their degree and who are completing their thesis on a non-resident basis.

CONTINUITY OF REGISTRATION

Graduate students must be registered in each term in which they are actively engaged in course work, in a research program, or in thesis preparation: that is, whenever they are making use of University facilities or personnel.

Degree candidates must be registered in the term in which they complete the requirements for the degree. Students not completing requirements by the last day in a particular term must re-register in the following term.

GRADUATE FEE SCHEDULE

FULL-TIME STUDENTS - RESIDENCY PERIOD

Tuition fees for 1973-74 are $585.00 per year, payable in two instalments of $292.50 at the beginning of the first and second consecutive terms of registration. Graduate students who have paid the regular full-time fee ($292.50) for two consecutive terms are entitled to register for the third CONSECUTIVE term in the same degree program without payment of additional tuition fees. In order to receive academic credit for this third term, however, the student must complete the other registration procedures by the date specified in the Academic Calendar.

GRADUATE

In addition to tuition fees, an activity fee of $20.00 per term is required of each full-time graduate student. Total fees payable until September 1, 1974 are:

Consecutive Registration Initiated		Fall Term 1973	Winter Term 1974	Spring Term 1974	Annual Total
Fall Term	Tuition	$292.50	$292.50	$	$585.00
	Activity	$ 20.00	$ 20.00	$ 20.00	$ 60.00
		$312.50	$312.50	$ 20.00	$645.00
Winter Term	Tuition	$ -	$292.50	$292.50	$585.00
	Activity	$ 20.00	$ 20.00	$ 20.00	$ 60.00
		$ 20.00	$312.50	$312.50	$645.00
Spring Term	Tuition	$292.50	$ -	$292.50	$585.00
	Activity	$ 20.00	$ 20.00	$ 20.00	$ 60.00
		$312.50	$ 20.00	$312.50	$645.00
Master of Business Administration Program					
	Tuition	$292.50	$292.50	$ -	$585.00
	Activity	$ 28.50	$ 28.50	$ -	$ 57.00
		$321.00	$321.00	$ -	$642.00

THE BOARD OF GOVERNORS RESERVES THE RIGHT TO AMEND FEES AFTER THE PRINTING OF THIS CALENDAR.

FULL-TIME STUDENTS - POST RESIDENCY PERIOD

Students who have completed the minimum residence requirement for the degree they are seeking but who have not completed the academic requirements of the program may continue full-time registration in the Faculty of Graduate Studies at the reduced rate of $100.00 each term, which includes the activity fee of $20.00.

For a Ph.D. program, the residency requirement is nine terms, which is reduced to six terms for a candidate holding a Master's degree or a degree in Medicine, Dentistry, or Veterinary Medicine. For a Master's program, the residency requirement is three terms except as otherwise specified for individual programs described elsewhere in this Calendar. For purposes of determining residency requirements, two terms of part-time registration are regarded as fulfilling one term of full-time registration.

PART-TIME STUDENTS

Part-time graduate students are assessed a total fee of $100.00 per term. Only those graduate students who, by reason of their employment or by reason of their absence from campus are ineligible to register as full-time students, may enrol as part-time students.

Late Registration Fee $25.00

STUDENTS ARE NOT REGISTERED UNTIL THEY HAVE PAID THEIR FEES.

Except as defined in paragraphs 2 and 3 below, academic credit will only be given by the University for work done during terms when the student has been

registered and has paid the appropriate fee. Registration and payment of fees may be completed by mail, but it is the responsibility of the student to ensure that he is properly registered.

On the recommendation of the Dean of Graduate Studies, fees may not be required of a student who has been granted permission from the Head of the Department and the appropriate committee on Graduate Studies to receive credit for work done at another University and who is paying fees to that University. However, under the procedures established by the Ontario Council on Graduate Studies, a student, who has received permission to receive credit for a course offered by another provincially supported university in the Province of Ontario, shall be classed as a transfer student by the host university. He shall remain a registered student of his home university and pay the tuition fee to this university. The student will pay no fees to the host university.

Students may not take examinations, nor be recommended for a degree until tuition fees and other accounts owing to the University are paid.

GENERAL REGULATIONS GOVERNING ADVANCED DEGREES

RESIDENCE REQUIREMENTS

The academic year in the Faculty of Graduate Studies consists of three terms (Fall or third term, Winter or first term, and Summer or second term), commencing on or about September 1, January 1, and May 15. The minimum residence requirement for an academic year is two terms. This does not reduce the requirements of paying for three terms in order to receive credit for one year of residence. In most Departments residence for a certain number of Fall and Winter Terms is required.

ADDING AND DROPPING COURSES

Following the submission of a completed "Course Enrolment" card, course changes may be made, with the approval of the Department concerned, on the appropriate form.

EXAMINATIONS

Grading System

Graduate Students are expected to maintain at least a B standing averaged over all their courses.

All course standings within the Faculty of Graduate Studies will be reported as follows:

A 80% and above

B 70-79% inclusive

C 60-69% inclusive

F Fail. i.e. less than 60%

IPR (IN PROGRESS) grade assigned in the first term of a two-term course, in the first and second term of a three-term course or for Thesis courses (590 and 690).

SAT (SATISFACTORY)

COM (COMPLETE) (only for special assignments) e.g. thesis, field trips, etc.

INC (INCOMPLETE) grade assigned for courses where requirements have *not* been met by the end of the course.*

*In courses where a grade of INC has been assigned, the student must re-register in the course in a subsequent term in order to obtain credit for the course. The grade of INC is not removed from the official record.

Note: Either a numerical or a letter grade may be submitted by the Department to the Registrar.

Special Examinations

Permission to write a Special Examination must be obtained from the Dean of Graduate Studies on the recommendation of the appropriate Divisional Committee and the Department responsible for the course in which the student is registered.

ILLNESS

Should a student suffer from an illness or accident which might impair his academic performance, documentary evidence from a physician must be submitted to the Department concerned or the appropriate Divisional Committee on Graduate Studies as soon as possible. Unless medical evidence is presented at this time it may not be considered in support of a subsequent appeal.

TIME-LIMIT FOR DEGREE COMPLETION

All degree programs must be completed within a period not exceeding in the case of the Master's degree three years beyond completion of minimum registration requirements and in the case of a doctoral degree a period not exceeding five years beyond completion of minimum registration requirements.

DOCTOR OF PHILOSOPHY (PhD)

ENTRANCE REQUIREMENTS

A candidate must be a graduate of an approved university or hold equivalent qualifications. He must have received a Bachelor's degree with Honors in which standing in the final two years of the program was B or better (or its equivalent), or a Master's degree, or a degree in Medicine, Dentistry, or Veterinary Medicine.

ACADEMIC REQUIREMENTS

The degree of Doctor of Philosophy will be granted only to a candidate who has shown high aptitude and attainment in research and has presented in a scholarly manner, and successfully defended at a Faculty Oral Examination, a thesis containing an original contribution to knowledge. Graduate students are expected to maintain at least a B standing averaged over all their major courses, and at least a B standing averaged throughout their program.

PERIOD OF STUDY

The period of study will be determined by the academic qualifications of the candidate and by his previous experience in research. Usually three academic years full-time will be required, though this period of residence will be extended for part-time students. The time may be reduced to two academic years for full-time students, and to an appropriate length of time for part-time students, if the candidate holds a Master's degree, or a degree in Medicine, Dentistry or Veterinary Medicine. If more than ten hours a week are spent in teaching or other departmental duties, the period of study will be extended. Students in the sciences are usually expected to continue their laboratory or field work during the Spring Term.

With the consent of the Chairman of the Department, School or Faculty, and with the approval of the appropriate Committee on Graduate Studies, permission may

be granted to a candidate to study elsewhere. A maximum period of one academic year of such studies may be credited towards the period of study required for the degree.

COURSE OF STUDY

The course of study for each candidate shall be determined by the Chairman of the Department (or equivalent) in consultation with his departmental Graduate Affairs Committee.

For each candidate the Chairman of the Department in consultation with his Graduate Affairs Committee shall appoint an Advisory Committee consisting of a Chief Adviser and at least two Assistant Advisers.

LANGUAGE REQUIREMENTS

In those Divisions or Departments which require it, a candidate for the degree of Doctor of Philosophy must have a reading knowledge of at least one language, other than English, which is acceptable to his Department, School or Faculty, and is useful in his research.

The candidate must furnish evidence of such reading knowledge either in the form of university credits or by passing an examination offered by the department in which the student is registered. University credit shall normally mean credit for at least one year's work in the language at College level, or its equivalent, e.g. French 20 or 45, German 20 or 45; Russian 1 and 10 or 15, or Spanish 20 or 45.

Alternatively, the requirement may be fulfilled by the use of the Graduate Foreign Language Test of the Educational Testing Service, Princeton. If the nature of a candidate's research makes it desirable, a Department, School or Faculty may require him to show reading knowledge of an additional language.

Courses in Scientific French, German, Russian and Spanish are given each year in the Faculty of Arts. Since language requirements differ from department to department, it is the student's responsibility to ascertain his department's requirements, to fulfill them, and check that the department records the completion of the requirement.

DEPARTMENTAL EXAMINATIONS

Any department may require that a student pass any or all of: oral or written examinations on course work; a comprehensive examination; a qualifying examination. All requirements, including language requirements, must be completed (except with special permission of the Dean of Graduate Studies) before recommendation for the Faculty Oral Examination.

Notice of any type of examination required shall be given by the Chairman of the Department to the candidate at least two months before the date on which the examination is to be held.

TEACHING

The University believes that a graduate student's training should include some experience in teaching. Students may, therefore, be called upon to undertake assignments in demonstrating or lecturing without remuneration. Departments are asked to make such opportunities available to their students when possible but the assignments should not be so heavy as to lengthen the student's normal graduate course.

PUBLIC LECTURE

The candidate may be required to present a lecture on his thesis research, open to all members of the University, to be followed normally within 24 hours by the Faculty Oral Examination. All arrangements including the appointment of a Chairman for the lecture shall be made by the Department concerned.

The requirement of the public lecture is at the discretion of the Division concerned, and has been retained by the Biosciences and Physical Sciences Divisions. The requirement has been waived for all Departments in Arts and Social Sciences unless the Department chooses to hold one.

All arrangements for the Faculty Oral Examination and for the announcement of the public lecture in the weekly *Western News* shall be made by the Faculty of Graduate Studies.

PhD Thesis

1 General Specifications

A thesis is required of every candidate for the degree of Doctor of Philosophy. The thesis must consist of the candidate's own account of his research. It may describe work done in conjunction with his supervisor if the candidate clearly states his personal share in the investigation. The candidate must indicate in what respects his investigations have increased the knowledge of the subject.

A candidate will not be permitted to submit a thesis for which he has previously received a degree. Permission may be given to a candidate by the appropriate Committee on Graduate Studies to incorporate in his doctoral thesis work included in a previous thesis.

2 Format Specifications

The regulations of the Faculty of Graduate Studies as to the quality of paper, type and layout must be fulfilled to facilitate the binding and microfilming of each thesis. A copy of the U.W.O. *Guide for the Preparation of Theses* may be obtained from the Faculty of Graduate Studies before the final draft of the thesis is typed. Students are asked to consult the Faculty of Graduate Studies about such matters as kind of paper, method of duplicating copies, use of a paginator, binding personal copies, preparation of illustrative material and other related problems.

3 Submission Procedure

The candidate shall submit to his Chief Adviser portions of his thesis when requested and a complete draft on a date specified by his Adviser. When the candidate is prepared for the Faculty Oral Examination he shall submit to the Chairman of the appropriate Committee on Graduate Studies the ORIGINAL and FOUR unbound copies of the completed thesis. The thesis may be submitted at any time of the year, but to be sure of being examined in time for graduation at any given Convocation, the candidate must submit the thesis at least FOURTEEN weeks before the date of that Convocation. Each copy of the thesis shall contain a technical Abstract of not more than five hundred words and the candidate's Vita. Following a successful examination and at least SIX weeks before Convocation, the candidate shall present the ORIGINAL and FOUR copies of his thesis to the Thesis Officer of the Faculty of Graduate Studies.

4 Distribution of Theses

The Faculty of Graduate Studies will pay for the cost of binding the required copies which are distributed as follows: two copies are kept in the thesis collection in The D. B. Weldon Library (or the appropriate Science Library); one copy is kept by the department; and two bound copies are returned to the doctoral candidate for his own use. If a student wishes to have more copies bound he is charged for the binding of each additional copy.

The thesis, with the written consent of the author, will be microfilmed by the National Library of Canada. The positive copies of the microfilms held in the National Library are listed in *Canadiana,* the monthly and annual national bibliography published by the National Library.

5 Distribution of Abstracts

All PhD candidates must submit three abstracts of their thesis. One of these is kept in the library archival collection, one in the reference collection, and the third is sent by the Faculty of Graduate Studies, on the authority of the candidate, to be published in *Dissertations Abstracts International.* Instructions for the preparation of these abstracts are described in the thesis guide.

Faculty Oral Examination

1. Arrangements for Examination

All arrangements for the Faculty Oral Examination shall be made by the Dean of Graduate Studies.

2. Board of Examiners

The Board of Examiners shall consist of:

(a) a non-voting Chairman appointed by the Dean of Graduate Studies,

(b) the following four Examiners:

(i) two Examiners who shall normally but not necessarily be from the candidate's Department.

(ii) a third Examiner from outside the candidate's Department (or discipline where no department exists). This Examiner shall be knowledgeable in the general field of the thesis and may be from this University or any other institution.

(iii) a fourth Examiner who shall be from outside this University and who shall be competent in the special field of the thesis.

The Board of Examiners shall exclude the candidate's Chief Adviser. The presence of the fourth Examiner (1 b.iii) at the oral examination may be waived by the Dean.

3. Appointment of Examiners

All Examiners (1 b.i., b.ii., b.iii.) shall be appointed by the Dean after consultation with the appropriate Divisional Committee.

4. Evaluation of the Candidate

Each Examiner shall examine the thesis in detail and make a written evaluation of the content and form of the thesis, to be received in the Office of the Faculty of Graduate Studies at least 48 hours before the examination. Those examiners present at the examination shall also evaluate the oral defence of the thesis.

The acceptability of the **content** of the thesis shall be determined by a majority vote of the Examiners, to include the vote of the External Examiner (1 b.iii).

Prior to the oral examination, should a majority vote and/or the External Examiner find the thesis unacceptable in content the Dean shall appoint an *ad hoc* committee to determine the course of action to be taken. The candidate's Chief Adviser shall be a member of this committee.

If the content of the thesis is unacceptable, the *ad hoc* committee shall establish the basis for this decision, and advise the candidate of the reasons for its unacceptability. The oral examination may be rescheduled when appropriate steps have been taken to make the thesis acceptable (mandatory three-month delay).

The acceptability of the **form** of the thesis shall be determined by a majority vote of the Examiners.

If the content is acceptable, but the form is unacceptable, the candidate shall be advised in what respects the thesis is deficient. The Examiners must be satisfied

with any amendments or changes before signing the thesis for submission to the Thesis Officer of the Faculty of Graduate Studies.

The acceptability of the **oral defense** of the thesis shall be determined by a majority vote of the Examiners present at the examination.

If the thesis is acceptable, but the oral examination is unsatisfactory, a second oral examination (with preferably the same Examining Board) shall be scheduled after a three month delay.

5. The Examination

The Faculty Oral Examination shall consist of:

(a) A brief introduction of his work by the candidate from a Division not requiring the public lecture

(b) Questioning on the subject of the thesis, and/or on pertinent topics arising from the thesis by the Board of Examiners and by any other members of the Faculty of Graduate Studies present at the examination.

The candidate's Chief Adviser shall attend the examination but may not take part in the examination except with the permission of the Chairman.

The Faculty Oral Examination may be attended by members of the Faculty of Graduate Studies, and visiting faculty members from other institutions on the invitation of a member of the Faculty of Graduate Studies. Other persons may attend the examination only on the invitation of the Dean.

6. Decision

The decision to recommend the awarding or withholding of the degree shall be rendered at the end of the examination, following discussion by the Board of Examiners and the candidate's Chief Adviser, but in the absence of the candidate, and shall be lodged with the Office of the Dean immediately following the examination. Each Examiner shall record his decision on official Faculty of Graduate Studies forms.

MASTER OF ARTS (MA),

MASTER OF SCIENCE (MSc) and

MASTER OF ENGINEERING SCIENCE (MESc)

ENTRANCE REQUIREMENTS

A candidate must be a graduate of an approved university or hold equivalent qualifications. Normally only applicants who have graduated with at least a B standing and who, by their undergraduate records have demonstrated the potential ability to succeed in graduate work, will be considered.

PERIOD OF STUDY

The duration of the program will be adjusted individually for each candidate. A minimum of one academic year full-time, or two academic years part-time, will be required of graduates from Honors Programs. If more than ten hours a week are spent in teaching or other departmental duties at least two academic years will be required. Students in the Sciences are usually expected to continue their laboratory or field work during the Spring Term.

COURSE OF STUDY

The course of study shall be determined by the Chairman of the Department, (or equivalent) in consultation with his departmental Graduate Affairs Committee, for each candidate. At least one Faculty Adviser shall be appointed by the Committee.

LANGUAGE REQUIREMENTS

In those Divisions or Departments which require it, a candidate for the Master's degree must have a reading knowledge of at least one language other than English which is acceptable to his Department, School, or Faculty, and is useful in his research.

The candidate must furnish evidence of such reading knowledge either in the form of university credits or by passing an examination offered by the department in which the student is registered. University credit shall normally mean credit for at least one year's work in the language at College level, or its equivalent, e.g. French 20 or 45, German 20 or 45; Russian 1 and 10 or 15, or Spanish 20 or 45.

Alternatively, the requirement may be fulfilled by the use of the Graduate Foreign Language Test of the Educational Testing Service, Princeton. If the nature of a candidate's research makes it desirable, a Department, School or Faculty may require him to show reading knowledge of an additional language.

Courses in Scientific French, German, Russian and Spanish are given each year in the Faculty of Arts. Since language requirements differ from department to department, it is the student's responsibility to ascertain his department's requirements, to fulfill them, and check that the department records the completion of the requirement.

EXAMINATIONS

Oral or written examinations on course work, as well as a comprehensive examination, may be required by the Department, School or Faculty concerned. Notice of the type of examination required shall be given by the Chairman of the Department, or appropriate equivalent authority, to the candidate as soon as possible after his initial registration.

At the discretion of the Department, a student who has been permitted to substitute additional course work for a thesis, may be required to pass an oral comprehensive examination conducted by an Examining Board similar to the Thesis Examining Board.

Master's Thesis

1 General Specifications

A thesis, incorporating the results of an investigation in the field of the major subject, may be required.

2 Format Specifications

The regulations of the Faculty of Graduate Studies as to the quality of paper, type and layout must be fulfilled to facilitate the binding and microfilming of each thesis. A copy of the U.W.O. *Guide for the Preparation of Theses* may be obtained from the Faculty of Graduate Studies before the final draft of the thesis is typed. Students are asked to consult about such matters as kind of paper, method of duplicating copies, use of a paginator, binding personal copies, preparation of illustrative material and other related problems.

3 Submission Procedure

The candidate shall submit to his Chief Adviser portions of his thesis when requested and a complete draft on a date specified by his Adviser. Final revisions as proposed by his Adviser or committee shall be completed. The ORIGINAL and TWO unbound copies of the completed thesis shall be submitted to the Chairman of the Department or to the Chairman of the appropriate Committee on Graduate Studies. The thesis may be submitted at any time of the year, but to be sure of being examined in time for graduation at any given Convocation, the candidate

must submit the thesis at least NINE weeks before the date of that Convocation. Each copy of the thesis shall contain an abstract of not more than SIX hundred words and the candidate's Vita.

Following a successful examination and at least SIX weeks before Convocation, the student shall present the ORIGINAL and TWO copies of his thesis to the Thesis Officer of the Faculty of Graduate Studies.

4 Distribution of Theses

The Faculty of Graduate Studies will pay for the cost of binding the required copies which are distributed as follows: two copies are kept in the thesis collection in The D. B. Weldon Library (or the appropriate Science Library) and one copy is kept by the department. If a student wishes to have more copies, he is charged for the binding of each additional copy.

The thesis, with the consent of the author, will be microfilmed by the National Library of Canada. The positive copies of the microfilms held in the National Library are listed in *Canadiana,* the monthly and annual national bibliography published by the National Library.

5 Distribution of Abstracts

All MA candidates must submit two abstracts of their thesis. One of these is kept in the library archival collection and one in the reference collection. Instructions for the preparation of these abstracts are described in the thesis guide.

6 Departmental Oral Examination

A final oral examination on the thesis will be conducted by an Examining Board appointed by the Dean of the Faculty of Graduate Studies on the advice of the appropriate Divisional Committee. The Examining Board shall consist of a Chairman and at least three examiners, one of whom will be from another Department, School, or Faculty than that of the candidate.

The candidate's Department will make all arrangements for scheduling the Oral Examination and for delivery of the theses to the members of the Examining Board.

The Chairman of the Department, in consultation with the Chairman of the appropriate Committee on Graduate Studies, may request that a thesis be read by an External Examiner.

The candidate's Chief Adviser shall attend the examination but may not take part in the examination except with the permission of the Chairman. Any other members of the Faculty of Graduate Studies may attend and participate in the examination, but only members of the Examining Board shall vote on the approval of the candidate. To be successful a candidate must be approved by a majority of the Examining Board.

MASTER OF ARTS IN TEACHING (MAT)

This program has been approved by the Ontario Council on Graduate Studies and by the Senate of the University. Students may be accepted into the program when the embargo imposed by the Ministry of Colleges and Universities has been lifted.

ADMISSION

(a) A candidate must be a graduate of an approved university or hold equivalent qualifications. Normally only applicants who have graduated with at least a B standing and who, by their undergraduate records have demonstrated the potential ability to succeed in graduate work, will be considered.

(b) At least two years of successful teaching experience.

(c) Proficiency in English. A reading knowledge of at least one language other than English may be required.

PROGRAM OF STUDIES

All candidates must complete a research paper and a course in curriculum research appropriate to their discipline in addition to the following:-

English - English 606 and two other graduate courses offered by the Department of English, Faculty of Arts.

History - two graduate courses offered by the Department of History, Faculty of Social Science, and one graduate course offered by Althouse College of Education.

Mathematics - two graduate courses offered by the Department of Mathematics or the Department of Applied Mathematics, Faculty of Science.

Physical Education - two graduate courses offered by the Faculty of Physical Education and one graduate course offered by Althouse College of Education.

The research paper must show substantial evidence of research and capacity for independent critical judgement. The topic and proposal for the study must be approved by a research advisor. Assessment of the research paper will be made by the research advisor and two professors, one of whom will normally be from a Department or Faculty other than Education. An oral examination of the research paper may be required.

PERIOD OF STUDY

One calendar year of full time study or three terms of residence. All the requirements for the degree must be completed within four calendar years following registration as a graduate student.

MASTER OF BUSINESS ADMINISTRATION (MBA)

ADMISSION

The graduate program in Business Administration which leads to the degree of M.B.A. is designed to cover two academic years. To enter this program, a candidate must hold a recognized undergraduate degree from an accredited university or have equivalent qualifications. Moreover, his record must indicate that he is capable of doing graduate work. Admission to the M.B.A. Program may be offered by the School to candidates without an undergraduate degree if they can demonstrate that their previous work experience and leadership qualities clearly indicate a high potential for management.

COURSE OF STUDY

The first year of the M.B.A. Program consists of an integrated set of required courses designed to give all students a basic understanding of the functions and the interrelationships of the major areas of business management as well as a basic level of skill in problem-solving techniques. These courses are: Marketing, Operations Management, Finance, Planning Information and Control Systems, Organizational Behaviour, Management Science, and Economics.

The learning process is based on individual study and preparation, group discussions and projects, classroom discussion, lectures, use of audio-visual materials, report writing, and in most courses, a considerable emphasis is on the use of case studies as a means of acquiring management decision-making skills and attitudes.

In the second year the graduate student is required to take the equivalent of five full courses. Only one of these courses, Business Policy, is compulsory for the

degree of Master of Business Administration. The balance of the courses may be chosen from those being offered in various fields. Graduate students, with the permission of the M.B.A. Program Chairman and the Dean of the appropriate Faculty, may substitute for a Business option one or two advanced half courses offered by the Faculty of Arts or Science or Social Science.

Further details concerning this program may be obtained from the School of Business Administration entry elsewhere in this Calendar and from the Admissions Officer of the School of Business Administration.

MASTER OF CLINICAL DENTISTRY (MC1D)

ADMISSION

A candidate must possess the DDS degree or equivalent from an approved dental school. Normally, only applicants who have graduated with at least a B standing and who, by their undergraduate records, have demonstrated the potential ability to succeed in graduate work, will be considered.

The application deadline is December 15th for the program beginning each July following.

RESEARCH AREAS OR SPECIALITIES

The principle research interests of the department are Human Facial Growth and Treatment; Development of the Dentition; Heredity in the Human Face; Expansion of Orthodontic Services to the Community.

DEGREE REQUIREMENTS

The course of studies covers 24 continuous months (beginning in July) and is under the direction of the Professional Degree Committee for Clinical Dentistry of the Faculty of Graduate Studies.

The graduate student is required to take specific courses in basic science and clinical disciplines related to the clinical and research activities of the program.

Representative malocclusions are treated in the clinic and experience in consultation with general practitioners is an integral part of the program.

Original research in a basic or clinical science area is a requirement and is reported in a format suitable for publication. Two copies of the report and appendices are bound and retained by the Health Sciences Library and one by the department, following approval of the report by the Professional Degree Committee.

MASTER OF CLINICAL SCIENCE (MCISc)

The objective of the MCISc degree is to provide an opportunity for medically qualified candidates to apply the Basic Health Sciences to clinically-based problems.

A candidate must have an MD or an equivalent degree in Medicine, from a recognized institution and must have one year of experience as an intern, or an acceptable equivalent. It is considered desirable, but not necessary, for the candidate to have in addition at least one year of experience in the clinical specialty of his choice. Normally only applicants who have graduated with at least a B standing will be considered.

The Biosciences Divisional Committee of the Faculty of Graduate Studies in accepting a candidate for the MCISc shall appoint a committee to act in an advisory capacity to the candidate. It shall consist of:

1. A representative of the Clinical Department to which the candidate is attached.
2. A representative of a Basic Science Department interested in the research to be undertaken.

3. A member of a Department not directly involved in the candidate's work.

This committee shall appoint its own chairman.

The course and duration of study required of an individual candidate shall be a matter of recommendation by the supervisory committee and be ratified by the Biosciences Divisional Committee.

A thesis shall be presented by the candidate in accordance with the standards and regulations outlined for the MA, MSc and MESc degrees.

MASTER OF ENGINEERING (MEng)

COURSE OF STUDY

Course work programs leading to the degree of Master of Engineering are offered to those engineers whose interests lie in analysis, design, and development rather than research. An individual program shall consist of a minimum of 5 courses (totalling at least 10 credits), a project (3 credits), and a seminar, and shall be approved by the appropriate Graduate Board. Credits for courses shall be computed on the basis of 1 credit for each hour per week of lectures and 1 credit for each three hours per week of laboratories.

ACADEMIC QUALIFICATIONS

A candidate for the degree of Master of Engineering must be a graduate of a recognized university or hold equivalent qualifications. Only students who by their previous academic records have demonstrated their potential ability to succeed in graduate work will be considered. Proficiency in English is required of non-English speaking students. This may be demonstrated as described under language requirements.

PERIOD OF STUDY

The minimum period of full time study is one academic year, i.e. the Fall and Winter Terms in residence. Students may be permitted to undertake the program on a part-time basis provided that satisfactory arrangements can be made for the project; this may require that not less than one term be spent in full time studies. Students registered on a part-time basis must complete all the requirements for the degree within the four year period following registration as a graduate student.

ADVISERS

A Faculty Adviser shall be appointed for each candidate; additional advisers may be appointed as required.

PROJECT

The project report shall be read by at least two examiners only one of whom need be a member of the Faculty. The candidate shall be required to give a public lecture on the subject of his project but shall not be required to defend it at an oral examination.

MASTER OF LIBRARY SCIENCE (MLS)

ADMISSION

A candidate for admission to MLS studies must be a graduate of an approved university or hold equivalent qualifications. Normally only applicants with at least a B standing can be considered. Candidates with a four-year Honors degree or its equivalent may be admitted to the School's three-term program at the beginning of any of the three terms. Candidates who hold a Honors Bachelor's degree and who wish to transfer at the end of one year from other graduate library schools with a two-year MLS or who hold a BLS from another Accredited library school or

its equivalent may complete their MLS after two terms. Candidates who have a three-year Bachelor's degree with at least B standing may undertake a special year (two terms), i.e. five full undergraduate courses, preferably Honors, in any subject area. They should apply to the Office of the Registrar for Special (Undergraduate) Student application forms and should consult the appropriate department for advice and approval on the Honors courses they would like to choose.

Such special students may, with permission of the Dean, include in their two terms of undergraduate work four half-courses within the School. Special arrangements must be made through the School when those admitted are determining their program. Prospective school librarians who hold a Bachelor's degree and with a standing of 75% over the last ten courses taken and who have completed a year of study at a College of Education or its equivalent, may be admitted to the three-term program.

All students must have proficiency in spoken as well as written English in order to contribute to seminar discussions.

PERIOD OF STUDY

Dependent upon the conditions laid down upon admission to the Faculty of Graduate Studies, a student may complete his studies for the MLS in two or three consecutive terms. It is possible to earn the MLS in summer terms or in summer sessions plus a final term. The program may also be taken part time.

LANGUAGE REQUIREMENTS

Because of the importance of languages in the field of library and information science, a reading knowledge of at least one language other than English is expected. The second language must be useful in study and research in the School's field of knowledge.

MASTER OF MUSIC (MMus), and

MASTER OF ARTS IN MUSICOLOGY (MA)

AREAS OF CONCENTRATION

The Master of Music degree is offered in the field of Music Theory, Music Education, Composition, and in Music Literature and Performance. The Master of Arts degree is offered in Musicology.

ADMISSION

A candidate must be a graduate of an accredited university or hold equivalent qualifications, including an Honors degree (Bachelor of Music) or its equivalent with at least a B average. Students who have taken a Pass degree (three year) program may register in the undergraduate Faculty.

ENTRANCE EXAMINATIONS

The Faculty of Music requires all prospective graduate students to take placement tests on either December 17-18, 1973, February 25-26, 1974 (the last date for those wishing financial assistance) or April 29-30, 1974. These examinations include papers in the theory and history of music, performance in the student's own applied area: voice, violin, etc., as well as general proficiency on the piano. Music Education majors will also take a separate examination.

The content of these entrance examinations may be obtained by writing to the Dean of the Faculty of Music.

Deficiencies must be removed at the earliest opportunity through approved courses or re-examination. A student will be presumed to be deficient in any area in which he does not take the entrance examination.

Students should achieve an A on the entrance examination in their chosen area of specialty, and not less than B in the other areas. Deficiency courses may not be used as a means of improving the academic average to meet the minimum level for admission to candidacy.

Entrance examinations will be given in the areas of Music Theory, Music History, Piano Proficiency, and in the student's Applied Music area (piano, voice, violin, etc.). The content of these examinations may be obtained by writing to the Dean of the Faculty of Music.

SPECIAL PREREQUISITES

A course in Acoustics and undergraduate training in Orchestration is required of candidates pursuing the degree in Music Theory.

Students concentrating in Music Education must have completed two years of classroom teaching. This prerequisite does not apply to all courses, but it does apply to the Music Education Seminar and Thesis.

Candidates in Composition must submit scores of their recent compositions and have them accepted by the Graduate Music Faculty.

Candidates in the areas of Literature and Performance must demonstrate in their audition a level of performing ability comparable to an A standard of the final undergraduate year before being admitted to candidacy.

LANGUAGE REQUIREMENTS

All candidates for admission must be competent in English. Musicology majors must have a reading knowledge of German and any other languages necessary for their research. Voice majors must be able to read one language other than English and pronounce German, French and Italian. Music Education and Theory majors require only a reading knowledge of languages demanded by their research projects. If a student is not able to meet the foreign language requirement at the time of his admission, he may be allowed to pursue some graduate courses while he is gaining language competence.

PERIOD OF STUDY

Candidates shall be required to spend at least two terms of each academic year in residence, and to complete the program within five years. Students must register for each session during which they plan to use any university facilities, and must register in the session during which they plan to complete their degree program.

The minimum time in which the requirements can be completed is one full year (three terms), but the actual duration will depend upon the proposed course of study. Candidates who undertake remunerative employment must be prepared to spend additional time. When a deficiency in any area is indicated by the entrance examinations, the student must plan to devote more than one academic year to complete the program.

COURSE OF STUDY

The course of study shall be initially proposed by the student's Adviser and the Chairman of the Department in which the candidate is working and shall be approved by the Graduate Music Committee. For each candidate, the Graduate Music Committee shall appoint at least one Adviser.

The program of study normally involves five courses (fifteen hours) and a thesis. The suggested content of the study program in each of the areas of concentration may be obtained from the Dean of the Faculty of Music.

Students who register in M509 (Applied Music) will participate in a large and/or small ensemble on their principal instrument.

THESIS AND DOCUMENT

A thesis incorporating the results of an investigation in the field of the student's major area is required of all candidates in Music Theory, Musicology, Music Education, and Composition. Students working toward a Master of Music in Literature and Performance will present a document following the procedure laid down for theses. The regulations of the Faculty of Graduate Studies will be followed concerning the preparation and presentation of the thesis and document and the make-up of the Examining Board that conducts the oral examination on the thesis or document.

EXAMINATIONS

Oral or written examinations on course work, as well as a comprehensive examination, may be required. Notice of the type of any examination required shall be given by the Chairman of the Department to the candidate at least two months before the date on which the examination is to be held.

A final oral examination on the thesis or document will be conducted under the supervision of the Professional Degree Committee in Music, which will appoint a Chairman and an Examining Board. The board will consist of a Chairman and at least three Examiners, at least one of whom will be from another Department, School or Faculty.

The Chairman of the Department, in consultation with the Chairman of the appropriate Committee on Graduate Studies, may request that a thesis be read by an External Examiner.

The candidate's Chief Adviser will attend the examination but may not question the candidate except with the permission of the Chairman. Any other members of the Faculty of Graduate Studies may attend and participate in the examination, but only members of the Examining Board shall vote on the approval of the candidate. To be successful, a candidate must be approved by a majority of the Examining Board.

MASTER OF SCIENCE IN NURSING (MScN)

PURPOSE OF THE MSCN PROGRAMS

The purpose of graduate education in nursing is to prepare graduates to assume senior responsibilities in nursing and to exert wise leadership within the profession of nursing. It is anticipated that the graduates will have knowledge in depth in their selected field of specialization, i.e., either teaching or administration; an appreciation of the role of research and the appropriate application of research findings; the ability to discern need for change in nursing and how to effect it; human relation skills which make possible effective functioning in situations as they obtain, or their modification if indicated. The programs take into consideration studies satisfactorily completed in undergraduate programs, and are designed to build upon the individual's background of education and experience and, where possible, to prepare for individually anticipated responsibilities on graduation.

PROGRAMS OFFERED, PERIODS OF STUDY

Two graduate programs in nursing are offered. One program leads to the degree Master of Science in Nursing (Administration). In this program the student specializes in one of: administration of nursing education, administration of hospital nursing, administration of community nursing. The second program leads to the degree Master of Science in Nursing (Education) and is intended for not only beginning, but experienced teachers in schools of nursing. Each program may be one to two years in length, dependent on the student's previous education. It is possible to study on a full- or part-time basis. With either program, students may elect to study or continue research during the summer months. Applicants are

urged to refer to that section of the calendar providing information applicable to all faculties, e.g., Registration, Graduate Fee Schedule, General Regulations Governing Advanced Degrees.

ACADEMIC STANDARDS TO BE MAINTAINED

An average of B is required each year. An assessment is made of each candidate's progress at the completion of the special undergraduate year, and no student is allowed to continue into the graduate year of the program with anything less than a B average without special permission from the Professional Degree Committee (Nursing) of the Faculty of Graduate Studies. Such special permission will be granted only if unusual extenuating circumstances have appeared to affect an otherwise satisfactory record.

If a student fails one course but otherwise maintains an average of B, the matter will be considered by the Professional Degree Committee of the Faculty of Nursing in consultation with the professor(s) of the course. Decisions regarding appropriate alternatives open to the student will be made on an individual basis and will be communicated to the student only after ratification by the Assistant Dean, Faculty of Graduate Studies.

INDIVIDUAL PROGRAMMING, ASSESSMENT, COUNSELLING

Provision is made for counselling with regard to individual program planning previous to students commencing the program and throughout their period of study. It is recognized that part-time students, in particular, require individualized planning of their programs. Selection of all electives must be sanctioned.

Ordinarily, students must complete all courses in the special undergraduate year before any courses in the graduate year are undertaken. Exceptions to this regulation will be made only under very unusual circumstances, on recommendation of the Dean or Coordinator of the Graduate Programs and with ratification by the Assistant Dean, Faculty of Graduate Studies.

It is expected that students will complete the program they select according to the usual arrangement of courses and that all course requirements will be fulfilled within the academic term(s) in which the courses are offered. If an incomplete grade is granted for any course it must be erased at least within the next adjacent term. An earlier date for erasure may be set by the professor responsible for the course.

Experience relevant to courses in the program is planned cooperatively by the professors and students on an individual basis. Experience may be necessary to augment the student's knowledge of the individually selected research topic and for the area in which the student wishes to specialize. Students may be required to complete additional learning experiences (academic or clinical) depending upon their facility in the use of the English language, previous academic studies or nursing experiences. For these reasons, students should not make commitments for employment between the special undergraduate and graduate years until they have consulted with the Dean or the Coordinator of the Graduate Programs, Faculty of Nursing.

Students will receive assessment of progress in individual courses as each term proceeds. Arrangements for counselling regarding their overall progress in the program may be made with the Dean or Coordinator of the Graduate Programs, as appropriate. Such counselling may be initiated by students or faculty members. One group counselling session for full-time students in each year of each program will be scheduled by the Coordinator of Graduate Programs before the termination of Terms 1 and 11. This is designed to elicit student assessment of the program and to discover common problems students may be encountering.

FINANCIAL AID

Fellowships and Awards Offered by the University

The University awards a limited number of graduate fellowships, teaching assistantships, research assistantships, and demonstratorships tenable within the Departments of Arts, Biosciences, Physical Sciences, and Social Sciences. Prospective candidates should direct their inquiries to the Chairman of the Department in which they wish to work.

Scholarships awarded by the University of Western Ontario shall be tenable only at the University, unless the provisions of a particular scholarship state otherwise.

The University reserves the right to modify or cancel scholarship offerings after the date of publication of this Calendar.

NOTE: Many of the university awards are tenable only by Canadian citizens or landed immigrants who have obtained their landed immigrant status before applying for an award. Inquiries as to eligibility for awards ought to be made to the Office of the Faculty of Graduate Studies.

HENRY LEWIS CAULKINS SCHOLARSHIP

This scholarship was provided from the estate of the late Donald L. Springer and is tenable by a graduate of The University of Western Ontario at the University of Michigan for graduate study in any academic discipline. The value of the scholarship is approximately $2,000 (Canadian). Applications should be submitted to the Dean of Graduate Studies of the University of Western Ontario by March 15.

IVIE CORNISH MEMORIAL FELLOWSHIP

Graduate fellowship in History, value up to $2,000 a year. Applications should be submitted to the Chairman, Department of History, by March 15. The award may not be made in any one year at the discretion of the Faculty of Graduate Studies.

SIR ARTHUR CURRIE MEMORIAL SCHOLARSHIP

Graduate fellowship in the Social Sciences, preferably in some branch of Economics, value $500 a year; open to graduates of any Canadian university; tenable at this University unless the winner is a graduate of this University, in which case the award will be tenable at this or any other Canadian or British university designated by the winner. Applications should be submitted to the Dean of Graduate Studies by March 15.

NELLIE L. FARTHING MEMORIAL FELLOWSHIP

Graduate fellowship in the Medical Sciences, value $1,500 per academic year. This fellowship is available to students engaged in graduate work or medical research. Applications should be submitted to the Dean of Graduate Studies by March 15.

J. A. F. STEVENSON MEMORIAL SCHOLARSHIP

In commemoration of the great contribution made to the scientific and general academic life of Canada by Dr. Stevenson (1918-1971), former Dean of the Faculty of Graduate Studies, the Board of Governors established this scholarship valued at $1,000 to be awarded annually to a student in the Faculty of Graduate Studies. Applications should be submitted to the Dean of Graduate Studies by March 15. The award may not be made in any one year at the discretion of the Faculty of Graduate Studies.

UNITED EMPIRE SCHOLARSHIP

To further research and study in the local history of Southwestern Ontario, a scholarship, valued at $300 and endowed by the Lloyd C. A. Hodgins estate, is awarded annually to a graduate student in the Social Science Division of the Faculty of Graduate Studies. Application should be made to the Dean of Graduate Studies by March 15.

Fellowships and Awards Offered by Government Agencies

ALCOHOLISM AND ADDICTION RESEARCH FOUNDATION FELLOWSHIPS

The Alcoholism and Addiction Research Foundation of Ontario offers a number of postgraduate fellowships for training in **research** in the various fields related to problems of addiction. The value of the fellowships ranges from $3,000 to $6,000, depending on the academic standing and experience of the candidate.

Application forms can be obtained from the Director of Administration, Alcoholism and Addiction Research Foundation, 33 Russell Street, Toronto. Application deadline, at the above address, is January 1.

CANADA COUNCIL

Doctoral Fellowships

The Canada Council offers fellowships ranging from $4,000 to $6,000 for study leading towards a doctorate in the humanities, social sciences or arts. Applicants must have completed one year of graduate study at the time of taking up the award. Renewals are possible but no candidate will receive support for more than four years.

Further information and application forms are available from Departments or from the Faculty of Graduate Studies in early September, and completed forms normally must be submitted to departmental Chairmen by early November. Applicants for a renewal should apply directly to the Awards Service, Canada Council, P.O. Box 1047, Ottawa K1P 5V8.

Special M.A. Scholarships

These scholarships, valued at $4,000 each per annum, are awarded to Canadian citizens with first class standing in their Honors B.A. degree, who are intending to study for a Master's degree at a Canadian university in a field normally supported by the Canada Council. Candidates must initially be nominated by a faculty member by October 15, and completed application forms must be returned to Regional Chairmen by November 15. Further details are available from the Faculty of Graduate Studies.

CENTRAL MORTGAGE AND HOUSING CORPORATION GRADUATE FELLOWSHIPS

Central Mortgage and Housing Corporation offers fellowships for graduate study in various fields or urban and regional affairs in approved Canadian universities and elsewhere. Candidates must be Canadian citizens or landed immigrants in Canada. Stipends are $3,900 per annum plus tuition fees and a $600 allowance for each dependent child.

Application forms and information are available from the Faculty of Graduate Studies or the Administrative Officer, Fellowships, Central Mortgage an Housing Corporation, Ottawa K1A 0P7, Ontario. Completed application forms must be submitted through the university department in which the student proposes to enroll by March 1.

COMMONWEALTH SCHOLARSHIP AND FELLOWSHIP PLAN

Under a Plan drawn up at a conference in Oxford in 1959, each participating country of the Commonwealth offers a number of scholarships to students from other Commonwealth countries. These scholarships are mainly for graduate study and are tenable in the country making the offer. Awards are normally for two years and cover travelling, tuition fees, other university fees and a living allowance.

Details are available from the relevant government office in applicant's own country or the Canadian Commonwealth Scholarship and Fellowship Committee, c/o Association of Universities and Colleges of Canada, 151 Slater Street, Ottawa, Ontario.

THE SIR JOHN A. MACDONALD GRADUATE FELLOWSHIP IN CANADIAN HISTORY

The Government of the Province of Ontario makes available each year one fellowship of $4,000. The award is tenable for two years, making the maximum value of each award $8,000. This fellowship is tenable at an Ontario university by a Canadian citizen resident of Ontario, for graduate studies with a major emphasis on Canadian History.

Application forms (available at the Faculty of Graduate Studies) must be submitted to the Secretary, Committee of Selection, Sir John A. Macdonald Graduate Fellowship in Canadian History, Department of University Affairs, Mowat Block, Parliament Buildings, Toronto 182, Ontario before January 29.

MEDICAL RESEARCH COUNCIL

A limited number of studentships valued at $3,800 per annum are offered by the Medical Research Council to highly qualified graduate students of the pre-doctoral level who are undertaking full-time training and research leading to a higher degree under the supervision of members of departments of medical schools. Applications received by 1 January are considered in March; the closing date for those to be considered in June is 1 April.

Graduate students holding a doctorate in Medicine, Dentistry or Veterinary Medicine may compete for Medical Research Council Fellowships which range in value from $5,300 - $9,500 depending upon qualifications. Closing dates for application are 1 January, 15 April and 1 October.

All communications concerning the Studentships and Fellowships should be addressed to: The Secretary, Medical Research Council, Ottawa K1A 0W9, Ontario, Canada.

MILITARY SERVICE SCHOLARSHIPS

The Department of National Defence sponsors programs of university education for young men who have the potential to become officers in the Canadian Armed Forces. The programs include Regular Officer Training Plan, Medical Officer Training Plan, Dental Officer Training Plan, and Reserve Officer University Training Plan.

Applicants must be Canadian citizens. For full information contact: The University Liaison Officer, Canadian Forces Base Toronto, Downsview, Ontario.

DEPARTMENT OF NATIONAL DEFENCE SCHOLARSHIPS

The Department of National Defence has established three scholarships for military and strategic studies of interest to Canada and may comprise work in one or more of the following areas: National and International aspects of security, studies of strategic theory, alliances and United Nations, civil-military relations. Candidates must be Canadian citizens. Stipends are $4,000 plus academic fees.

Closing date for receipt of applications March 1. Further information may be obtained from: Director of Awards, Association of Universities and Colleges of Canada, 151 Slater Street, Ottawa, Ontario.

NATIONAL PARKS SERVICE

The National Parks Service offers scholarships valued at $2,000 each for study in the fields of Natural Parks and Outdoor Recreation or Historical Archaeology and Restoration Architecture. The scholarships will be awarded to Canadian citizens, and are tenable at foreign universities only if the required courses are not available at Canadian universities. Application is by letter, and further details can be obtained from the Faculty of Graduate Studies or the Director, Parks Canada, Department of Indian and Northern Affairs, 400 Laurier Avenue West, Ottawa K1A 0H4.

NATIONAL RESEARCH COUNCIL

The National Research Council offers postgraduate scholarships valued at $4,050 for twelve months for study and research in the fields of agriculture, biology, chemistry, physics, geology, physical geography, mathematics, engineering and experimental psychology. Students planning to undertake graduate work in Medical Schools should apply to the Medical Research Council. Applicants must be Canadian citizens or landed immigrants residing in Canada. The scholarships are renewable, up to a limit of two renewals.

Application forms are made available through departments in mid-October. The deadline for return of completed applications to the Chairmen of the appropriate departments in usually late November.

Information on other National Research Council awards can be obtained from the Faculty of Graduate Studies or from the Scholarships Officer, Awards Office, National Research Council, Ottawa K1A 0R6.

ONTARIO GRADUATE SCHOLARSHIPS - ONTARIO GRADUATE FELLOWSHIPS

It is our understanding that the Ontario Graduate Fellowship Program will be terminated April 30, 1974, and replaced thereafter by an Ontario Graduate Scholarship Program. It is anticipated that the details and application formsfor the OGS Program 1974-75 will be available Fall 1973. When information is available, the departments will be advised and application forms can be obtained at either the Faculty of Graduate Studies or the appropriate department.

ONTARIO/QUEBEC EXCHANGE PROGRAM

The governments of Ontario and Quebec support an exchange program to encourage students from one province to pursue doctoral or post-doctoral studies in the other province. Each government provides ten fellowships annually of $5,000 each. Candidates must be resident in Ontario or Quebec, either have or be working towards a graduate degree, and be enrolled in a full-time program in a university of the other province. Further information is available from the Faculty of Graduate Studies.

THE QUEEN ELIZABETH II ONTARIO SCHOLARSHIPS

The Government of the Province of Ontario makes available a number of scholarships valued at $5,000 each to candidates nearing the completion of the PhD degree in the humanities, social sciences and mathematics at Ontario universities. Preference will be given to candidates who are residents of Ontario.

Applications are available at the office of the Faculty of Graduate Studies and are submitted to the Dean of the Faculty of Graduate Studies before December 1.

TRANSPORTATION DEVELOPMENT AGENCY FELLOWSHIPS

The Transportation Development Agency awards a limited number of fellowships for graduate study in any discipline related to transportation leading to an advanced degree for which there is a thesis requirement. Cadidates must be Canadian citizens or landed immigrants. Stipends are $4,200 for a twelve month period, plus tuition fees.

Application forms can be obtained from the Faculty of Graduate Studies or from the Awards Service, Transportation Development Agency, 2085 Union Street, Montreal 111.

Fellowships and Awards Offered by Non-Government Agencies

ASARCO RESEARCH GRANT

This grant, valued at $1,000 per annum, is awarded by the American Smelting & Refining Company to an outstanding graduate student in the Department of Geology. The award is made by the Faculty of Graduate Studies on the recommendation of the Chairman of the Department of Geology. Preference will be given to students who are or who expect to become, candidates for the PhD degree.

BELL CANADA CENTENNIAL FELLOWSHIPS

The Bell Telephone Company of Canada offers up to eight graduate fellowships of $5,000 ($3,500 to the Fellow, and $1,500 to the University) to candidates who are proceeding towards a Master's degree. Preference will be given to subject areas relevant to the scientific, political, social or economic needs of Canada. Candidates must be Canadian citizens or have held landed immigrant status for one year prior to submitting application, and must be graduates of a university or college with standards accepted by the Association of Universities and Colleges of Canada. Fellowships are tenable at any Canadian university or college which is a member, or affiliated to a member, of the A.U.C.C.

Application forms may be obtained from the Director of Student Awards, Association of Universities and Colleges of Canada, 151 Slater Street, Ottawa 4, Ontario. Final date for receipt of applications March 1.

CANADIAN FEDERATION OF UNIVERSITY WOMEN PROFESSIONAL FELLOWSHIP

This fellowship is open to any woman holding a degree from a Canadian university, whose domicile is in Canada, and who wishes to spend a year at an accredited Library School, School of Social Work, College of Education or similar professional School. The fellowship is valued at $2,500 and one or two may be awarded each year. Candidates must be members of the CFUW.

Further information and application forms can be obtained from the CFUW, Mount Allison University, Box 69, Sackville, New Brunswick. Deadline for submission of applications is February 1.

CHEVRON STANDARD LIMITED GRADUATE FELLOWSHIP

Chevron Standard Limited offers annually five graduate fellowships which are tenable in selected Canadian universities to students proceeding to a graduate degree in one of the fields of Geology, Geophysics or Petroleum Engineering. The fellowships are tenable for one year in the amount of $1,000 each, plus a grant of $500 to the university department concerned. The awards are primarily intended to assist male Canadian students showing an interest in Earth Science related to oil exploration and to students who are interested in petroleum development and

production. Application forms may be obtained from the Faculty of Graduate Studies, or by writing directly to the Secretary, Aids to Education Committee, Chevron Standard Limited, 400 Fifth Avenue S.W., Calgary 1, Alberta, and must be submitted prior to March 31 of the year in which the graduate program is to be undertaken.

GULF OIL CANADA LIMITED GRADUATE FELLOWSHIPS

Nine awards, valued at $4,500 ($3,500 to be paid to the successful candidate and $1,000 to the receiving university) are made each year to candidates in engineering, chemistry, physics, mathematics and computer sciences, geology, geophysics and any related sciences, business and management studies and one ecologically-oriented studies, who are Canadian citizens or who have held landed immigrant status for year prior to submitting the application. Candidates must be graduates of a Canadian university or college which is a member, or affiliated to a member, of the Association of Universities and Colleges of Canada.

Fellowships are tenable at any of the above universities. Closing date for receipt of applications is March 1. Application forms may be obtained from: Director of Awards, Association of Universities and Colleges of Canada, 151 Slater Street, Ottawa 4, Ontario.

IMPERIAL OIL FELLOWSHIPS

Imperial Oil Limited in 1946 established for annual competition Graduate Research Fellowships, now five in number and having a potential value of $9,000 ($3,000 a year for a maximum of three years). No restriction is placed on the amount of similar assistance held concurrently. Successful applicants may attend any approved university.

The fellowships are open to graduates of any approved Canadian university and are offered for research leading to a Doctor's degree in the fields of pure and applied natural and/or exact sciences, including mathematics (3 fellowships) and social sciences and humanities (2 fellowships.) Nominations for the fellowships are made by Canadian universities, such nominations to be received by the Secretary, Committee on Higher Education, Imperial Oil Limited, 111 St. Clair Avenue West, Toronto 7, not later than February 1 of each year.

IMPERIAL ORDER OF THE DAUGHTERS OF THE EMPIRE

These awards were established to perpetuate the memory of those who gave their lives in World Wars I and II, and are made to graduate students who are Canadian citizens and who intend to work in Canada after completion of their studies. Candidates must hold a Bachelor's degree from a recognized Canadian university and must be or have been registered at a graduate school. Applications should normally be made in the province in which the candidate received his/her Bachelor's degree.

In all, ten scholarships are offered, for study in the humanities or any subject vital to the interests of the Commonwealth. Some of the scholarships are tenable at a university in Great Britain or any part of the Commonwealth outside Canada, and are valued at $5,000 each. Others, valued at $3,000 each, are tenable at Canadian universities. Application forms may be obtained from the Faculty of Graduate Studies and should be submitted to the appropriate IODE provincial Convener.

THE INTERNATIONAL NICKEL GRADUATE RESEARCH FELLOWSHIPS

The International Nickel Company of Canada has established a number of graduate research fellowships in engineering and science for annual competition in Canadian universities. Each award has a possible tenure of three years, and is

valued at $4,500 annually of which $3,800 is payable to the Fellow and $700 to the department for materials and equipment to support the research.

The fellowships are open to students who are proceeding to either the Master's or Doctor's degree and whose research will be concerned with basic science intrinsically related to the following specializations: Chemistry or Physics of Metals or Minerals, Geology (including Geophysics and Geochemistry), Metallurgy (both Physical and Extractive), Mineral Processing, and Mining.

Applications are made in letter form by the Candidate's supervising professor to The Administrator of Educational Affairs, The International Nickel Company of Canada Limited, P.O. Box 44, Toronto-Dominion Centre, Toronto, Ontario, prior to January 15. Not more than one application (either new or renewal) will be considered annually from any one department, and not more than three fellowships will be tenable annually at any one university.

SHELL CANADA FELLOWSHIPS IN ENGINEERING

Shell Canada offers a number of fellowships for postgraduate study in the following Engineering fields: Chemical, Civil, Electrical, Geological, Mechanical, Metallurgical, Mining and Petroleum Engineering, and Engineering Physics. Each fellowship is valued at $5,000 annually ($4,000 for the student and $1,000 grant in aid to the University), with an additional $500 to married students, and is tenable for up to three years at any Canadian University with a recognized graduate faculty and engineering research facilities. Candidates must be Canadian citizens or landed immigrants, and have completed at least one year of graduate study and research leading to a doctorate in Canada.

Applications from the Dean of Graduate Studies must be submitted by January 15 to: The Selection Committee, Shell Canada Fellowships in Engineering, c/o National Research Council, Ottawa, Ontario.

THE STEEL COMPANY OF CANADA LIMITED GRADUATE RESEARCH FELLOWSHIPS IN METALLURGY

Four fellowships, valued at $5,000 each, of which $4,000 is awarded to the successful candidate and $1,000 to the department of the University in which research will be carried out, are offered each year. Renewal is possible, but the award may not be held for more than three years. Candidates must be Canadian citizens or have held landed immigrant status for one year prior to submitting application. Candidates must be graduates of a Canadian University or College which is a member or affiliate to a member of the Association of Universities and Colleges of Canada. Fellowships are tenable at Canadian universities that have a qualifying course in Metallurgical Research.

Academic Prizes

ARCHIBALD A. CAMPBELL SCHOLARSHIP IN CANADIAN LITERATURE

This prize, valued at $2,000, is awarded annually to the most outstanding undergraduate or graduate who is engaged in a research project in the field of French Canadian Literature.

COLLIP MEDAL FOR GRADUATE STUDENTS

A medal to be awarded at Spring Convocation to the most meritorious graduate student obtaining a PhD degree in the Medical Sciences during the past year.

The award shall be made on the merit of the candidate's thesis, final oral examination and ability shown during his graduate training.

The award may not be made in any one year on the decision of the judges.

DETWILER AWARD

This award is recommended by the Department of Zoology to be awarded annually at Fall Convocation to the most meritorious graduate student obtaining a PhD or MSc in Zoology during the year based on the merit of the candidate's thesis and final oral examination.

The award may not be made in any one year on the decision of the judges.

MCINTOSH SCHOLARSHIPS IN GEOGRAPHY

Two scholarships of approximately $300 each are awarded annually for high academic achievement to graduate students in the Department of Geography. These scholarships will be given to graduates in Honors Geography at The University of Western Ontario or to students who have completed graduate degrees with distinction in the Department of Geography of The University of Western Ontario.

L. G. SODERMAN AWARD

The L. G. Soderman Award, established in memory of the late Professor L. G. Soderman, distinguished Canadian Geotechnical Engineer, is awarded to an engineer to assist him in pursuing graduate studies in civil engineering at The University of Western Ontario. Preference is given to those entering a Geotechnical Engineering program. The award, in the amount of $400 per annum, will normally be held for one year, but may, under special circumstances, be extended for a second year. The announcement of the award will be made during the winter or spring term when graduate applications are being reviewed.

CHARLES A. SOUTHWORTH MEMORIAL IN PALEONTOLOGY

The Charles A. Southworth Memorial in Paleontology is awarded to an undergraduate or graduate student at the discretion of the Geology Department, provided by Mrs. Harriet B. Woolfenden, Sedona, Arizona. Award - Book(s).

Further Information

Information on extra-mural awards, fellowships and scholarships for master's and doctoral candidates is available at the Office of the Faculty of Graduate Studies, and is published in the *Western News*. The Faculty maintains a reference library of material on graduate education and an extensive collection of graduate calendars which may be used by students. For information on research grants and post doctoral fellowships consult the University Research Office, Room 101, Stevenson-Lawson Building.

Most graduate awards require the applicant to provide assurance that, if successful, he will be accepted by the university. Candidates should obtain such assurance by direct communication with the Chairman of the Department in which they wish to work.

CANADA STUDENT LOANS PLAN

This Plan is a Federal Government program administered by the provinces (except Quebec, which does not participate in the Plan). It is designed to make bank loans available to Canadian citizens or landed immigrants of one year's standing who would not otherwise have sufficient resources to undertake post-secondary education. Applications should be made to the province of residence.

The maximum loan available is $1,400 per academic year. Students who qualify for a loan will be issued with a Certificate of Eligibility which enables them to borrow from any chartered bank or other approved lending institution. The Federal Government will guarantee the loan to the lender and will pay all interest charges

until six months after graduation. At this time, repayment must commence at current rates of interest, and must be completed within a period of 9-1/2 years.

Application forms and further details are available from the Financial Aid Office, University of Western Ontario or from the Student Awards Branch, Ministry of Colleges and Universities, Mowat Block, Queen's Park, Toronto M7A 1C6.

ONTARIO STUDENT AWARDS PROGRAM

This program is intended to assist students from the Province of Ontario who lack adequate family financial resources to pursue post-secondary education. Awards given under the program consist of two parts:

a) A loan under the Canada Student Loans Plan, which is subject to the usual terms and conditions of the Plan.

b) A grant provided by the Province of Ontario, which is normally non-repayable.

This program is intended to supplement rather than replace family and/or student resources. Accordingly, the resources of the family and/or student which could reasonably be used to provide for educational costs will be assessed before any award is made.

Application forms are obtainable from the Financial Aid Office, University of Western Ontario.

EMPLOYMENT

The Career Planning and Placement Service, located in Room 24, University Community Centre, provides a listing service with details of numerous current, summer and part-time employment possibilities for which students may submit applications directly.

LIBRARY FACILITIES

Robert Lee, PhD, Chief Librarian

Fundamental to all graduate research is the Library. The General Library of the University is housed in The D. B. Weldon Library Building. In the Periodical Room of the same building are the current and bound issues of periodicals in the Arts, Social Sciences, and Physical Education. The Bibliographical Centre, which is of particular value to graduate students, is also located in this building. There are, in addition, excellent collections of books and periodicals, of value in graduate study, covering specific subjects in the following Libraries: Business Administration, Engineering Science, Health Sciences, Law, Natural Sciences, Music, Education and Library and Information Science. A collection of maps, both topographic and topical, covering Canada and other parts of the world is housed in the Department of Geography's Map Library, located in the Social Science Centre. The collection of the University Library System is composed of more than one million volumes of monographs and bound periodicals, 8,800 current periodicals and newspaper titles, 220,000 documents, and a further 950,000 microforms, tapes, recordings and other special materials, for a total over 2 million items.

Twenty-one microfilm and twenty-three microfiche and microcard readers are provided in view of the increased use being made of material in microphotographic form. Five of these readers are also printers; they are recently designed pieces of equipment from which photographic copies of microforms can be made.

In cases where the University Libraries do not possess certain books or journals, and when these cannot be purchased either in the original format or in microphotographic form, it is usually possible to borrow them on Interlibrary Loan from a Canadian or United States Library. The use of Interlibrary Loans is

restricted to faculty and graduate students. The Council of Ontario Universities on the recommendation of the Ontario Council of University Libraries, has set up an inter-university library transit system. Five station wagons carry books between thirteen of the universities in Ontario five days a week. The system has greatly expedited the transfer of research material between the Ontario universities and major federal libraries in Ottawa. Postal charges of more than $1.00 per transaction must be paid by the borrower. The lending library specifies the conditions under which the borrowed material may be used, and these conditions must be adhered to. For example, frequently the borrowed book must be used within the library. In the D. B. Weldon Library and other libraries referred to above there are a number of modern copying machines for reproducing material at cost to the borrower, who then has the advantage of possessing a permanent record.

A graduate student registered in any Ontario university may visit any other university library and use its resources. In order to do so the graduate student is required to carry an inter-university library visiting request authorized by his adviser and recommended by the Chief Librarian of his university. Application forms may be obtained in the Office of the Coordinator of Public Services (Operations), Room 128A, The D. B. Weldon Library (near the Circulation Desk).

REGIONAL COLLECTION

This research collection includes large holdings of local public records from Western Ontario, covering municipal government, law and education, from the late years of the 18th century up to the present time. Extensive collections include demographic and social data. These resources can be used to support research in the fields of history, geography, political science, and have proven of value in studies of legal history, education, sociology, and economic and cultural history.

Collections of business manuscripts, primarily of the London area, include the complete archives of several firms. Private papers include settlers' diaries, and political and literary writings. The Library acts as custodian for the Archives of the Religious Society of Friends (Quakers) in Canada, whose records date from 1798.

Extensive collections of regional newspapers (originals and microfilm), histories, directories, pamphlets and maps are included in the Regional Collection.

SPECIAL COLLECTIONS

The D.B. Weldon Library houses one of the outstanding collections of Canadian materials in the country, with extensive holdings in early voyages and travel. It is comprehensive in social, religious, educational and economic history of the province of Ontario. The emphasis in Canadian literature is pre-1950. The study of Canadian history and literature is further supported by the substantial holdings of early Canadian periodicals.

In the field of English literature, there is the G. William Stuart collection of Milton and Miltoniana, consisting of about seven hundred volumes. On the basis of first and early editions, this collection is considered the fifth largest in existence. Of significance in the Miltoniana is the collection of various editions of *Eikon Basilike.*

The Hitchins Collection of Aviation History, one of the best private collections in the field, is a recent acquisition.

For the purposes of research, there are also significant holdings in French revolution background materials, and in selected areas of modern English and American literature.

RESEARCH FACILITIES

CANCER RESEARCH LABORATORY

J. A. McCarter, PhD, Director

The Cancer Research Laboratory was established by a grant from the Ontario Division of the Canadian Cancer Society, and is maintained chiefly by annual grants from the National Cancer Institute of Canada. It is housed in its own building on the main university campus. Activities are centred on a variety of problems in basic tumor virology. Senior members of the Laboratory hold joint appointments in appropriate departments of the Faculty of Medicine, and participate in the teaching of undergraduate and graduate students.

Graduate students may proceed to MSc and PhD degrees in the Laboratory receiving their advanced degree in whatever discipline their supervisor has his joint University appointment. These include at the present time Bacteriology and Immunology, and Biochemistry.

CENTRE FOR INTERDISCIPLINARY STUDIES IN CHEMICAL PHYSICS

J. Wm. McGowan, PhD, Chairman

In May, 1973 the National Research Council announced the development of a Centre for Interdisciplinary Studies in Chemical Physics (CCP) at Western. This organization was founded in response to a Canadian need for groups of established scientists from many disciplines to work together in well developed problem areas.

The Centre which is presently housed in the Physics Building has been constituted such that scientists, engineers, medical people, and in some instances non-scientists, can work together as full members of that organization. Furthermore, it is designed so that graduate students from many backgrounds represented within the Centre can participate with a mix of resident physical and medical scientists and engineers, post-doctoral fellows, and senior visiting fellows in the Centre. The graduate courses, and the student degree programs are administered by the department or faculty in which the student is registered.

For the first years two research areas have been designated for detailed investigation. The first is a study of Energy Deposition and the associated development of tools for radio-therapeutic treatment of cancer patients. This is related to the needs of the Ontario Cancer Treatment & Research Foundation and the Atomic Energy of Canada Limited Commercial Products Division. A second area is associated with Thin Films; it is meant to complement research and development needs of Welwyn Canada Limited, a firm established in the Thin Film resistive materials.

The Centre, although designed to focus some of the efforts of the established scientists, engineers and medical people on joint projects, will emphasize other programs of excellence related to respective areas of competence of the participating scientists. This research falls into four main areas, each being studied both theoretically and experimentally: 1) structure and properties of atoms and molecules, both simple and complex and of amorphous solids, 2) atomic and molecular interactions, scattering theory, low energy collisions of atoms, ions and molecules, electrons, positrons, photons with gases, plasmas, solids and living systems, 3) interaction of high energy radiation with solids, liquids, gases and living systems, 4) atomic motions and crystals, thin films and membranes.

The members of the Centre are drawn from departments of Applied Mathematics, Biophysics, Chemistry, Physics and Plant Sciences in the Faculty of Science, Biophysics and Nuclear Medicine from the Faculty of Medicine, and Material

Science and Electrical Engineering groups from the Applied Science Faculty. Associated with them are the researchers from the laboratories of Welwyn Canada Limited, and the London Clinic of the Ontario Cancer Therapeutic & Research Foundation. Major facilities and equipment, such as a van de Graaff, betatron and microtron electron accelerators, an ESCA, X-ray apparatus and electron microscopes, Lasers, Computers, are available through the Centre on a cooperative basis.

CENTRE FOR RADIO SCIENCE

P. A. Forsyth, PhD, Director

The University of Western Ontario has developed a particular competence in the scientific aspects of the generation, propagation and detection of radio waves. The Centre for Radio Science is not an instructional unit in the University, but does provide facilities for graduate research in many areas of radio science. In order to make use of these facilities a graduate student must be registered in an appropriate Department or Faculty of the University and be supervised by a member or associate member of the Centre. The graduate courses and the student's degree program are administered by the Department or Faculty in which he is registered. Courses appropriate to graduate work in Radio Science are given in a number of departments in the Faculty of Science and in the Faculty of Engineering Science at The University of Western Ontario.

Facilities are available for the generation and detection of radio waves ranging down to submillimeter wavelengths, laser spectroscopy, scattering and absorption of laser radiation in the infrared and optical regions by atmospheric gases and aerosols with applications to air pollution, quantum electronics, quasi-optical techniques, interaction of radio waves with solids, gases, plasmas and beams of charged particles. The Centre carries out explorations of all levels of the earth's atmosphere, the sun's atmosphere and the inter-planetary medium, using groundbased, rocket-borne and satellite-borne instruments.

Co-operative research arrangements exist with several universities in Ontario.

INTER-AMERICAN STUDIES GROUP

N. L. Nicholson, PhD, Chairman

J. C. M. Ogelsby, PhD, Secretary

The purpose of this group is to encourage and facilitate a cross-disciplinary and sometimes a cross-faculty approach to inter-American studies in close co-operation with existing faculties and departments.

The University of Western Ontario has long been concerned with Canadian-American studies. It began offering a course in United States history, the first in Canada, in 1909; and it has given special attention to and emphasized work on North American (United States and Canadian) literature, including French-Canadian literature, since 1934. Its Department of Geography is particularly concerned with regional studies of the Great Lakes area in international terms; and its Departments of Economics, Political Science, and Sociology have a strong North American orientation.

Since 1936 the University has extended the scope of its interest in Canadian-American affairs to include Latin America, whose history has been taught since 1942 and whose literature has been taught since the late 1940's. It is now possible for a student interested in Latin America to do graduate work in a specific discipline and to include course work from other departments.

Further information concerning programs in the Inter-American field may be obtained from the Chairman or the Secretary of the Group.

THE OFFICE OF INTERNATIONAL EDUCATION

Lawson Building, Room 285

The Office of International Education was established by the Senate in December, 1968, to facilitate the involvement of faculty, students and the London community in international development and cross-cultural programs.

More specifically the Office provides a supportive role for individual faculty members and departments who wish to make contact with universities and governments outside Canada particularly in the Third World, to develop specific programs and to engage in research projects. In addition, the Office provides assistance to students who are engaged in development or cross-cultural projects as well as providing information on travel and study programs abroad.

The Office has developed a Cross-Cultural Learner Centre which is located at Westminster College. It attempts to create an environment responsive to the personal needs of the learner by utilizing a wide range of audio-visual techniques including printed material, video tapes, slide-sound packs, sound tapes, films and artifacts. The value of human resources and interpersonal communication is recognized as a significant part of the learning experience. Material is available on Africa, Black Studies, Caribbean, Asia, Latin America, Native Peoples, the Canadian Mainstream Cultural Group, general development concepts and cross cultural relations. A unique feature of the Centre is the computer information retrieval system which enables the user to locate specific information related to his topic. The Centre is open from Monday to Friday.

THE ONTARIO COOPERATIVE PROGRAM IN LATIN AMERICAN AND CARIBBEAN STUDIES

Susan Ram and J.C.M. Ogelsby, PhD - Members of the Executive Committee from the University of Western Ontario.

The Ontario Cooperative Program in Latin American and Caribbean Studies (OCPLACS) is a consortium of seven provincial universities with special interests in this field. OCPLACS sponsors four seminars at member universities during the course of the academic year, and promotes the interchange of ideas and programs at faculty and graduate student levels. The local OCPLACS members sponsor interdisciplinary seminars and exchanges within the university.

PHOTOCHEMISTRY UNIT

J.C.D. Brand, PhD, DSc, Director

Research interests: centre around the study of the physics and chemistry of the excited state.

The Unit, consisting of seven Faculty members, is interested in many aspects of photochemistry including the organic, physical, solid state and theoretical. These headings cover active research in mechanistic and preparative organic photochemistry, flash e.s.r., photosynthesis, photophysics, spectroscopy, both emission and absorption, flash photolysis, the photochemistry of inorganic crystals, together with calculations on the geometry and structure of the excited state.

The Unit is very well equipped for all forms of spectroscopy and photochemistry, and has, for instance, a number of lasers. Enquiries should be sent to the Director.

URBAN AND REGIONAL DEVELOPMENT STUDIES

E. A. Beecroft, PhD, Director

The University provides facilities for interdisciplinary research by its faculty and students in the field of urban and regional development. Through the Urban and Regional Development Studies Group, a unit of the Faculty of Graduate Studies, it

enables the student seeking a Master's or Doctor's degree to undertake a program of courses and research projects in a number of departments and/or faculties. While each student is expected to take his degree in his basic discipline, arrangements are made, with the approval of the academic units concerned, for a program that includes work in other disciplines. The interests and proposals of each student are considered in defining his program.

Such interdisciplinary programs are intended for students desiring to prepare for research, teaching, administration or planning in the field of urban and regional development.

A number of students already engaged in such programs at the University are receiving assistantships and fellowships from the University and from the Canada Council, Central Mortgage and Housing Corporation, and other sources.

For further information, the student should write to the Director, Urban and Regional Development Studies.

UNIVERSITY HEALTH SERVICES

HEALTH SERVICE ON CAMPUS

The main location of Student Health Services is in the University Community Centre where students may consult the University physicians for general medical care, by appointment if they prefer. A counselling service for students with personal problems is also available. Specialist services in the areas of athletic injuries, psychiatry, and gynaecology are provided. Twenty-four hour, 365 day-a-year emergency service is provided by the University physicians (telephone 679-2433). Most prescription medications for students attending health services are provided free of charge.

ONTARIO HEALTH INSURANCE PLAN

Health insurance is NOT provided by the University. Health insurance offered by the Ontario Health Insurance Plan is the only form of basic hospital insurance permitted in Ontario. It is the student's responsibility to obtain the necessary coverage under OHIP.

Students from other provinces who already have health insurance are urged to ascertain, before coming to Ontario, if their policies will be honored in Ontario and for how long.

Students from outside Canada should apply for Ontario Health Insurance as soon as possible after arriving in Ontario.

Students are reminded that if they do not hold hospital services insurance and are required, by reason of accident or illness, to enter hospital, they may incur charges of more than $80.00 per day.

Ontario Residents

Students under the age of 21 should normally be covered under their parents' coverage. If they do not qualify as dependents they may submit an application for coverage. If you have just turned twenty-one years of age and apply within the month following your twenty-first birthday OHIP protection will begin on the first day of the month following the date you reach 21.

If you are covered as an eligible dependent on someone else's contract—and you apply within the month following your 21st birthday—there will be no break in your OHIP protection: your own contract will be effective the first day of the month following your 21st birthday.

Premium Assistance is available immediately to students over the age of 21 years who have been residents of Ontario for at least 12 consecutive months prior to the

date of their application. Students from outside Canada must complete the 12 months residency requirement before becoming eligible for Premium Assistance. Eligibility for Premium Assistance is based on the student's estimated total taxable income for the current year. Students under 21, in addition to the above, must submit a signed statement stating, that to their knowledge they are not being declared as dependents for Income Tax purposes, in order to get premium assistance.

Students may also apply for Temporary Assistance if they are unable to pay their premiums because of illness, disability, or unemployment. Applications for this assistance may be obtained at the nearest OHIP office, at the student Health Service, or by writing to: Health Insurance Registration Board, Medical Services Administration Section, 2195 Yonge Street, TORONTO 7, Ontario.

Canadians From Outside Ontario

Students who are normally residents of other provinces in Canada should obtain their medical coverage in the province of their residency, since that insurance usually costs less than does Ontario's.

However, if you intend to remain an Ontario resident, you must apply for OHIP coverage by the end of the month following the month of arrival and your coverage will begin on the first day of the third month following arrival.

Students From Outside Canada

Students coming from outside Canada may make application for OHIP coverage. Protection will begin on the first day of the month following application, provided application is made within **90 days** of arrival. Otherwise, the normal 3 months waiting period will apply.

The Student Health Service in the University Community Centre, has application forms and is prepared to assist those students who wish to make application for OHIP.

GENERAL INFORMATION

Society of Graduate Students (SOGS)

The Society of Graduate Students is the recognized organization for all full-time graduate students, excluding those in the MBA programs. The Society aims to give graduate students a recognized organization to voice their opinions and to promote friendship and co-operation among members; these aims are fulfilled through meetings, athletics, cultural and social activities, "Happy Hour" (SOGS Pub), publications and a host of other various activities. These services are provided in collaboration with the University Students Council.

SOGS has representatives or channels of communication in almost all areas of the University including representatives to the University Senate and to the Council of the Faculty of Graduate Studies and tries to ensure that the interests of graduate students are protected. The Society is governed by a Council consisting of the Executive Officers and representatives elected from all departments in October. The SOGS President is elected by a campus-wide ballot of graduate students in March of each year, other officers are elected by Council from the total membership.

Information Booklets

The University of Western Ontario publications for prospective students, *General Information* and *Information for Foreign Students,* may be obtained from the Office of the Registrar, The University of Western Ontario, London, Ontario N6A 3K7.

SUMMARY OF REGISTRATION - 1972-73

Arts	226
Biosciences	335
Physical Sciences	364
Social Sciences	1009
	1934

DEGREES CONFERRED - 1972

PhD	71
MA	181
MBA	190
MEng	18
MESc	20
MLS	151
MSc	61
MScN	15
MClSc	0
	707

DEPARTMENT and GRADUATE DEGREE PROGRAMS

Introduction

The courses of instruction available in the various Departments, Divisions, Schools, and Faculties follow.

Not all courses are offered every year and their content may, at the discretion of the instructor, be modified for certain individuals. Course numbers suffixed by "a" or "b" are one term courses. Suffix "a" indicates the course is available Fall Term only, suffix "b" Winter Term only. For additional details and preliminary enquiries about graduate work, students are urged to communicate with the Department concerned.

The Council of the Faculty of Graduate Studies reserves the right to withdraw any course or subject listed in this calendar.

The courses of study listed in this calendar are subject to the restrictions of timetable.

Anaesthesia

UNIVERSITY HOSPITAL, (2-AN2)

Chairman: W. E. Spoerel
Professor:
Spoerel, W. E., MD Frankfurt-on-Main.
Associate Professors:
Aitken, R. R., MD UWO
Sellery, G. R., MD Toronto
Varkey, G. P., M.B., B. S. Madras University, India.
Webster, A. C., BSc, MB, ChB Leeds
Clinical Associate Professors:
Bain, J. A., MD UWO
Clancy, P. R., MD UWO
Keeri-Szanto, M., MD Budapest
Russell, E. S., MD UWO

Graduates in Medicine who have served one year of rotating internship in an approved hospital may apply for a three year course of training in Anaesthesia in a plan using the facilities of University Hospital, Victoria Hospital, St. Joseph's Hospital and Westminster Hospital. This training is fully approved by the Royal College of Physicians and Surgeons of Canada.

A fourth year of postgraduate training is required for Certification and Fellowship in the Royal College of Physicians and Surgeons of Canada. This additional year may be spent in full-time research in Anaesthesia or in one of the Basic Science Departments. Such training is designed for those wishing to qualify for the degree of Master of Clinical Science (MC1Sc).

The main research interests of the Department are the development and evaluation of techniques of clinical anaesthesia, the study of problems in the care for critically ill patients, the treatment of respiratory failure, the evaluation and improvement of resuscitation techniques and the management of pain problems.

Anatomy

MEDICAL SCIENCES CENTRE, Room 472

Chairman: D. G. Montemurro.
Professors:
Barr, M. L., OC, BA, MSc, MD UWO; LLD Queen's, Toronto, Alberta, Dalhousie and Saskatoon; Dr med (hc) Basel; FRCP(C), FACP, FRCOG, FRSC, FRS
Buck, R. C., MSc, MD UWO; PhD London
Montemurro, D. G., BA, MSc, PhD UWO.
Associate Professors:
Donisch, E. W. K. F., MD Bonn; MSc UWO
Gammal, E. B., MB, BCh Cairo; PhD UWO
Gwyn, D. G., MRCS (Eng); LRCP, MBBS London; PhD Birmingham
Sergovich, F. R., BA McMaster; PhD UWO
Shaver, Evelyn L., BSc, MSc, PhD UWO
Singh, R. P., BA, MSc, PhD UWO
Wilson, A. S., MB, ChB, MD Glasgow
Associate Professor of Human Genetics:
Soltan, H. C., BA, PhD Toronto; MD UWO
Assistant Professors:
Altmann, G. G., BSc Dalhousie; MSc, PhD McGill
Flumerfelt, B. A., BSc Sir George Williams; MSc McGill; PhD Cambridge
Honorary Lecturers:
Robinow, C. F., MD Hamburg; FRSC
Walden, D. B., BA Wesleyan; MSc, PhD Cornell

The Department of Anatomy accepts qualified students for both the MSc and PhD degrees, as well as those students not proceeding to a degree. Applicants for admission may have a background in either the Biological, Dental, Medical or Paramedical Sciences.

The Department offers excellent facilities for advanced training of the professional anatomist in the various branches of anatomical science. The current research interests of members of the Department include the following: reproductive biology, cytogenetics, electromyography, gastroenterology, scanning and transmission electron microscopy, classical neuroanatomy, cytology, the hypothalamus and neuroendocrinology, tissue culture, oral anatomy and certain aspects of gross anatomy. Graduate students may carry out research projects in one of these fields if a vacancy exists.

Some graduates of medicine spend a year or more of their Fellowship training period on a research project in the Department, proceeding, if they wish, to the MSc degree. Other medical graduates, seeking an opportunity for intensive review of gross anatomy or neuroanatomy as part of their training in surgery, study in the Department and act as demonstrators in the undergraduate laboratories

While the emphasis in the graduate program is on research, students proceeding to a degree are required to take courses selected upon the advice of the supervisor, the advisory committee and the Chairman of the Department. Such courses will be mainly in the various subdisciplines of Anatomy; however other allied basic Health Science disciplines may be precribed. Students registered for the PhD are expected to successfully complete a departmental comprehensive examination before the end of their second year. This examination will cover two branches of anatomical science, i.e. two of: Gross Anatomy, Dental Gross

Anatomy, Histology and Cytology, Neuroanatomy, Developmental Anatomy, Cytogenetics.

Applications for admission should be made to the Chairman of the Department. Literature describing the research activities of the Department will be sent on request.

COURSES

500. Histology. A survey of mammalian cytology and microscopic anatomy with emphasis on Man and experimental animals used in medical research.
2 lectures, 3 laboratory hours. Full course; two terms.

510. Current Topics in Anatomy. Presentation of assigned topics and discussion of current literature in anatomical research.
1 hour. Half course; two terms.

530a. Medical Genetics. The application of genetic principles to medicine designed to acquaint the student with the basic terminology of the various branches of human genetics. Given in conjunction with the medical students.
16 lecture hours. Half course; one term.

531a. Medical Histology. The microscopic anatomy of human tissues and organs. Given in conjunction with the medical students.
60 hours total of lectures and laboratory. Full course; one term.

532. Neurological Sciences and Mind. A course in human neurological sciences in which the Departments of Anatomy, Pathology, Pharmacology, Physiology, Psychiatry and Clinical Neurological Sciences collaborate. Given in conjunction with the medical students during the 3rd and 4th trimesters.
183 hours of lectures, 10 hours of laboratory in neuroanatomy. Full course; two terms.

533. Medical Neuroanatomy. The microscopic and gross features, internal structure and fibre tracts of the human central nervous system. A component of the larger Neurosciences and Mind course.
39 lecture hours and 10 laboratory hours. Full course; two terms.

534. Medical Gross Anatomy and Embryology. Lectures, demonstrations and laboratories on systemic human gross and developmental anatomy. Given in conjunction with medical students.
144 hours total. Full course; two terms.

535. Dental Gross Anatomy and Embryology. Introductory lectures dealing with the gross morphology of the human body systems. This is followed by lectures, demonstrations and laboratories which place emphasis on the regional anatomy of the head and neck.
232 hours total. Full course; two terms.

536. Dental and Oral Histology. Microscopic anatomy of the various organs and tissues of the body. A large segment of the course is given to detailed study of the structure and development of the oral tissues.
144 hours total. Full course; two terms.

560. Gross Anatomy, Regional and Systemic. A survey of human anatomy given to graduate students. Lectures, laboratories and tutorials.
2 lectures, 8 laboratory hours. Full course; two terms.

561. Systemic Gross Anatomy. Not offered in 1974-75.

562a. Cytogenetics. An examination of chromosome morphology and behaviour including chromosomal abnormalities in Man as causes of diseases.
2 lectures. Half course; one term.

563a. Embryology. The principles of human developmental anatomy.
2 lectures, Half course; one term.

564b. Neuroanatomy. The anatomy of the mammalian central nervous system, especially that of Man with emphasis placed on functional neuroanatomy.
2 lectures, 10 laboratory hours, Half course; one term.

590. M.Sc. Thesis.

661b. Cell Structure. Cytology and histology with emphasis on techniques and recent developments in electron microscopy.
Prerequisite: Biology 309 or equivalent
2 lectures, Half course; one term.

690. Ph.D. Thesis.

Applied Mathematics

ENGINEER AND MATHEMATICAL SCIENCES BUILDING, Room 3002

Chairman: J. H. Blackwell
Professors:
Blackwell, J. H., ED, BSc Melbourne; MSc, PhD UWO.
Dennis, S. C. R., BSc, ARCS, DIC, PhD London
Ehrman, J. B., AB Pennsylvania; AM, PhD Princeton
Fraser, P. A., BSc UWO; MS Wisconsin; PhD UWO
Naylor, D., BSc, PhD London
Sakmar, I. A., MSc Istanbul; PhD California, Berkeley
Talman, J. D., BA, MSc UWO; PhD Princeton
Associate Professors:
Deakin, A. S., BSc Carleton; MA, PhD Toronto
Luke, T. M., BSc Queen's; MSc, PhD McGill
MacNeill, I. B., BA Saskatchewan; MA Queen's; PhD Stanford
Manuel, P. W., BSc, MSc, PhD UWO
Nerenberg, M. A. H., BSc, PhD McGill
Zamir, M., BSc, PhD London; C. Eng.
Assistant Professors:
Collins, W. M., BSc Carleton; MSc, PhD UWO
Migneron, J. H. R., BA Montreal; BSc Ottawa; MSc Cornell; PhD London
Scott, M. S., BA Rice; MS Chicago; PhD Catholic University of America
Sullivan, P. J., BASc, MASc Waterloo; PhD Cantab. (Joint appointment with the Faculty of Engineering Science.)

RESEARCH INTERESTS

Continuum Mechanics: Fluid Dynamics (three-dimensional boundary layer theory, time-dependent boundary layers, numerical solutions of the Navier-Stokes equations, turbulent dispersion, magnetohydrodynamics, dusty gases, blood flow problems); Heat Flow and Diffusion Theory (boundary value problems).

Theoretical Physics: Atomic and Molecular Physics (low energy collisions, resonant states); High Energy Physics (strong interactions, Regge theory, dual models, two body collisions); Quantal Many-body Problem; Plasma Physics (intense relativistic electron beam flow, electron ring accelerators); Solid State Physics (phonon spectra in crystals, spectra of impurity ions in crystals).

Mathematical Methods: Asymptotic expansions and matching techniques: Asymptotic solutions in wave propagation; Integral transforms and eigenfunction expansions; Solutions of non-linear dispersive partial differential equations.

Applied Probability and Statistics: Time series analysis; applied probability methods; large deviation probabilities; applications of statistical techniques to marine biology.

DEGREE REQUIREMENTS

The Department of Applied Mathematics offers programs leading to the MSc and PhD degrees.

In addition to the general degree requirements listed earlier in this Calendar the Department requires the following:

MSc DEGREE

(1) Before being allowed to register, any candidate may be required to write the Graduate Record Examinations.

(2) A candidate having an Honors Bachelor's Degree or equivalent, and who is judged to have a sufficient background in Applied Mathematics, shall complete the requirements for the Degree of MSc in one of two ways. Either he shall complete satisfactorily a minimum of two courses at the graduate level and prepare a thesis under the direction of a member of the Faculty, or he shall complete four courses, of which at least two shall be at the graduate level, and prepare and present a review paper under the direction of one of the members of the Department.

(3) A candidate not satisfying the conditions of (2) shall first be required to enroll in a special undergraduate year, during which he must complete satisfactorily a minimum of five undergraduate honors courses.

(4) A candidate for the Degree of MSc will be required to demonstrate ability in computer programming. Short courses leading to proficiency in this subject are offered from time to time.

PhD DEGREE

(1) An application for the PhD Degree will ordinarily be expected to hold an MSc Degree or else register for it first. In any case, the Department may require any accepted candidate to enroll first in the MSc program.

(2) Shortly after enrolling in a PhD program, ordinarily within one month, a PhD candidate will normally be required to pass a preliminary examination dealing in a general way with Applied Mathematics. The purpose of this examination is diagnostic, and any weaknesses in background detected at this examination can normally be overcome by completion of particular courses.

(3) A candidate for the Degree of PhD must complete satisfactorily at least three courses at the graduate level, in addition to the requirements for the MSc Degree listed above, and prepare a thesis under the direction of a member of the Department.

(4) Each candidate shall prepare and present at least one paper at a graduate seminar, on a subject to be approved by his supervisor.

(5) After submission of his thesis, each candidate will be required to undertake an oral examination within the Department; this examination will be primarily concerned with the contents of the thesis but may include questions of a general nature relating to his field of specialization.

COURSES

The following is a selection of courses offered from time to time within the Department. Prerequisites may be obtained from the individual instructor. Course programs are arranged in consultation with the student's supervising committee.

500. Methods of Applied Mathematics. A basic course on the following fundamental topics of Applied Mathematics: integral transforms, asymptotic expansions and integral equations.
3 hours, Full course; two terms.

506. Partial Differential Equations.
3 hours, Full course; two terms.

510. Special Topics in Continuum Mechanics.
3 hours, Full course; two terms.

511. Magnetohydrodynamics. An introductory course in magnetohydrodynamics with emphasis on fundamental concepts, the relationship of mhd to plasma physics, approximations used, special regimes, and various applications of mhd.
3 hours, Full course; two terms.

512. Special Topics in Fluid Dynamics.
3 hours, Full course; two terms.

515. Turbulence. A course concerned with the properties, equations, physical processes, applications etc. of homogeneous and isotropic turbulence and of shear flows.
3 hours, Full course; two terms.

521. Relativity Theory. Introduction to special relativity, special relativity and Maxwell's equations, tensor analysis, affine connections, geodesics, curvature, physical significance of the metric tensor, Einstein equations, Schwarzschild solution and experimental verifications, introduction to cosmological models.
3 hours, Full course; two terms.

522. Plasma Physics. This course covers the fundamental theory of plasma physics including single particle orbit theory, the Vlasov equation, waves and instabilities in a plasma both without and with an external magnetic field, plasma kinetic theory, plasma turbulence, CTR devices, and other topics of special interest as time permits.
3 hours, Full course; two terms.

523. Special Topics in Plasma Physics.
3 hours, Full course; two terms.

530. Special Topics in Theoretical Physics.
3 hours, Full course; two terms.

531. Theoretical Nuclear Physics. General properties of nuclear forces, nuclear forces and many-body theory, nuclear models, inferences of nuclear properties from electromagnetic interactions, B decay, and nuclear reactions.
3 hours, Full course; two terms.

532. Quantum Field Theory.
3 hours, Full course; two terms.

533. The Physics of Elementary Particles. This course covers the following topics: S-matrix, conservation laws, helicity amplitudes, forward dispersion relations, double dispersion relations, form factors, Regge poles and Regge cuts, high energy phenomenology, SU(3), SU(6), quarks, partons, duality, inclusive reactions, weak interactions.
3 hours, Full course; two terms.

543. Applied Probability Theory and Stochastic Processes. This course starts with a brief summary of the basic concepts of probability theory and stochastic processes, and then covers the topics of time series analysis, point processes and Markov chains with emphasis on applications of these subjects.
3 hours, Full course; two terms.

552. Fluid Dynamics. An advanced level course in fluid dynamics. Topics vary from year to year but usually are within the two main subject areas of

viscous incompressible fluids and compressible fluid dynamics.
3 hours, Full course; two terms.

553. Solid Mechanics.
3 hours, Full course; two terms.

554. Advanced Quantum Mechanics. This is a second course in quantum mechanics in which the following topics will normally be discussed, with applications principally to atomic physics: relativistic electron theory, bound states in many electron systems, emission and absorption of radiation, collision theory, symmetry operators in quantum mechanics.
3 hours, Full course; two terms.

556. Non-linear Mechanics.
3 hours, Full course; two terms.

560. Numerical Methods. A course on the numerical solution of partial differential equations with particular emphasis on those methods which relate to the solutions of the Navier Stokes equations for viscous flow of a fluid.
3 hours, Full course; two terms.

570. Mathematical Methods for Engineers. Topics in this course vary from year to year depending upon the interest of the students enrolled. However one of the main topics has usually been the variational calculus and its applications.
3 hours, Full course; two terms.

580. MSc Review Paper.

590. MSc Thesis.

690. PhD Thesis.

NOTE: At the discretion of the candidate's supervising committee, certain graduate courses in other Departments may be accepted as equivalent to Applied Mathematics courses. Notice is drawn to the following graduate courses given by the Physics Department: 503, 511, 512, 513, 514 and 515. Cooperation in the teaching of these courses and the equivalent Applied Mathematics courses has been established for 1973-74.

Astronomy

ASTRONOMY BUILDING; Western Road

Chairman: W. H. Wehlau
Professor:
Wehlau, W. H., AB, PhD California, Berkeley.
Associate Professors:
Gray, D. F., BSc Wisconsin; MSc, PhD Michigan
Landstreet, J. D., BA Reed College; MA, PhD Columbia
Marlborough, J. M., BA, MA Toronto; PhD Chicago
Mitalas, R., BA, MA Toronto; PhD Cornell
Assistant Professors:
Moorhead, J. M., BSc California Institute of Technology; MA California, Los Angeles
Wehlau, Amelia W., AB, PhD California, Berkeley
Honorary Lecturer:
Manuel, P. W., BSc, MSc, PhD UWO. Associate Professor of Applied Mathematics

The primary fields of interest in the department are in observational and theoretical astrophysics, particulary spectroscopy, photometry, variable stars, stellar atmospheres, radiation transfer, stellar magentism, stellar evolution, optical instrumentation. Studies in solar magnetohydrodynamics, and observational radio astronomy are conducted in cooperation with the Departments of Applied Mathematics and

Physics. Facilities include a 48-inch Ritchey-Chretien telescope equipped with Cassegrain and coudé spectrographs, photo-electric photometers and a Cassegrain correcting system for direct photography. On the campus additional facilities are provided in the Hume Cronyn Observatory.

Any student intending to do graduate work in astronomy should have adequate undergraduate preparation in Mathematics and Physics. Undergraduate training in Astronomy is not essential. The Department may require a student to elect courses in physics and mathematics which it deems necessary for graduate study preparation.

Students are expected to obtain practical experience in astronomy if they do not already have it. This may be satisfied by one summer in residence at the observatory or by equivalent experience.

MSc REQUIREMENTS

MSc candidates will plan their program of study in consultation with and subject to the approval of the Department. There is no foreign language requirement for the MSc degree. The student must pass a comprehensive examination in astronomy. This examination will cover the content of the basic courses Astronomy 510-515, elementary astronomy, physics and mathematics. This examination will be given in May and August. Normally the student will have two chances to pass this examination, and if unsuccessful will be asked to withdraw.

All MSc candidates without prior formal training in astronomy must take and complete successfully the six basic courses, Astronomy 510-515, inclusive, in their first year in the MSc program. Students with prior astronomical training may, after consultation with the Department, be excused from some of these basic courses. After successful completion of these basic courses, the student will attempt the comprehensive examination in May and if necessary again in August.

During his second year the student will take the course Astronomy 590 and two advanced courses. The advanced courses offered in any given year will depend upon the interests of the faculty and students. Some advanced courses which will be offered from time to time are listed below.

PhD REQUIREMENTS

PhD applicants must have fulfilled the requirements for the MSc degree either through work done here or elsewhere. A department advisory committee will guide the student in his studies and research. The student must pass a comprehensive examination in astronomy and take such courses as the advisory committee may require. The student must demonstrate a reading knowledge of a foreign language normally selected from French, German and Russian. Thesis regulations are stated elsewhere in this announcement.

COURSES

Basic Courses

510a. Stellar Interiors. The thermodynamics, energy transport and thermonuclear reaction rates for stellar interiors will be studied. These will be used in the consideration of nuclear burning in stellar interiors, the calculation of stellar structure, and the properties of degenerate stars.
3 hours, Half course; one term.

511a. Observed Properties of Stars and Stellar Systems. The positions, motions, and physical properties of normal, variable and peculiar stars will be surveyed. Stellar populations, binaries and clusters will be considered. This will include consideration

of techniques for the determination of some of these properties.
3 hours, Half course; one term.

512a. Astronomical Instruments and Laboratory. The theory, design, and use of astronomical instruments: Photography, photomultipliers, image tubes; telescopes, photometers, spectrographs; radio instruments; ancillary devices. Astronomical laboratory including standard observational techniques and operation of the 48-inch telescope and associated equipment.
3 hours, Half course; one term.

513b. Stellar Atmospheres. This course is an introduction to the study of stellar atmospheres and the interpretation of stellar spectra. Emphasis is placed on the observed and theoretical continua.
3 hours, Half course; one term.

514b. Galactic Structure and Extragalactic Studies. Introductory study of the distribution and motions of stars and gas in our galaxy, galactic dynamics and origin of spiral structure, classification and general properties of external galaxies, radio galaxies and quasi-stellar objects, and cosmology.
3 hours, Half course; one term.

515b. Interstellar Matter. A survey of the constituents of the interstellar medium including physical properties and radiative processes of emission nebulae, neutral hydrogen regions, interstellar dust and molecules, plus a brief review of cosmic rays and galactic magnetic fields.
3 hours, Half course; one term.

Advanced Courses

524a or b. Photometry.
3 hours, Half course; one term.

525a or b. Stellar Spectroscopy.
3 hours, Half course; one term.

526a or b. Stellar Positions and Motions.
3 hours, Half course; one term.

527a or b. Advanced Stellar Interiors and Evolution.
3 hours, Half course; one term.

528a. Advanced Stellar Atmospheres. Offered 1973-74.
3 hours, Half course; one term.

529a or b. Advanced Galactic Structure.
3 hours, Half course; one term.

530a or b. Advanced Stellar and Galactic Dynamics.
3 hours, Half course; one term.

531a. Advanced Extragalactic Studies. Offered 1973-74.
3 hours, Half course; one term.

532b. Variable Stars. Offered 1973-74.
3 hours, Half course; one term.

533a or b. Radiation Theory.
3 hours, Half course; one term.

534a or b. Cosmic Gas Dynamics.
3 hours, Half course; one term.

535a or b. Cosmic Electrodynamics.
3 hours, Half course; one term.

536a or b. Plasma Astrophysics.
3 hours, Half course; one term;.

537a or b. Advanced Topics in Interstellar Material.
3 hours, Half course; one term.

570a or b. Topics in Astronomy (The topics considered will vary from year to year).
3 hours, half cours; one term.

590. MSc Thesis and Research.

690. PhD Thesis and Research.

For further information about prerequisites consult the instructor.

Bacteriology and Immunology

MEDICAL SCIENCES CENTRE; Room 352

Chairman: R. G. E. Murray

Professors:

Fitz-James, P. C., BSA British Columbia; MSA Toronto; MD, PhD, UWO
Murray, R. G. E., BA, MA *Cantab*; MD, CM McGill; FRSC
Robinow, C. F., MD Hamburg; FRSC
Robinson, J., BSA British Columbia; MSc, PhD McGill
Whitby, J. L., BA, MA, MB, B Chir, Cambridge; FRC Path

Associate Professors:

Chodirker, W. B., BSc (MED), MD Manitoba
Ebisuzaki, K., BSc, UWO; MS, PhD, Wisconsin
Medzon, E. L., BSc, MSc, Manitoba; PhD, McGill (acting chairman, 1973-74)
Rozanis, J., MSc, Hebrew University, Jerusalem; PhD McGill
Sinclair, N. R. S., BSc, MD, PhD Dalhousie
Strejan, G. H., MS Bucharest; PhD Hebrew University, Jerusalem
Zajic, J. E., BA Kansas; MS Wisconsin; PhD California; JD Oklahoma City

Clinical Associate Professor:

Bakerspigel, A., BA, MA, McMaster; PhD, UWO

Assistant Professors:

Black, W. A., MB, ChB Glasgow, MRC Path
Cheevers, W. P., BA Colorado; PhD Mississippi
Percy, D., DVM, Toronto; MSc, Guelph; PhD, Cornell
Singhal, S. K., BSc Agra, India; PhD McGill
Wilkins, P. O. W., MS, Hawaii; PhD Pennsylvania

Clinical Assistant Professor:

Campsall, E. W. R., BA Queen's; MD, CM McGill

Honorary Lecturers:

Abrahams, S., BSc McGill; MSc, PhD Toronto
Bell, D. A., MD UWO
Hannay, C. L., BSA Toronto; DIC, PhD London
Howson, W. T., BSA, MSc Manitoba; PhD Alberta
Naylor, D. H., BSc, PhD London
Roslycky, E. B., BSc, MS Manitoba; PhD Wisconsin
Toogood, J. H., MD Toronto

The Department offers programs leading to the MSc or PhD degrees in Bacteriology or in Immunology.

The Department is prepared to supervise research within the principal interests of its faculty. These include: the structure of bacteria and fungi, the application of cytochemical and biochemical methods to the analysis of cell structure; the synthesis of protein cell components, macro-molecular architecture; taxonomy; toxin production; bacterial metabolism; virus-cell interactions; bacteriophage genetics; the regulation of the immune response *in vivo* and *in vitro*; cellular interactions in the immune response; immunochemical aspects of reaginmediated hypersensitivity; oral microbiology. Facilities and equipment for carrying out research in these areas are present in the Department. A program of research and directed reading is accompanied by courses offered by the Department or given in collaboration with Departments of the Faculty and may include tutorials and graduate seminars. Students registered in the Department for degree courses must attain the required level (B grades) in the departmental courses. Those taking a

PhD will be required to pass a departmental comprehensive examination in the second year of their course. Opportunities for research in clinical and dental microbiology are offered with the resources of the teaching hospitals at hand.

ADMISSION:

Applicants for entry into the Graduate program must have an Honors Bachelor degree or equivalent in Bacteriology or Immunology or in some other program such as Biology, Biochemistry or Physiology. A mark of at least B average is required. Holders of an MD, a DDS or a DVM degree are also eligible to apply. Their acceptance is at the discretion of the Department.

DEGREE REQUIREMENTS:

The Master's and the PhD theses represent the end products towards which the program is directed. All candidates must defend their thesis at an oral examination. All Graduate students must complete a program of courses that will be decided by the direct supervisor in conjunction with the candidate. Additional information on admissions programs and regulations is available from the Chairman of Graduate Studies Committee of the Department.

COURSES:

530. Medical Microbiology. A course of lectures, seminars and laboratory exercises for medical students and others requiring a basic knowledge of medical microbiology and applied immunology.
3 to 6 hours each week according to the quarter of the year. Full course; one term.

531. Oral and Dental Microbiology. A course of lectures, seminars and laboratory exercises for dental students and others requiring a similar background.
3 to 6 hrs each week, according to the quarter of the year. Full course; one term.

541. Seminar. Seminar courses involving detailed consideration of selected topics in microbiology and immunology
One hour, Half course; two terms.

560. Advanced Microbiology. An advanced treatment of the biology and physiology of microbes, with particular emphasis on the bacteria.
Prerequisites: Biology 306; Biology 300 or 301
2 lectures, 3 laboratory hours, Full course; two terms.

561b. Microbial Anatomy. A survey of cytological methods and applications to the understanding of the structure of procaryotic organisms, protozoa and fungi.
Prerequisites: Biology 202 or Biology 306
1 lecture, 3 laboratory hours, Half course; one term.

562b. Advanced Virology. Current topics on the biochemistry of virus-cell interactions.
Prerequisites: Biology 300 or Biology 301; Biochemistry 461 strongly recommended.
2 lectures, Half course; one term.

565b. Microbial Biochemistry. Selected topics involving the biochemical activities of microbes such as - cell division, synthesis of cell wall and membrane; spore formation, dormancy and germination and metabolic control mechanisms.
Prerequisites: Biology 300 or 301 and Biochemistry 300.
2 lectures, Half course; one term.

567a. Microbial Genetics. Aspects of genetics applying to microorganisms (offered jointly with the Dept. of Plant Sciences).
Prerequisites: Biology 308, 300 or 301
2 lectures, 3 laboratory hours, Half course; one term.

568. Medical Bacteriology. A lecture course concerned with pathogenesis and important examples in diagnostic and determinative medical bacteriology.
Prerequisite: Bacteriology and Immunology 530
1 lecture, Half course: two terms.

569a. Medical Mycology. A project course in Medical Mycology. A report will have to be submitted in a form suitable for publication.
Full course; two terms.

570a. Immunology. A course concerned with immunological theory and interpretation of basic and medically applied immune phenomena. (Offered jointly with the Dept. of Medicine).
Prerequisite: Biology 200 or equivalent
2 lectures, Half course; one term.

571b. Immunobiology. An advanced course dealing with cellular mechanisms involved in the immune response, the ontogeny and other phylogeny of the immune response, general concepts in immunopathology and immunological diseases and topics of current interest.
Prerequisites: Bacteriology and Immunology 470a, 570a or its equivalent
2 lectures, 3 laboratory hours, Half course; one term.

572b. Immunochemistry. An advanced course on the properties of antigens and antibodies, on their interactions in vivo and in vitro.
Prerequisites: Bacteriology and Immunology 470a, 570a or equivalent
2 lectures, 3 laboratory hours, Half course; one term.

575. Immunology Seminar. Seminar courses involving detailed consideration of selected topics in immunology.
1 lecture, Half course; one term.

590. MSc Thesis.

610. Comprehensive examination for PhD.

690. PhD Thesis.

Biochemistry

HEALTH SCIENCES CENTRE; Room 316

Chairman: B. D. Sanwal

Professors:

Bigelow, C. C., BASc Toronto; MSc, PhD McMaster
Brownstone, Y. S., BScA, MSc Manitoba; PhD McGill
Carroll, K. K., BSc, MSc New Brunswick; MA Toronto; PhD UWO
Fitz-James, P. C., BSA British Columbia; MSA Toronto; MD, PhD UWO
Hobkirk, R., BSc, PhD Edinburgh; ARIC
McCarter, J. A., BA, MA British Columbia; PhD Toronto; FRSC
McMurray, W. C. C., BSc, PhD UWO
Rossiter, R. J., BSc W. Aust.; BA, MA, DPhil., Bm BCh, DM Oxon; FRIC(Eng); FRSC
Sanwal, B. D., PhD Delhi; D. nat Sc. Zurich.
Smith, D. B., BA, MA British Columbia; PhD Toronto
Stewart, H. B., MD, PhD Toronto; PhD Cantab
Strickland, K. P., BSc, MSc, PhD UWO.

Associate Professors:

Ball, Judith K., BSc Mount Allison; MSc, PhD Dalhousie
Donisch, Valentina, MD Bonn; PhD UWO
Griffiths, J. C., BS Wales; MB BCh Welsh National; FCSCC. Chairman, Division Clinical Biochemistry (University Hospital)

Magee, W. L., BSc, MSc, PhD UWO
Trevithick, J. R., BSc Queens; PhD Wisconsin
Tustanoff, E. R., BA Windsor; MS Detroit; PhD UWO
Walker, I. G., BA Saskatchewan; MA, PhD Toronto

Clinical Associate Professors:

Binns Smith, M., MB ChB, PhD Edinburgh
Haines, D. S. M., PhD Toronto; BA, MD UWO. Chairman, Department of Clinical Pathology (Victoria Hospital)
Haust, H. L., MD Heidelberg; MSc(Med), PhD Queens

Assistant Professors:

Cook, R. A., BSc, MSc, PhD Manitoba
Galsworthy, P. R., BSc Queens; PhD Wisconsin
Garg, A. K., BSc, MSc Agra; MSc, PhD Saskatchewan
Gatfield, P. D., MD Queens
Gordon, B. A., MDCM, MSc, PhD Queens
Guthrie, J. P., PhD Harvard; BSc UWO
McDonald, J. W. D., MD, PhD UWO
Possmayer, F., BSc Toronto; PhD UWO
Schincariol, A. L., BSc, MSc Windsor; PhD Toronto

Honorary Lecturers:

Cheevers, W. P., BA Colorado; PhD Mississippi
Chefurka, W., BSc Manitoba; MSc Montana State; PhD Harvard
Hudson, A. J., MD, BSc Toronto; FRCP (C)
Krupka, R. M., MA Saskatchewan; PhD McGill
MacPherson, Catherine F. C., BSc Mount Allison; MSc Dalhousie; PhD Columbia
Spencer, E. Y., BSc, MSc Alberta; PhD Toronto; FCIC
Vardanis, A., BSc Leeds; MSc, PhD McGill
Wolfe, B. M., BA Saskatchewan, BM BCh, MA Oxford; MSc McGill

ADMISSION REQUIREMENTS

Applicants must have either an MD or an Honors degree or its equivalent in Biochemistry, Biology, Chemistry, Microbiology or Physiology. Applicants will not be considered unless they have maintained at least a B average (second class standing or equivalent) during the final two years of their undergraduate programs.

RESEARCH AREAS

The Department offers programs leading to the MSc and PhD degrees in Biochemistry. Research may be done under the direction of members in either basic or clinical biochemistry. The present research interests of those in the basic segment of the Department include: phospholipid chemistry and metabolism, cholesterol metabolism, bacterial lipids, metabolism and function of mitochondrial lipids, lipids and cancer, RNA tumour viruses and cancer, brain chemistry and metabolism, metabolism of degenerating nerve and muscle, biochemistry of congenital abnormalities, metabolism of amino acids and nucleic acids, repair replication, tissue culture, mucopolysaccharides, physical chemistry of proteins, hemoglobin chemistry, haptoglobin-hemoglobin interactions, metabolic regulation and allosteric control reactions, lens proteins, developmental biochemistry of nuclear proteins, exoenzymes, microbial biochemistry, ion transport by microbial cells, protoplasts and derived membrane vesicles, biochemical genetics of muscle and neuronal differentiation, somatic cell genetics, microbial genetics, comparative biochemistry and toxicology.

Present research activities in clinical biochemistry are in the following areas. An assessment of the methodologies used in routine enzyme chemistry such as

spectrophotometry, fluorophotometry and enzyme antibody production; the functions of gamma glutamyl transpeptidase, cholinesterase and amylase; the techniques of immunoassay in a variety of both steroid and polypeptide hormones along with clinical and physiologic investigation of these hormones; the computer and its relationship to data processing in patient care; the physiology of shock with reference to the vasoactive amines and the short chain polypeptides; the biochemical mediators in asthma such as the prostaglandins and slow reacting substance of anaphylaxis; the estimation of adenyl cyclase in circulating white cells and relation to certain hypersensitive states; the relationship of testosterone and oestradiol; enzymology and metabolism of the erythrocyte; studies of the biogenesis of mitochondria and their underlying control mechanisms; the significance of fractionated keto-steroids; bilirubin binding in the neonatal period; detection of free unconjugated bilirubin; differential mechanisms affecting porphyrin synthesis and metabolism; formation of membranes; enzymology of kidney tissues; the synthesis of liver phospholipids under varying nutritional conditions; synthesis of low density lipoprotein in liver particularly in hyperlipidemia.

The research facilities in the clinical laboratories are situated in the University Hospital, Victoria Hospital, St. Joseph's Hospital and the Children's Psychiatric Research Institute.

Applicants with acceptable training in Bacteriology may be considered for research problems in microbial biochemistry, which are supervised conjointly with the Department of Bacteriology and Immunology. In arrangement with the Department of Physiology, students may take Biochemistry and Physiology as a major subject.

DEGREE REQUIREMENTS

In addition to the general systematic course, tutorials, directed reading and research, graduate seminar courses are provided.

Students who wish to obtain the Masters degree will normally take the equivalent of two full courses and candidates for the Doctoral degree will normally take the equivalent of three full courses in addition to research and thesis requirements. Consideration is given to course work completed previously. Students seeking the Doctoral degree are expected to complete successfully an oral examination in the general field of biochemistry during their period of registration for the advanced degree. All degree candidates must defend their thesis at an oral examination.

COURSES

500. General Biochemistry. A survey course.
3 hours lecture, 2 hours laboratory, Full course; two terms.

513. Current Topics in Biochemistry. A course of variable content dealing with contemporary problems in biochemistry.
Prerequisites: Biochemistry 500, 530 or equivalent
2 hours lecture, Half course; one term.

Offering of this course varies from year to year..

514. Topics in Lipids and Neurochemistry. A survey of the composition and metabolic processes of lipids with particular reference to nervous tissues.
Prerequisites: Biochemistry 500, 530 or equivalent
2 hours lecture, Half course; one term.

Offering of this course varies from year to year..

521b. Endocrinology. Basic biochemistry of steroid hormones; biochemical interrelationships and action of various hormones (e.g. steroids, gonadotropins, ACTH, prostaglandins)

in normal and abnormal states. The subject matter relates wherever possible to topics in the recent literature.
Prerequisites: Biochemistry 500, 530 or equivalent
2 hours lecture, Half course; one term.
Offered 1973-74 and then on alternate years.

522a. Metabolic Regulation. A comprehensive examination of the mechanisms involved in the control of intermediary metabolism. Emphasis is placed in the variations in specific controls observed in microbial and mammalian cells.
Prerequisites: Biochemistry 500, 530 or equivalent
2 hours lecture, Half course; one term.
Offered in 1973-74 and then on alternate years.

523a or b. Protein Chemistry. The structure, function and interactions of globular and fibrous protein molecules.
Prerequisites: Biochemistry 500 or equivalent
2 hours lecture, Half course; one term.
Proposed 1974-75 and then on alternate years.

524a or b. Membrane Biochemistry. A course of lectures on contemporary contributions relating to the structure, biogenesis and function of biological membranes.
Prerequisites: Biochemistry 500, 530 or equivalent
2 hours lecture, Half course; one term.
Offered next 1974-75 and then on alternate years.

525a or b. Clinical Biochemistry. The application of basic biochemical principles to patient care, the course will review current methodology particularly in respect to automated chemistry and the development of micro techniques. New advances in enzymology and biochemical pharmacology will be reviewed. Clinical application of the biochemical findings will be extensively discussed in the latter part of the course.
Prerequisites: Biochemistry 500, 530 or equivalent
2 hours lecture, Half course; one term.
Proposed 1974-75 and then on alternate years.

530a. Medical Biochemistry I. General aspects of macromolecular structure, fuction, metabolism with special reference to human and mammalian species.
4 hours lecture or laboratory, Half course; one term.

503b. Medical Biochemistry II. Applied aspects of blood chemistry and function, nutritional factors, hormone chemistry and metabolic actions, regulation of metabolism, clinical chemistry, metabolic diseases.
Prerequisites: Biochemistry 500, 530a, or equivalent
4 hours lecture or laboratory, Half course; one term.

560. Biochemistry. An advanced treatment of intermediary metabolism.
Prerequisites: Biochemistry 500, 530a or b, or equivalent
2 hours lecture, Full course; two terms.

561. Nucleic Acids and Protein Synthesis. A discussion of the role of nucleic acids in promotion and regulation of protein synthesis.
Prerequisites: Biochemistry 500, 530a and b, or equivalent
2 hours lecture, Full course: two terms.

564b. Enzymology. A course of lectures dealing with kinetics, thermodynamic and mechanistic characteristics of enzyme action.
Prerequisties: Biochemistry 500, 530a and b, or equivalent
2 hours lecture, Half course; one term.

568a. Physical Biochemistry. A discussion of the physicochemical properties of macromolecules of biological interest.
Prerequisites: Biochemistry 500, 530a and b, or equivalent
2 hours lecture. Half course; one term.

590. MSc Thesis.

690. PhD Thesis.

Biophysics

MEDICAL SCIENCES BUILDING, Room 122

Chairman: Margot R. Roach
Professor (Part-Time):
Burton, A. C., BSc London; MA, PhD Toronto; LLD Alberta; FRSC
Professors:
Roach, Margot R., BSc New Brunswick; MD, CM McGill; PhD UWO
Groom, A. C., BSc, PhD London
Associate Professors:
Canham, P. B., BASc Toronto; MSc Waterloo; PhD UWO
Inch, W. R., BSc Queen's; PhD UWO
Sherebrin, M. H., BSc Manitoba; MSc, PhD UWO
Sutherland, R. M., BSc Acadia; PhD Rochester
Taylor, C. P. S., BA British Columbia; BA, MA Oxon; PhD Pennsylvania
Assistant Professors:
Boughner, D. R., MD, PhD UWO; FRCP(C)
Duncan, R. I., BS, MS, PhD Oklahoma
Ferguson, G. G., BA, MD, PhD UWO
Song, S. H., MD Yonsei; MA Buffalo; PhD UWO.
Honorary Lecturers:
Finlay, J. B., BSc CNAA, PhD Strathclyde; CEng.
Johnson, L. N., BS Pacific; MS Oregon; PhD Michigan
Miller, D. M., BSc Alberta; PhD McGill
Nagai, T., MEng, MSc, DSc Tokyo

ADMISSION REQUIREMENTS

Graduates from Physics, Engineering, Mathematics, Chemistry, Biology, Medicine, Dentistry, or Veterinary Medicine will be considered.

RESEARCH AREAS

Molecular Biophysics (electron spin resonance, infrared spectroscopy), Cellular Biophysics (red cell mechanics and adhesion, tissue culture, etc.), Radiobiology, Biomechanics, Compartment Analysis, Haemodynamics, Scanning Electron Microscopy, and a number of other types of Biophysics, both fundamental and applied.

DEGREE REQUIREMENTS

Most students are registered for an MSc. If they make satisfactory progress, they may enroll for the PhD. Students are expected to take courses to make up deficiencies in their backgrounds. Advanced courses in Biophysics or in their background specialty (e.g. Physics) may be suggested. The major emphasis is on research.

COURSES

500. General Biophysics. Biomechanics, bioenergetics and the steady state, transport mechanisms (diffusion, bulk flow), physical properties of cells and tissues, the physical environment of life, bioelectricity, biophysics of vision and hearing, elementary radiobiology.
Prerequisites: Physics 20, 22, or 26
2 lectures, 3 laboratory hours, Full course; two terms.

501. Biophysical Analysis. The application of mathematics and physics to the functional behavior of living things. Emphasis is on the application of mathematics and physics and is not merely on these as subjects.
Prerequisite: A knowledge of first year calculus is assumed
2 hour lectures, Full course; two terms.

511. Current topics in Biophysics A Not given in 1973-74.

A review of recent advances and major topics in Biophysics.
1 hour, (Seminar), Half course; two terms.

512. Current topics in Biophysics B. A review of recent advances and major papers in Biophysics.
1 hour, (Seminar), Half course; two terms.

560. Cellular Biophysics. The physics of cell shape and size. The physics of biological molecules, shape, size and role. The thermodynamics of cellular processes: cells as chemical and mechanical machines. The physics of biological water.
Full course; two terms.

561a. Bio-electrical Phenomena. Bio-electric potentials, excitability and conduction in nerve and muscle, mechanism of biological transducers, and cybernetics.
2 hour lectures, Half course; one term.

562b. Radiobiology and Radioisotopes. Nature and effects of electromagnetic radiations on biomolecular structure and on living cells. Applied radiobiology and radioecology. (Given in collaboration with the Department of Plant Sciences).
2 hour lectures, Half course; one term.

563. Environmental Biophysics. The physical environment of life. The effects, on living things, of environmental factors such as temperature, solar radiation, pressure, gaseous atmosphere water and solutes, gravity, sound and vibration, electric and magnetic fields.
2 hour lectures, Half course; two terms.

564b. Biothermodynamics. The first and second laws of thermodynamics and their application in biology. Topics include open systems - properties of solutions, chemical and membrane equilibria, whole cells - radiation and photosynthesis, information and entropy, irreversible thermodynamics.
2 hour lectures, Half course; one term.

570. Advanced studies in Biophysics I. A detailed study of selected topics in Biophysics arranged to meet the needs of the student; may be taken only by permission of the Chairman of the Department, who will appoint the instructor, and an examining committee consisting of the instructor and at least one other member of the faculty.
Full course; two terms.

571. Advanced studies in Biophysics II. Regulations as for 570. This course permits a student to take a second, and different course of directed study.
Full course; two terms.

590. MSc Thesis.

690. PhD Thesis.

Business Administration

RICHARD IVEY SCHOOL OF BUSINESS ADMINISTRATION BUILDING

Dean: J. J. Wettlaufer

Professors:

Fry, J. N., BSc Eng Alberta; MBA UWO; PhD Stanford. Associate Dean (Academic)
Grindlay, A. A., BSc Saskatchewan; MBA UWO; PhD California
Hodgson, R. C., BSc, MSc McGill; DBA Harvard
Johnston, C. B., BA, MBA UWO
Jones, F. W. P., BA UWO
Kuechle, D., BA, LLB Wisconsin; MBA, DBA Harvard. MBA Program Chairman
Leenders, M. R., BSc Alberta; MBA UWO; DBA Harvard. Director, PhD Program
Martin, S. A., MBA, DBA Harvard; FCA Ontario
McDougall, W. J., BA UWO; FCA Ontario
Mikalachki, A., B Comm Sir George Williams; MBA, PhD, UWO
Nicholson, J. T., SB Cornell; MBA, DBA Harvard
Taylor, J. C., BA UWO; FCA Ontario. Senior Professor
Thain, D. H., MBA, DBA Harvard
Wettlaufer, J. J., BA, MBA UWO; LLD Waterloo Lutheran
Wood, A. R., BSc Queen's; MBA UWO; DBA Harvard

Associate Professors:

Archibald, T. R., BA UWO; MBA, PhD Chicago; FCA Ontario
Bishop, P. M., BSA OAC; BASc Toronto; MBA UWO; DBA Harvard
Britney, R. R., BESc UWO; MBA Bowling Green; DBA Indiana
DiStefano, J. J., BSc Rensselaer; MBA Harvard; MA, PhD Cornell
Haehling von Lanzenauer, C., Dipl.-Volkswirt, PhD Bonn
Hardy, K. G., BA UWO; MBA, PhD Michigan
Hicks, B. E., B Comm Toronto; MBA McMaster; PhD Illinois; CA Ontario
Humphrey, J. A., BA, MBA UWO; DBA Harvard
Kennedy, J. R., B Comm Manitoba; MBA UWO; PhD Stanford
Little, B., B Comm UBC; DBA Harvard
Nourse, R. E. M., BSc Queen's; MBA UWO; DBA Harvard
Portis, B., BA, MA, PhD Harvard
Shaw, D. C., B Comm Dalhousie; MBA, PhD Penn; CA Nova Scotia
Sproule, R. E., B Comm McGill; MBA UWO; PhD MIT
Wrigley, L., BSc London School of Economics; DBA Harvard
Zabransky, F., BASc Toronto; MA, PhD UWO

Assistant Professors:

Bobele, H. K., BS, PhD UCLA
Boersema, J. M., BA UWO; PhD Pennsylvania
Brown, W. J., BA, MA Manitoba; MS Case Western Reserve
Burgoyne, D. G., BA, MBA UWO
Crookell, H., MBA, PhD UWO; RIA Alberta
ffolliott, J. D., B Comm Rhodes; MBA UWO; CA, FCA Eng & Wales
Forsyth, G. R., B Ind Eng Georgia Inst of Tech; MBA UWO
Gilmour, S. C., MBA Columbia; DBA Harvard; CA BC
Graham, J. F., BA Assumption; MBA UWO. Assistant Dean (Administration)
Hatch, J. E., B Comm Sask; MBA McMaster; PhD Michigan
Howard, J. H., BESc, MBA UWO; DBA Harvard
Jensen, J. M., BS Wisconsin
Kinnear, T. C., B Comm Queen's; MBA Harvard; PhD Michigan

Knight, R. M., B Eng McGill; SM MIT; DBA Harvard
Long, R. A., B Comm UBC; MBA Washington; CA BC
More, R. A., BSc Alberta; MBA UWO
Newson, E. F. P., BASc Alberta; MBA UWO; PhD MIT
Nobbs, R. A., BSc, MBA Alberta; PhD UWO
Peach, D. A., BSc, MBA Ohio; DBA Harvard
Pearce, M. R., BA UWO
Piper, C. J., BSc McGill; MBA UWO
Ryans, A. B., BASc Waterloo; MBA, PhD Stanford
Smith, D. B., CA Ontario
Williamson, D. R., BA Liverpool; MA UWO
Visiting Assistant Professor:
Herskowitz, D. S., BS New York; MA Maryland

MBA PROGRAM

The Master of Business Administration program is keyed toward the concurrent development of decision-making skills and the ability to make things happen. Toward these ends, extensive knowledge in specialized fields such as finance, marketing, operations management, management science, planning information and control systems, economics and organizational behaviour is provided.

ADMISSION REQUIREMENTS

A candidate must hold a recognized undergraduate degree from an accredited university or have equivalent qualifications and his record must indicate his capacity for graduate work. Admission may be offered to candidates without an undergraduate degree if they can demonstrate that their previous work experience and leadership qualities clearly indicate a high potential for management.

All applications for the Graduate School must be received by July 1st. Applications from students in countries other than Canada and the United States must be at the School of Business by May 15 in order to be considered for the next fall semester. Candidates for admission to the M.B.A. Program must write the Admission Test for Graduate Study in Business (ATGSB). Test applications must be filed with the Educational Testing Service, 20 Nassau Street, Princeton, New Jersey, 08540, U.S.A., at least three weeks in advance of the test. It is recommended that candidates write the test in November or February. Late applicants may write the test in April.

PROGRAM REQUIREMENTS

The first year of the M.B.A. Program consists of an integrated set of required courses designed to give all students a basic understanding of the functions and the interrelationships of the major areas of business management as well as a basic level of skill in problem-solving techniques. These courses are: Marketing, Operations Management, Finance, Planning Information and Control Systems, Organizational Behaviour, Management Science, and Economics.

The learning process is based on individual study and preparation, group discussions and projects, classroom discussion, lectures, use of audio-visual materials, report writing, and in most courses, a considerable emphasis on the use of case studies as a means of acquiring management decision-making skills and attitudes.

In the second year the graduate student is required to take the equivalent of five full courses. Only one of these courses, Business Policy, is compulsory for the degree of Master of Business Administration. The balance of the courses may be chosen from those being offered in various fields. Graduate students may substitute for a Business option one or two advanced half courses offered by the Faculty of Arts or Science or Social Science. The permission of the M.B.A. Program Chairman and the Dean of the appropriate Faculty is required.

COURSES

FIRST YEAR

551. Marketing.
Full course; two terms.

553. Business Finance.
Full course; two terms.

554. Operations Management.
Full course; two terms.

555. *Management Science.*.
Full course; two terms.

557. Planning Information and Control Systems.
Full course; two terms.

558. Organizational Behaviour.
Full course; two terms.

565a or b. The Economic Environment of Business.
Half course; one term.

SECOND YEAR

601a or b. Advertising Management.
Half course; one term.

638a or b. Managers of Change.
Half course; one term.

641a or b. Marketing Planning.
Half course; one term.

643a or b. Financial Management.
Half course; one term.

644a or b. Manufacturing Operations.
Half course; one term.

650a or b. Industrial Accounting.
Half course; one term.

651a or b. Sales Management.
Half course; one term.

652a or b. Personnel Administration.
Half course; one term.

653a or b. Investment Management.
Half course; one term.

654a or b. Manufacturing Policy.
Half course; one term.

655a or b. Probability and Statistics.
Half course; one term.

656a or b. Business Law.
Half course; one term.

657a or b. Management Planning and Control System.
Half course; one term.

658. Business Policy.
Required course.
Full course; two terms.

659. Research.
Full course; two terms.

660. Auditing.
Half course; two terms.

662a. Industrial Relations I.
Half course; one term.

662b. *Industrial Relations II.*
Pre-requisite 662a.
Half course; one term.

664a or b. Purchasing.
Half course; one term.

665a or b. Managerial Economics.
Half course; one term.

668a or b. Business and Society.
Half course; one term.

670a or b. Financial Accounting.
Half course; one term.

671a or b. Marketing Communications.
Half course; one term.

673a or b. Financial Institutions.
Half course; one term.

674a or b. Management of Technology.
Half course; one term.

675a or b. Planning Models in Production Systems.
Half course; one term.

678a or b. Personnel Growth and Career Development.
Half course; one term.

680a or b. Taxation.
Half course; one term.

681a or b. Marketing Research.
Half course; one term.

685a or b. Operations Research - Methodology.
Half course; one term.

686a or b. Operations Research - Applications.
Half course; one term.

688a or b. The Theory and Policy of International Trade.
Half course; one term.

689a or b. International Business.
Half course; one term.

693a or b. Capital Markets.
Half course; one term.

695a or b. Mathematical Programming.
Half course; one term.

696a or b. Computers and Information Systems.
Half course; one term.

DOCTORAL PROGRAM

The purpose of the doctoral program is to provide advanced training in business administration, including training in research and teaching, advanced substantive work in a special field of the candidate's choice, and general training in other fields of management.

ADMISSION REQUIREMENTS

To be considered for admission to the program, an applicant must normally hold a master's degree or its equivalent from a recognized university. In addition, he is expected to have a minimum of an introductory course in quantitative analysis and calculus. High scholastic standing and other evidence of the candidate's ability to benefit from advanced graduate training is also required.

Admission Application forms are available upon request to the Doctoral Program School of Business Administration, The University of Western Ontario, London, Ontario.

Application should be made as early as possible but in no case later than the last day of February for admission in the following September. Decisions regarding the admission of candidates are normally made by May 1st of the year in which the candidate plans to enter the program.

All applicants are required to submit scores on the Admission Test for Graduate Study in Business. The test is given several times each year at many educational centres. Detailed instructions regarding this test can be obtained by writing: Admission Test for Graduate Study in Business, Educational Testing Service, Box 966, Princeton, New Jersey 08540. Applicants who have previously taken this test will not need to take it again unless they so desire.

PROGRAM REQUIREMENTS

The program is based on a 32 month plan under which the candidate is expected to be in residence to work full time on doctoral requirements.

The requirements of the program can be partially tied to its three distinct phases. Major examinations take place at the end of each course.

PHASE I - GENERAL FIELDS

A candidate for the Ph.D. degree must have a basic level of understanding and competence in the principal fields of business administration which include: finance, marketing, planning information and control systems, policy and production. In addition, he must demonstrate a satisfactory working knowledge of the concepts and literature in economics, behavioural sciences and management science.

He is required to take the following courses and projects at the end of which is held the General Fields examination:

Business 700 - Reading Course in the General Fields of Business Administration

Business 701 - Seminar in Management Science.

Business 702 - Seminar in Economic Analysis.

Business 703 - Reading Course in the Behavioral Sciences.

One additional full year course option. Candidates who have not completed a full year course in Business Policy are required to enrol in the M.B.A. II Business Policy course.

A plan for a summer research project with selected faculty members.

The data gathered during the project will be used in the research methodology course in the Special Field phase. Candidates are encouraged to start developing ideas about potential thesis topics as part of this summer research project.

PHASE II - SPECIAL FIELD

This phase exposes the candidate to advanced study of the concepts, research and teaching in one of the following fields of business administration: finance, management science, marketing, operations management, organizational behavior, planning information and control systems, and policy. A candidate cannot commence work in his special field until he has satisfactorily completed the General Fields requirements.

The Special Field phase consists of three terms.

During the summer term the candidate is expected to engage in research work including the gathering of field data for the research methodology course. In addition, he should start working on his thesis proposal. It is preferable if the summer research work can fit in with thesis ideas.

During the fall and winter terms he should be engaged in the following activities:

Business 800 - Seminar in Research Methods

Business 801 - Seminar in the Special Field including Course Development and Teaching Preparation

Thesis Proposal Development

In addition, one full course equivalent in optional courses. It may not be necessary for every candidate to exercise this option.

PHASE III - THE THESIS

The requirements for the Ph.D. thesis in Business Administration meet the Faculty of Graduate Studies Ph.D. Thesis regulations, as described elsewhere in this Calendar.

COURSES

700. Reading Course in the General Fields of Business Administration.
Full course; two terms.

701. Seminar in Management Science.
Full course; two terms.

702. Seminar in Economic Analysis.
Full course; two terms.

703. Reading Course in the Behavioral Sciences.
Full course; two terms.

800. Seminar in Research Methods.
Full course; two terms.

801. Seminar in the Special Field including Course Development and Teaching Preparation.
Full course; two terms.

690. PhD Thesis.
For further information and course descriptions, please contact the School of Business Administration, the University of Western Ontario, London, Canada..

Chemistry

CHEMISTRY BUILDING, Room 119

Chairman: H. C. Clark
Professors:
Allnatt, A. R., BSc, PhD London
Arnold, D. R., BS Bethany; PhD Rochester (Member of the Photochemistry Unit)
Bolton, J. R., BA, MA Saskatchewan; PhD Cantab (Member of the Photochemistry Unit)
Brand, J. C. D., BSc, MSc, PhD, DSc London (Director, Photochemistry Unit)
Clark, H. C., BSc, MSc, PhD Auckland; PhD, ScD Cantab
Jacobs, P. W. M., BSc, MSc Natal; PhD, DSc London (Member of the Photochemistry Unit)
Howell, W. C., BSc, MSc, PhD UWO; (Assistant Dean of Science)
King, J. F., BSc, PhD New Brunswick
de Mayo, P., BSc, MSc, PhD London; D.ès. Sc. Paris-Sud; FRSC (Member of the Photochemistry Unit)
Meath, W. J., BSc Carleton; PhD Wisconsin
Scott, A. E., BSc, PhD St. Andrews; (Dean of Science)
Stothers, J. B., BSc, MSc UWO; PhD McMaster
Ware, W. R., BA Reed College; PhD Rochester (Member of the Photochemistry Unit)
Warnhoff, E. W., AB Washington; PhD Wisconsin
Associate Professors:
Baird, N. C., BSc, PhD McGill (Member of the Photochemistry Unit)
Baldwin, H. W., BA, MA Saskatchewan; PhD Chicago (University Research Officer)
Bancroft, G. M., BSc, MSc Manitoba; PhD Cantab
Bidinosti, D. R., BSc, MSc Manitoba; PhD McMaster
Chan, R. K. C., BA, PhD Toronto
Graham, D. M., BSc, MSc UWO; PhD Brooklyn Poly. Inst.
Haines, R. A., BSc, MSc Dalhousie; PhD Pittsburgh
Hunter, D. H., BSc Alberta; PhD UCLA
Kidd, R. G., BSc, MSc Manitoba; PhD London (Assistant Dean of Graduate Studies)
Lorimer, J. W., BA, MA, PhD Toronto
Sukava, A. J., BSc, MSc Manitoba; PhD McGill
Willis, C. J., MA, PhD Cantab

Assistant Professors:
Dean, P. A. W., BSc, PhD London
Demas, C. P., BSc Alexandria; PhD London
Guthrie, J. P., BSc UWO; PhD Harvard
Martin, R. R., BSc, MSc St. Francis Xavier; PhD UWO
Payne, N. C., BSc London; PhD Sheffield
Warnhoff, P. R., AB Trinity, Washington; MSc MIT; PhD Southern California
Honorary Professors:
Burns, J. W., BASc New Brunswick; MSc Queens; LLD UWO
Spencer, E. Y., BSc, MSc Alberta; PhD Toronto
Honorary Lecturers:
Robinson, J. R., BSA, MSA Toronto; PhD UWO
Starratt, A. N., BSc Acadia; PhD UWO
Stoessl, A., BSc, PhD London

REQUIREMENTS AND PROCEDURES FOR ADMISSION

The Department offers programs leading to the degrees of MSc or PhD. For admission as MSc candidates, students should normally have, or expect to receive, an Honors degree in Chemistry from an accredited University or an equivalent qualification (e.g. Grad. RIC). However, students with high standing in General Degree courses may be granted admission to a Prerequisite Year.

Admission as PhD candidates will be given to students having an MSc degree from an accredited University or high standing in an Honors BSc degree. Applicants without a Master's degree are required to register initially as MSc candidates, with the possibility of transferring to a PhD program after one year of satisfactory work.

Students registering in this graduate school for the first time must write proficiency examinations in the main areas of Chemistry. In some cases, substitution of an examination in another scientific discipline for one of these may be permitted. These are first held in early September every year, and incoming students are normally expected to arrive in time to write them. Details of these examinations may be obtained on application to the Department.

RESEARCH INTERESTS OF THE DEPARTMENT

PHYSICAL:

Mass spectrometry. High resolution electronic spectroscopy. Chemistry and physics of high pressures; electrolytic conductance, dielectric properties and dipole moments. Kinetics of free radical reactions. Photochemistry - mechanisms, kinetics and primary processes. Electron spin resonance spectroscopy. Electrical conductance and thermoelectric power of ionic crystals; color centres in alkali halide crystals; thermal and photochemical decomposition of solids. Isothermal and non-isothermal transport of electrolytes and non-electrolytes in ion-selective membranes; light scattering in liquids and polymer solutions. Cathode overpotential, electrosorption of additives, and interfacial phenomena in electrodeposition.

THEORETICAL:

Equilibrium statistical mechanics of crystals and simple fluids; theoretical and experimental studies of matter transport in solids and liquids. Semi-empirical and non-empirical calculations of bonding, energies and geometries for molecules. Atomic and molecular quantum mechanics; intermolecular and intramolecular forces; perturbation theory.

GRADUATE

INORGANIC:

The chemistry of complex ions, including tracer studies, spectral studies of metal chelates, stereochemistry of optically active metal complexes, and broadline NMR studies of metal-ligand bonding. Organometallic chemistry, including synthetic, structural and spectroscopic studies on compounds of metals or metalloids containing metal-metal or metal-hydrogen bonds, perfluoroalkyl groups of fluorinated alkoxy groups. Chemistry of highly acidic media. Single crystal X-ray structural studies of transition metal complexes. Determination of absolute configurations from the anomalous scattering of X-rays. Mossbauer spectroscopy. ESCA spectroscopy.

ORGANIC:

Studies of the kinetics and mechanism of enzyme catalyzed reactions, and of enzyme model systems. Applications of ^{1}H and ^{13}C NMR techniques in structural, stereochemical and mechanistic studies. The preparation of complex heterocyclic compounds. The study of synthetic applications and mechanisms of reactions of sulfenes and other organo-sulfur compounds. Synthesis and mechanistic studies in photochemistry. The chemistry of carbanions. Stereochemical methods of elucidating reaction mechanisms. New reactions at high temperatures (flash thermolysis) and related mechanistic studies. The synthesis of natural products: Alkaloid chemistry.

COURSE REQUIREMENTS

On the basis of past work and of the results of the proficiency examinations the candidate is advised about the courses in which he should enroll. Students with incomplete backgrounds will be required to take advanced undergraduate courses. Unsatisfactory examination results will require the student to withdraw.

The following outline provides a guide to the minimum requirements for graduate students in Chemistry:

MSc - 2 graduate courses plus 558, 590

PhD - 3 graduate courses plus 558, 690

NOTE: A graduate course is any Chemistry course at the 500 or 600 level, or a Chemistry course at the 400 level (final undergraduate year) outside the field of specialization, or a course at the 300 (third year) or higher level outside the Department. For MSc candidates at least one of the graduate courses must be a chemistry course at the 500 or 600 level and for PhD candidates at least two of the graduate courses must be at this level.

COURSES

501a or b. Topics in Inorganic Chemistry/H. C. Clark, E. O. Sherman.
Half course; one or two terms.

503a or b. Nuclear Magnetic Resonance Spectroscopy/J. B. Stothers.
2 hours lecture. Half course; one term.

504a or b. Group Theory/D. M. Graham.
2 hours lecture. Half course; one term.

511. Inorganic Problem Seminars/Inorganic Staff. (This does not count as a formal graduate course, but is a requirement for all graduate students in Inorganic Chemistry).

514a or b. Microwave and Magnetic Resonance Spectroscopy/J. R. Bolton.
2 hours lecture. Half course; one term.

521. Electronic Spectroscopy of Transition Metal Compounds/R. A. Haines. Spectroscopic terms and use of Orgel and Tanabe-Sugano dia-

grams; methods of obtaining quantitative data from absorption spectra; elementary molecular orbital theory and charge transfer spectra; structure and stereochemistry of complexes as revealed by absorption spectra
2 hours lecture, Half course; one term.

524. Electrochemistry/A. J. Sukava. Polarography (theory), interfacial phenomena and the double layer, electrocapillary theory, double layer capacity, irreversible electrode processes, electrode overpotential and electrode kinetics, electrosorption effects, corrosion and passivation theory.
1 hour lecture, Half course; two terms.

531a or b. Mossbauer Spectroscopy/G. M. Bancroft.
2 hours lecture, Half course; one term.

533a or b. Biorganic Chemistry/J. P. Guthrie. Chemical origins of enzymic catalysis. Mechanism of enzyme and enzyme model reactions
2 hours lecture, Half course; one term.

534a or b. Dielectric and Magnetic Phenomena/R. K. Chan. Electrostatics of polarizable systems. Clausius-Mosotti equation; theories of Debye and Onsager. Dielectric relaxation and dipolar rotation in molecular solids.
2 hours lecture, Half course; one term.

541. Crystallography I/N. C. Payne. An introduction to single crystal x-ray techniques - based upon the experimental determination of the space group, unit cell dimensions and X-ray molecular weight of a sample supplied by the student. Lectures cover space group symmetry, the reciprocal lattice and photographic techniques.
1 hour lecture, 1 hour laboratory, Half course; one or two terms.

543a or b. Quantum Organic Chemistry/N. C. Baird. The derivation and application of Huckel, extended Huckel, valence-electron and ab initio molecular orbital methods to problems in organic chemistry.
2 hours lecture, Half course; one term.

544a or b. Chemical Kinetics/D. M. Graham.
2 hours lecture, Half course; one term.

553. Physical Organic Chemistry/Organic Staff. A series of six topics on mechanistic and physical organic chemistry presented as short courses of eight lecture hours each. Typically includes sections on radicals, elimination reactions, intramolecular catalysis, acidity and structure, carbonium ions and carbanions and orbital symmetry.
2 hours lecture, Full course; one or two terms.

554. Statistical Mechanics/A. R. Allnatt. The tools of equilibrium statistical mechanics are set up and applied to the study of the thermodynamic properties and structure of simple gases, liquids, ionic solutions, etc., mainly in the classical approximation. Finally, 10-12 lectures on time-dependent processes use diffusion and neutron scattering in simple liquids to illustrate some of the non-equilibrium methods centred on time correlation formulae.
2 hours lecture, Full course; one or two terms.

558. Seminar/Staff.

561a or b. Applications of NMR Spectroscopy to Inorganic Chemistry/R. G. Kidd, P. A. W. Dean. A survey of those aspects of NMR providing most information about inorganic systems. Among topics considered will be line widths, chemical shifts, exchange phenomena, NMR spectral patterns, and the NMR spectra of paramagnetic molecules.
2 hours lecture, Half course; one term.

564. Solid State/P. W. M. Jacobs. Crystal lattices; lattice vibrations.

Electron states in crystals; semiconductors. Crystal imperfections; atom movements; dislocations. Optical properties of ionic crystals. Solid state reactions.
2 hours lecture, Full course; one or two term.

568. Research Proposal/Organic Staff. The selection and written presentation of one or more original chemical research problems, and the defence of the choice. Good background knowledge and familiarity with general modern concepts will be expected. (This does not count as a formal graduate course).

571a or b. Optical Activity in Inorganic Systems/R. A. Haines, N. C. Payne. Nature of polarized radiation; optical isomerism and techniques for assignment of absolute configuration; conformational and vicinal effects; stereochemical changes in optically active molecules; current problems in the field.
2 hours lecture, Half course; one term.

573. Organic Problem Seminars/Organic Staff. (This does not count as a formal graduate course but it is a requirement for all PhD candidates in Organic Chemistry).

574. Quantum Mechanics I/W. J. Meath. Fundamentals of quantum mechanics. Theory of angular momentum with applications. Approximation and computational methods with applications to a variety of atomic and molecular problems. Included are discussions on the Stark and Zeeman effects, fine structure calculations, NMR and ESR effective Hamiltonians, the Born-Oppenheimer approximation, etc.
2 hours lecture, Full course; one or two terms.

583. Organic: Photochemistry/D. R. Arnold, P de Mayo. Fundamental principles of photochemistry and photophysics will be introduced and applied to the discussion of the mechanism of several synthetically useful photochemical reactions. A description of experimental methodology and instrumentation applied to photochemical studies will be given.
2 hours lecture, Full course; one or two term.

584a or b. Advanced Thermodynamics/ J. W. Lorimer. Thermodynamics of irreversible processes. A review necessary background material is followed by a discussion of irreversible processes from thermodynamic, hydrodynamic and statistical points of view. Applications to transport phenomena in liquids, liquid solutions and membranes are discussed.
2 hours lecture, Half course; one term.

590. MSc Thesis and Research.

601. Topics in Organic Chemistry II/Staff.
Half course; one or two terms.

603. Organic Nitrogen Compounds/E. W. Warnhoff. Generally useful chemistry of nitrogen compounds beyond the undergraduate level, including stereochemistry, basicity, imine-enamine reactions, nitrones, nitro and nitroso reactions, N-alkylation, ethylenimines, N-elimination reactions, N-ylides, lactams, nitrenes and nitrenium ions.
1 hour lecture for 20 weeks, Half course; two terms.

613a or b. Organic Sulfur Compounds/J. F. King. A survey of the properties, reactions, stereochemistry, and mechanisms of reactions of the sulfur-containing organic functional groups.
2 hours lecture, Half course; one term.

614a or b. Vibrational and Electronic Spectra of Molecules/J. C. D. Brand. Infrared and Raman Spectra of diatomic and polyatomic molecules using group theory to characterize the energy levels and transitions; visible and ultraviolet electronic spectra of diatomic and polyatomic molecules.
2 hours lecture, Half course; one term.

623a or b. Carbanions/D. H. Hunter. Aspects of the structure and reactions of carbanions are presented with particular emphasis on mechanism and sterochemistry.
2 hours lecture, Half course; one term.

633. Selected Topics in Organic Chemistry/Organic Staff.
Half course; one or two terms.

641. Crystallography II/N. C. Payne. 541 is a prerequisite. A three-dimensional single crystal structural investigation - the collection of diffractometer data, and the solution and refinement of a structure supplied by the student.
1 hour lecture, 1 hour laboratory, Half course; one or two terms.

651a or b. Organometallic Chemistry I/H. C. Clark.
2 hours lecture, Half course; one term.

653. Oxidation and Reduction in Organic Chemistry/ E. W. Warnhoff. The mechanisms of oxidation and reduction of organic compounds by such reagents as chromium (VI,V,IV), lead (IV), thallium (III), cerium (IV), mercury (II), manganese (VII), zone, sundry mild oxidizing agents, alkali metals (Li, Na, K), and hydride donors.
Half course; one or two terms.

661a or b. Organometallic Chemistry II/C. J. Willis. The synthesis, structure, and properties of the organometallic compounds of the main group elements.
2 hours lecture, Half course; one term.

663a or b. National Products/E. W. Warnhoff. An account of a selected group of compounds, such as alkaloids or acetogenins, isolated from plant and animal sources, with emphasis on their mode of formation in the organism and on interesting aspects of their chemistry.
2 hours lecture, Half course; one term.

673a or b. Organic Stereochemistry/J. F. King. Classical stereochemistry including the properties of the steric relationships, asymmetric synthesis, determination of optical purity. Optical activity and molecular structure: Brewster's skew unit of conformational asymmetry, the Octant Rule. Conformational analysis: Westheimer calculations, the properties of cyclohexane derivatives.
2 hours lecture, Half course; one term.

674. Quantum Mechanics II/W. J. Meath. Intermolecular forces and an option. Typical topics: separation of nuclear and electronic motion; Hellmann-Feynman theorem; long, intermediate and short range forces; nonbonded interactions; additivity of forces; semi-empirical results; applications; introduction to many-body theory; special topics in the theory of angular momentum.
2 hours lecture, Full course; one or two terms.

681a or b. Inorganic Reaction Mechanisms/H. W. Baldwin.
2 hours lecture, Half course; one term.

684a or b. Molecular Orbital Theory/N. C. Baird. The history, derivation, methodology and use of molecular orbital theories for molecules.
2 hours lecture, Half course; one term.

690. PhD Thesis and Research.

Classical Studies

TALBOT COLLEGE, Room 120

Chairman: D. E. Gerber
Professors:
Gerber, D. E., BA, MA UWO; PhD Toronto
Lambert, G. R., BA, MA, Toronto (Althouse College of Education)
Raymond, A. E., BA UWO; MA Toronto; PhD Chicago
Associate Professors:
Avotins, I., BA Toronto; AM, PhD Harvard
Littlewood, A. R., BA Leeds; BLitt Oxon
Murison, C. L., MA Edinburgh; MA Cantab
Assistant Professors:
Broege, Valerie A., AB Vassar; MA, PhD Bryn Mawr
Crowther, N. B., BA Leeds; MA McMaster; PhD Sheffield
Stanley-Porter, D. P., BA Toronto; PhD London

The MA can be taken in Latin, Greek or Classics. Three full courses are required (one of which may be in a different Department) plus a reading course (Latin or Greek 560) or undergraduate course in either Latin or Greek. If the degree is taken by thesis, normally two full courses will be required. For the degree in Latin or Greek the candidate must satisfy the Department that he or she has at least the equivalent of an undergraduate 20 level course in the other language. Such a course may be taken in lieu of a reading course. A reading knowledge of French or German or Italian is assumed. A selection from the graduate courses listed below is offered each year.

LATIN COURSES

500. Roman Historians/ C. L. Murison. A study of the period A.D. 68-96, the "Year of the Four Emperors" and the Flavians, using the original sources, especially Tacitus, Suetonius, Plutarch and Dio Cassius, along with appropriate epigraphic and numismatic material.
2 hours, Full course; two terms.

510. Roman Orators/ A. E. Raymond. A study of selected Ciceronian speeches or rhetorical treatises, with necessary attention to rhetorical technique, legal procedure, and historical background. Attention is also given to *Quintilian and Tacitus*. Adaptable to student interests.
2 hours, Full course; two terms.

520. Lucretius/ I. Avotins. An attempt is made to elucidate all aspects of the poem - literary, linguistic, metrical, etc. However, in accordance with the expressed intention of Lucretius, the greatest emphasis is placed on the subject matter.
2 hours, Full course; two terms.

521. Ovid/ V. A. Broege. Translation and discussion of Ovid's **Metamorphoses**. Attention is given to the importance of this work in Western literature and the mythical traditions.
2 hours, Full course; two terms.

522. Catullus/ N. B. Crowther. A study of the poet Catullus, his poetry, his literary friends and his importance in the history of Roman literature.
2 hours, Full course; two terms.

523. Horace/ V. A. Broege. Translation and discussion of Horace's lyric poetry. Attention is given to the philological criticism of Horace's poems as well as to their place in Western literary history.
2 hours, Full course; two terms.

525. Roman Satire/ A. R. Littlewood. A study of all the Roman satirists and of the origin of Roman satire.
2 hours, Full course; two terms.

530. Graeco-Roman Philosophy/ I. Avotins. The main texts studied are the **De Finibus Bonorum et Malorum** of Cicero and the **Letters** of Seneca. The other philosophical writings of these authors are read, if necessary, in translation.
2 hours, Full course; two terms.

540. Roman Drama/ D. E. Gerber. A study of either selected plays of Plautus or of all the tragedies of Seneca. All aspects of the plays are considered, but special emphasis is placed on their dramatic and literary qualities.
2 hours, Full course; two terms.

550. Graeco-Roman and Early Christian Education / G. R. Lambert. Typical themes: Greek paideia and its conquest of Rome and Christianity; interaction of classical with Christian humanism; moral education; intellectual education and leisure; education and community; philosophical models of teaching. Primary sources in Greek, Latin and translation. Adaptable to student interests.
2 hours, Full course; two terms.

560. Reading Course in Latin Authors/ Staff. Reading of any author or authors approved by the Department. Students are examined only on their ability to translate. No formal instruction.
Half course; two terms.

590. MA Thesis.

GREEK COURSES

500. Greek Historians/ C. L. Murison. The latter part of the reign of Philip of Macedon (343-336 B.C.) followed by a detailed study of the career of Alexander the Great (336-323 B.C.). Special attention is paid to the development of the complex historiographical tradition on Alexander.
2 hours, Full course; two terms.

510. Attic Orators/ A. E. Raymond. A study of one or more of the Attic orators through reading of selected speeches, plus attention to the necessary background of rhetorical technique, legal procedure, and historical setting as required. Adaptable to student interests.
2 hours, Full course; two terms.

520. Greek Lyric/ D. E. Gerber. A detailed study of selections of lyric, elegiac and iambic poetry from Archilochus to Pindar. All aspects are considered - textual, metrical, historical, literary etc.
2 hours, Full course; two terms.

522. Greek Writers under the Roman Empire/ I. Avotins. This course concentrates on second century A.D. Greek prose writers, especially those connected with the so-called Second Sophistic, with particular emphasis on the Lives of the Sophists of Philostratus.
2 hours, Full course; two terms.

526. Hellenistic Greek Poetry/ A. R. Littlewood. A detailed study of selected Hellenistic poets.
2 hours, Full course; two terms.

530. Greek Philosophers/ G. R. Lambert. Platonic and Aristotelian philosophy, especially ethical and political theory, within the intellectual and social ambiance of the fourth (and fifth) centuries. Student interest can influence course shape, e.g., thematic or whole-book study, emphasis on Platonic literary considerations.
2 hours, Full course; two terms.

540. Greek Tragedy/ D. P. Stanley-Porter. Euripides: dramatic structure, style and thought, with an intensive reading of four or five plays.
2 hours, Full course; two terms.

550. Byzantine Civilization/ A. R. Littlewood. A study of Byzantine culture and art.
2 hours, Full course; two terms.

560. Reading Course in Greek Authors/ Staff. Reading of any author or authors approved by the Department. Students are examined only on their ability to translate. No formal instruction.
Half course; two terms.

590. MA Thesis.

Computer Science

ENGINEERING AND MATHEMATICAL SCIENCES BUILDING, Room 2036

Chairman: J. F. Hart

Professors:

Elcock, E. W., BSc, PhD Leeds

Hart, J. F., BA, MA, PhD Toronto,

Associate Professors:

Beckhoff, G. F., MSc Southern Methodist; PhD Laval

Carroll, J. M., BS Lehigh; MA Hofstra; Dr. Eng. Sci. New York; P. Eng.

Gargantini, Irene, BA, PhD Milan

Mullin, J. K., BS, MS, PhD Carnegie Mellon

Pylyshyn, Z. W., BEng McGill; MSc, PhD Saskatchewan. Associate Professor of Psychology

Assistant Professors:

Bennett, J. M., BSc Queen's; MA, PhD UWO

Dunham, C., MA British Columbia; PhD UWO

Kuehner, D. G., BSc Bishops; MA Queens; PhD Edinburgh

Honourary Lecturers:

Lake, G. T., BSc Queens. Director, Computing Centre

Slemon, A. G., BA Manitoba; MA UWO; PhD Toronto. Associate Professor of Psychology, Althouse College of Education

Thierrin, G., Lic. Math, Doc. Math Fribourg; Doc. Math, Paris. Professor of Mathematics

ADMISSION REQUIREMENTS

Qualifications for the MSc degree are noted under General Admission Requirements. Normally there are three means by which a student can be admitted to the Master's program in Computer Science:

(a) An honors (four year) graduate in Computer Science from an approved university, can be admitted directly to the last year of our two-year program.

(b) An honors graduate in another field from an approved university can be admitted to the first year of our two-year program in which he must take a selection of honors computer science courses and such other courses as may be required to attain a competence equivalent to that of an honors graduate from this department. This selection will normally include Computer Science 304, 313, and two of: 420a, 460a or 430a.

(c) A meritorious (B average) graduate in Computer Science from an approved university can be enrolled as a Special (Undergraduate) Student. He will be required to take at least five undergraduate courses of which four will normally be honors Computer Science courses which will normally include Computer Science 304, 313, and four of: 420a, 421b, 460a, 461b, 430a, and 431b.

RESEARCH AREAS OR SPECIALITIES

This department carries on research in both numeric and non-numeric computing.

Research interests in numeric computing include:

Zero-finding procedures for polynomials.

Linear and non-linear approximation of functions of one or two variables.

Recursive function theory.

Research interests in non-numeric computing may be further sub-divided into information systems, sequential machine theory, operating systems, artificial intelligence, computer-aided learning systems, formal languages and automata, and mechanology.

Research interests in artificial intelligence include:

Artificial-intelligence languages

Theoren proving

Robotics theory

Speech synthesis

Research interests in information systems include:

Languages for text handling

Automatic text analysis by statistical modelling

Protection methods for real-time systems

The computer as a community resource

DEGREE REQUIREMENTS

Requirements for the MSc degree may be fulfilled in these ways:

(a) Two graduate courses in Computer Science and a thesis supervised by a member of the department.

(b) Three graduate courses in Computer Science and a project supervised by a member of the department.

(c) With the permission of the department, four graduate courses in Computer Science.

Half of the student's course work may consist of graduate courses offered by other departments of the university. In all cases, the selection of courses is subject to approval of both departments concerned.

Arrangements may be made for part-time enrolment in the graduate program. The qualifications of mature applicants who have demonstrated their professional competence in Computer Science will be assessed on an individual basis.

COURSES

Note: The following courses will not necessarily all be offered every year and may be modified from time to time to suit special needs of individual students.

500a. Foundations of Computer Science. Number systems for computers, mathematical logic and computable functions, synchronous and asynchronous sequential machines, foundations of mathematical linguistics, language generating and recognizing devices, problem-solving heuristics, pattern recognition, topics in cybernetics, general systems and mechanology.
Half course; one term.

500b. Foundations of Computer Science.
Half course; one term.

510a. Information Structures. The course is concerned with the efficient organization of data to simplify problem applications. Topics included are: file organization, file packages, library file management, main memory structures, language comparisons, implementation languages, notations and formalisms, text manipulation, relational data structures, compilers, graphics, formal semantics, and benchmarking and evaluation.
Half course; one term.

510b. Information Structures. Continuation of 510a.
Half course; one term.

512a. Statistics and Information Processing. The statistics and structure of language. Application of statistical and structural modelling to automatic keyword identification, indexing, abstracting, content and style analysis. Data elements and their coded representation. Automatic error correction and text compression. Protection of data in real-time systems; reversible and irreversible data transformations; computer cryptology.
Half course; one term.

512b. Statistics and File Processing. File structure and media for storage and retrieval. Scanning strategies: serial and inverted files, sequential and linked lists. retrieval strategies: cross correlations, Boolean polynomials, associative and Baysian approaches. Evaluation of information retrieval systems in retrospective search and selective dissemination modes by sampling and simulation. Characterization of network relationships in information systems.
Half course; one term.

513a. Analysis and Design of Information Systems. Seminar course emphasizing individual study in information systems analysis and synthesis.
Half course; one term.

513b. Analysis and Design of Information Systems. Continuation of 513a.
Half course; one term.

518a. Data Communications. Sampled-data systems, digital filter design, discrete communication channels (memory-less, with finite memory), coding theory (fixed-length codes, variable-length codes), encoders and decoders.
Half course; one term.

518b. Data Communications. Continuation of 518a.
Half course; one term.

520b. Zero-finding Procedures for Polynomials. Analytic properties of polynomials. The localization of zeros and critical points. Bounds for the zeros. Sequential and parallel algorithms for the simultaneous determination of all roots of a polynomial. Extension to a class of entire functions. Numerical stability. Implementation of the algorithms on a digital computer.
Half course; one term.

521a. Computer Arithmetic. Different kinds of arithmetic: rational, floating-point, residue arithmetic. Multiple-precision arithmetic. Influence of an arithmetic system on hardware and software. Interval and circular arithmetic. Applications.
Half course; one term.

524a. Mathematical Software. A study of the problems in implementing mathematical algorithms on a computer, with emphasis on reliability, efficiency and portability. Software facilities and techniques will be examined. Program testing will be studied. Considerable attention will be paid to large software systems.
Half course; one term.

524b. Mathematical Software. Continuation of 524a.
Half course; one term.

526a. Subroutines for Mathematical Functions. A detailed study of methods for constructing accurate and efficient subprograms for mathematical functions.
Half course; one term.

526b. Subroutines for Mathematical Functions. Continuation of 526a.
Half course; one term.

527a. Numerical Approximation. Theory and algorithms for linear and nonlinear approximation of functions of one or two variables.
Half course; one term.

527b. Numerical Approximation. Continuation of 527a.
Half course; one term.

532a. Sequential Machine Theory and Systems. This course gives an exposition of up-to-date results in sequential machine theory, also called

finite automate theory, and relates these to results in system theory, e.g. communication theory and control theory.
Topics include: fundamentals of sequential machine theory, experiments on sequential machines, communication and sequential machines, languages and sequential machines, and formal power series and sequential machines.
Half course; one term.

532b. Sequential Machine Theory and Systems. Continuation of 532a.
Half course; one term.

534a. Theory of Recursive Functions. Turing machines, mathematic logic and computable functions, unsolvable problems, degrees of recursive unsolvability, classification of functions by computational complexity.
Half course; one term.

534b. Theory of Recursive Functions. Continuation of 534a.
Half course; one term.

536a. Theory of Formal Languages and Automata. Language-generating devices (grammars) and language-recognizing devices (automata). Hierarchies of languages and of automata, operations with languages and classification of languages by various measures of complexity.
Half course; one term.

536b. Algebraic Theory of Formal Languages. Formal power series in non-commutative variables, rational and algebraic languages and their representations, tensor product and diverse other products of formal power series, transductions and transducers, application to combinatorial (enumeration) problems.
Half course; one term.

540a. Artificial Intelligence. The class will form a research group to design and implement a major program in the Computer Studies of Intelligence. They will become familiar with Machine Understanding of Natural Languages, Semantic Data Bases, Computational Logic, and Scene Analysis.
The programming will use the Artificial Intelligence languages POP-2 and POPLER.
Half course; one term.

540b. Artificial Intelligence. Continuation of 540a.
Half course; one term.

541. Research Seminar in Artificial Intelligence. Each student will be guided through the literature in a field of Artificial Intelligence. He will report his findings to the class. He will be expected to extend and apply the concepts and techniques discovered. Topics include Languages for Artificial Intelligence, Computational Logic, Knowledge Bases and Semantic Representation, Scene Analysis, Robot Control and Game Playing.
Full course; two terms.

550a. Problems in Discrete, Probabilistic Simulation. Comparative evaluation of techniques for generating pseudorandom number sequences in respect of bias. Various generators are subjected to tests. Transformation of pseudorandum number sequences to random variates following selected probability laws. Comparison of simulation models of queuing situations with analytical models. Design of simulation experiments with emphasis on reduction of variance and estimation of run length. Techniques for the estimation of extreme values.
Half course; one term.

550b. Computer Modelling by Simulation. Classical applications of discrete probabilistic simulation exemplified by case history studies. Formulation and validation of simulation models and their use in evaluating alternative policies and predicting future system behaviour.
Half course; one term.

551a. Computer Simulation of Complex Systems. Seminar course emphasizing independent study in the use of computers to study complex,

interactive systems by discrete, probabilistic simulation. Synthesis of systems from randomly sampled data. Techniques for manual and automatic acquisition of these data and their characterization.
Half course; one term.

551b. Computer Simulation of Complex Systems. Continuation of 551a.
Half course; one term.

552a. Computer Optimization of Discrete Systems. Computer implementation of various techniques of operations research: Lagrangian multipliers, linear programming, integer programming, non-linear programming, applications of Markov chains, dynamic programming, game theory, and applications of graph theory.
Half course; one term.

552b. Computer Optimization of Discrete Systems. Continuation of 552a.
Half course; one term.

553a. Studies in Optimization of Discrete Systems. Seminar course emphasizing independent study in systems optimization.
Half course; one term.

553b. Studies in Optimization of Discrete Systems. Continuation of 553a.
Half course; one term.

560. Software Systems. A survey of software and hardware systems with emphasis upon existing systems, but not excluding new approaches in this field.
Full course; two terms.

562a. Advanced Programming Systems (Software). Basic architecture of large systems, multiprogramming systems and time-sharing systems (resource allocations, CPU and I/O scheduling algorithms). Measurements on MP and TS systems (bench-marking, hardware monitors, modelling of algorithms), macro processors, compilation.
Half course; one term.

562b. Advanced Programming Systems (Software). Continuation of 562a.
Half course; one term.

564a. Advanced Programming Systems (Hardware). Timing analysis of circuits, architecture of small computers, languages for hardware.
Half course; one term.

564b. Advanced Programming Systems (Hardware). Continuation of 564a.
Half course; one term.

566a. Computer Aided Learning Systems. Focuses on the problem domain of computer aided learning (CAL), and on the software needs of computer systems for CAL. Topics include principles of design, implementation, and evaluation of CAL courseware, programming languages for CAL applications, operating system requirements for CAL, characteristics of the student-machine interface, a survey of existing CAL systems and developments in information systems and artificial intelligence.
Half course; one term.

566b. Computer Aided Learning Systems. Continuation of 566a.
Half course; one term.

567a. Reading Course in CAL Systems. Provides a means for supervised independent study of CAL systems by a student. The initial strengths and weaknesses of a student will be assessed, and a program of readings established. The student will be required to present a Seminar on some aspect related to his readings, and sit for a comprehensive examination in CAL systems.
Half course; one term.

567b. Reading Course in CAL Systems. Continuation of 567a.
Half course; one term.

572a. The Computer as a Community Resource. Computers and privacy: scope of personal data banks, interchange of information, uses of information. The computer as an in-

strument for community action: development of data banks; acquisition, structure and analysis of information; computer-based aids to dissemination of information. The computer as a vehicle for interpersonal and cross-cultural communication.
Half course; one term.

572b. The Computer as a Community Resource. Continuation of 572a.
Half course; one term.

574a. Mechanology. Mechanology is studied as a theory according to which the computer is seen in the context of other machines, according to a perspective which envisages the machine series as of a sequence of evolving structures. These structures are to be understood as one representation of a set of relations made up of the union of machines and non-mechanical systems. In this respect mechanology may be seen as extending cybernetic ideas. In addition to the control and communications phenomena of active machines, mechanology deals with the structure of the passive machines of architecture and the semantic machines of artificial intelligence.
Half course; one term.

574b. Mechanology. Continuation of 574a.
Half course; one term.

575a. Readings in Mechanology. This is a reading course on Mechanology designed to prepare students for work in the field. It consists of a literature review of works on technology, cybernetics and mechanology with particular emphasis on the evolution, structure and nature of the electronic digital computer.
Half course; one term.

575b. Readings in Mechanology. Continuation of 575a.
Half course; one term.

576a. Topics in General Systems. Theory of General Systems and properties common to many or all systems, mathematical models of systems, study and/or mathematical formulation of interaction, dependence and control, self-organization in large systems, specific theories of deterministic and stochastic systems with applications to physical, biological and economic systems.
Half course; one term.

576b. Topics in General Systems. Continuation of 576a.
Half course; one term.

580. Project.
Full course; two terms.

590. Master's Thesis.

Diagnostic Radiology

UNIVERSITY HOSPITAL; 2nd Floor

Chairman: L. S. Carey
Professors:
Allcock, J. M., MRCS, LRCP (Eng), MB, BS London; DMRD (Eng), FFR
Carey, L. S., MD, CM, MSc (Med) Queen's; MS Minnesota; CRCP (C), DABR
Assistant Professor:
Gold, R. E., MD, BSc, Manitoba, CRCP (C)
Clinical Professors:
Johnston, E. E., MD, CM, DMR Queen's; CRCP (C)
Wilkins, W. W., MD, CM Queen's; DMR Toronto; FRCP (C), DABR
Clinical Associate Professor:
Agnos, J. W., MD UWO; DMR Toronto; CRCP (C), DABR

Clinical Assistant Professors:
Coates, R. K., BA, MD UWO; FRCP (C)
MacDonald, A. C. MD UWO; FRCP (C)
Nicol, D. A., BA Saskatchewan; MD, DMR Toronto; CRCP (C), DABR
Rajic, D. S., MD Graz; CRCP (C), DABR
Honorary Lecturers:
Gwyn, D. G., MB, BS London; PhD Birmingham
Hauch, P. P., MD UWO; DMRD London; CRCP (C)
Hill, M. B., MD, CM Queen's; CRCP (C)
MacDonald, J. C. F., BA, MA British Columbia; PhD Toronto
Ruprecht, A., DDS, MScD Toronto

Graduates in Medicine who have served a year of internship in an approved hospital may apply for admission to the integrated training program in Diagnostic Radiology.

This program is designed to qualify individuals for Certification by the Royal College of Physicians and Surgeons of Canada. Residents are encouraged to undertake research projects in Clinical Diagnostic Radiology.

The Staff of the Department of Diagnostic Radiology participates extensively in the activities of the cardiovascular, neurological and paediatric services, and considerable specialization of both staff and equipment in those areas has developed.

The Staff of the University, Victoria, Children's, St. Joseph's, and Westminster Hospitals contributes a broad experience in Radiology and the Radiologic Subspecialties. Several Clinical Fellowships in Cardiovascular Radiology, Neuroradiology, and Radiologic Research are available.

Economics

SOCIAL SCIENCES CENTRE: Room 4009

Chairman: *J. Clark Leith*
Professors:
Bodkin, R. G., BA Swarthmore; MA, PhD Pennsylvania
Brown, T. M., BA UWO; MA Toronto; PhD Australian National
Burley, K. H., BA, PhD London
Courchene, T. J., BA Saskatchewan; PhD Princeton
Melvin, J. R., BSc Manitoba; MA Alberta; PhD Minnesota
Reuber, G. L., BA UWO; MA, PhD Harvard. Dean of Social Science
Wonnacott, R. J., BA UWO; MA, PhD Harvard
Associate Professors:
Berry, R. A., BA UWO; PhD Princeton
Leith, J. C., BA Toronto; MSc, PhD Wisconsin.
Saraydar, E., BA Syracuse; MA, PhD Rochester
Assistant Professors:
Avio, K. L., BS Oregon; PhD Purdue
Bhatia, K. B., B Com, M Com Delhi; PhD Chicago
Blomqvist, A. G., Civ-ekonom Stockholm; PhD Princeton
Boyer, R. S., BA Columbia; MA Wisconsin; PhD Chicago
Burgess, D. F., BA Queen's; MA UWO; PhD Wisconsin
Carter, R. A. L., BA RMC; MA, PhD Queen's
Clark, C. S., BA Queen's; PhD California

Dick, T. J. O., BA Carleton; MA Toronto; PhD Washington
Frankena, M. W., BA Swarthmore; PhD MIT
Fried, J. S., BA Stanford; PhD Northwestern
Haessel, W. W., BSc, MSc, Alberta; PhD Iowa State
Johnson, H. T., AB Harvard; MBA Rutgers; MA, PhD Wisconsin
Ketchum, E. J. D., BA Toronto; MSc, LSE; MA, PhD Princeton
May, J. D., B Com Queen's; PhD York (England)
Palmer, J. P., BA Carleton College, Minn; PhD Iowa State
Parai, L., BA Alberta; MA Toronto; PhD Yale
Plourde, C. G., BA, MA Queen's; PhD Minnesota
Rao, V. S., BA Andhra; PhD Minnesota
Scheffman, D. T., BA Minnesota; PhD MIT
Toda, Y., BA, MA Tokyo; PhD Harvard
Vickery, W. E., B. E. Vanderbilt; MBA Harvard; PhD Chicago

The Department offers programs of study leading to the degrees of MA and PhD. In its graduate courses the Department emphasizes a combination of advanced theoretical and quantitative analysis.

Candidates are admitted at the discretion of the Department. The MA program for suitably qualified candidates normally requires one year; the PhD program requires a minimum of two further years of residence. Students may apply to begin the MA or PhD program in the Fall Term only. The application deadline is August 15th.

Detailed information about these graduate programs and their admission requirements together with copies of course descriptions may be obtained from the Director of Graduate Studies in Economics, Department of Economics.

COURSES

A full range of advanced courses (at the 600 level) and reading courses (at the 700 level) are available in the subjects listed below.

All courses will not necessarily be offered in any one year; two half courses of the same number (e.g. 505a and 505b) may be taken as a full course.

505a. Introduction to Econometrics I.
Half course; one term.

505b. Introduction to Econometrics II.
Half course; one term.

510a. Mathematical Economics I.
Half course; one term.

510b. Mathematical Economics II.
Half course; one term.

533a. Monetary Theory.
Half course; one term.

533b. Monetary Institutions.
Half course; one term.

534a. Industrial Organization.
Half course; one term.

534b. Industrial Organization Policy.
Half course; one term.

537a. North American Economic History I.
Half course; one term.

537b. North American Economic History II.
Half course; one term.

538a. Economic Development I.
Half course; one term.

538b. Economic Development II.
Half course; one term.

539a. Urban and Regional Economics I.
Half course; one term.

539b. Urban and Regional Economics II.
Half course; one term.

540a. Macro-economics I.
Half course; one term.

540b. Macro-economics II.
Half course; one term.

547a. European Economic History I.
Half course; one term.

547b. European Economic History II.
Half course; one term.

551a. International Trade Theory.
Half course; one term.

551b. International Trade Policy.
Half course; one term.

555a. Econometrics I.
Half course; one term.

555b. Econometrics II.
Half course; one term.

560a. Micro-economics I.
Half course; one term.

560b. Micro-economics II.
Half course; one term.

563a. Fiscal Economics.
Half course; one term.

563b. Public Finance.
Half course; one term.

565a. Econometrics and Quantitative Methods I.
Half course; one term.

565b. Econometrics and Quantitative Methods II.
Half course; one term.

575a. Economics of Human Resources I.
Half course; one term.

575b. Economics of Human Resources II.
Half course; one term.

589a. Capital and Growth Theory I.
Half course; one term.

589b. Capital and Growth Theory II.
Half course; one term.

590. MA Thesis.

690. PhD Thesis.

Education

ALTHOUSE COLLEGE, Room 221
Coordinator of Graduate Studies in Education: N. L. Nicholson
Professors:
Harper, F. B. W., MA Glasgow; PhD California
Harris, A. W., BA UWO
McMurray, J. G., BA, MA UWO; PhD Toronto
Milburn, G., BA, MA Durham; BEd Toronto
Nicholson, N. L., BA, MSc UWO; PhD Ottawa; MEd Toronto, FRGS
Slemon, A. G., BA Manitoba; MA UWO; PhD Toronto
Smallbridge, J. E., BA, MA Toronto
West, N. W., BA, BEd, BPHE Toronto, MRSH
Associate Professors:
Gray, D. M., BA, MA Queens
Sanders, J. T., AB Harvard; MA, PhD Ohio State
Assistant Professors:
Bergering, A. J., BA, MA UWO
Clark, R. J., BA McMaster; MA UWO

Candidates should read the general University regulations for the MAT degree elsewhere in this Calendar.

MAT DEGREE

This program has been approved by the Ontario Council on Graduate Studies and by the Senate of the University. Students may be accepted into the program when the embargo imposed by the Ministry of Colleges and Universities has been lifted.

The program leading to the degree of Master of Arts in Teaching is offered jointly by Althouse College of Education and the Faculties of Arts, Physical Education, Science, and Social Science. It is primarily designed for the school teacher who wishes to obtain formal training beyond the Bachelors level.

In 1974-75 the MAT will only be available in the fields of English, History, Mathematics and Physical Education. The graduate courses offered in these areas by the Faculties in Arts, Physical Education, Science, and Social Science are listed under the appropriate headings elsewhere in this Calendar. The following are offered by Althouse College of Education

COURSES:

Note: All of the following courses may not be offered every year. Consult the Coordinator of Graduate Studies for specific information..

520a or b. The Adolescent in the Secondary School. The theoretical and empirical literature relating to the adolescent in the secondary school with specific reference to motivation, student power, drug problems, peer group relationships, home background, social class and ethnic group membership./F. B. W. Harper
3 hours, Half course; one term.
May also be available in Spring Term.

521a or b. The Exceptional Child in School and Community. The psychology of exceptional children (the slow learner, the gifted, the cuturally disadvantaged, the physically and emotionally handicapped) with reference to their education and training in various instructional settings./J. G. McMurray
3 hours, Half course; one term.
May also be available in Spring Term.

528. Psychological Analysis of Educational Problems. The educational implications of contemporary psychological theories and empirical research in the fields of learning, motivation and cognitive development./Staff
3 hours, Full course; two terms.

560. Curriculum Research in English. Selected topics in the study of English language and literature in the school curriculum; evaluation of recent research into the nature and function of the English language and of developments in critical approaches to literature; problems in curriculum planning and implementation./J. E. Smallbridge
3 hours, Full course; two terms.

561. Curriculum Research in History. Selected topics in the study of History in the school curriculum; evaluation of current research; problems in curriculum planning and implementation; research design./Staff
3 hours, Full course; two terms.

562. Curriculum Research in Mathematics. Critical evaluation of curricula and instructional techniques in mathematics; study of the various criteria used in the past to develop courses in mathematics; construction of experimental programs./A. W. Harris
3 hours, Full course; two terms.

563. Curriculum Research in Physical and Health Education. Evaluation and critical analysis of current curricula in physical and health education with a view to developing models and innovations for new curricula in the schools./N. West
3 hours, Full course; two terms.

589. Research Paper. A problem related to the teaching in schools of the area of study./Staff
Additional courses (not leading to M.A.T. degree) may be offered. For further information, contact the Coordinator of Graduate Studies in Education, Althouse College of Education..

Engineering Science

ENGINEERING AND MATHEMATICAL SCIENCES BUILDING; Room 2086

Dean: A. I. Johnson

Professors:

Beecroft, E. A., BA, MA Toronto; PhD Yale. Professor of Political Science
Bergougnou, MA, MS Nancy; PhD Minnesota
Bulani, W., BSc, MSc Saskatchewan; PhD McGill
Chess, G. F., CD, BASc Toronto; MEng McGill; PhD Wooster
Davenport, A. G., BA, MA Cantab; MASc Toronto; PhD Bristol
Dillon, R. M., BA UWO; SM MIT
Emmerson, G. S., BSc Glasgow; MSc London
Foreman, J. E. K., BASc Toronto; MME Cornell
Geach, G. A., BSc, MSc, PhD *Sheffield*
Inculet, I. I., Dipl. Ing Bucuresti; MSc Laval
Johnson, A. I., BASc Toronto; MChE Brooklyn; PhD Toronto.
Lauchland, L. S. ED, BASc, Toronto
Lo, K. Y., BSc Hong Kong; MSc, DIC, PhD London
Novak, M. Dipl Ing Prague; PhD Acad Sc Prague
Nowak, E. S., BEng McGill; PhD Purdue
Poucher, M. P., BSc, MSc, DIC London
Quigley, R. M., BASc, MASc Toronto; PhD MIT. Associate Professor of Geology
Sullivan, J. L., BS, MS, PhD New South Wales
Zajic, J. E., BA Kansas; MS Wisconsin. PhD California, Davis; JD Oklahoma. Associate Professor of Bacteriology and Immunology

Associate Professors:

Abu-Sitta, S. H., BSc Cairo; PhD London
Baker, C. G. J., BSc, DIC, PhD New South Wales
Beeckmans, J. M., BSc London; MASc, PhD Toronto
Bonnema, T., BSc Queen's; MASc Toronto; PhD Purdue
Brown, J. D., BSc McMaster; PhD Maryland
Castle, G. S. P., BESc, MSc, DIC London; PhD UWO
Davis, W. H., BASc Toronto
Duerden, I. J., BSc Leeds; PhD Oxon
Kosaric, N., MESc Zagreb; PhD UWO
MacDonald, J. A., BE NSTech; MSc Michigan
Olson, A. T., BSc Queen's; MSc Birmingham
Peacock, W. H., BASc, MASc Toronto; PhD Berkeley, Cal.
Roy, C., BSc Laval; DIC, PhD London
Sheasby, J. S., BSc Birmingham; PhD New South Wales
Shelstad, K. A., BE Saskatchewan; MSc Dalhousie; PhD Toronto
Stewart, J. W., CD, BA, BSC Saskatchewan; MSc Michigan
Swartman, R. K., MSc Queen's
Tarasuk, J. D., BASc, MASc Toronto; PhD Saskatchewan

Assistant Professors:

Base, T. E., BSc, MSc Bristol; MSc Brown; PhD Southampton
Dickinson, S. M., BSc, PhD Nottingham
Harman, D. J., BASc Toronto; MSc Purdue; PhD Illinois
Livingstone, C. E., BSc, MSc British Columbia; PhD UWO
Rosati, P. A., BA, MA Oxon; MESc UWO
Sherebrin, M. H., BSc Manitoba; MSc, PhD UWO. Assistant Professor of Biophysics

Svrcek, W. Y., BSc, PhD Alberta
Watson, A., BSc, MSc Tech Manchester; DSU Southampton
Wilkins, P. O., BMus Roch; MS Hawaii; PhD Pennsylvania. Assistant Professor of Bacteriology and Immunology

Three degrees are offered in Engineering Science. The MESc and PhD are based on research requiring seminar and thesis while the MEng is based on course work, seminar and report. Arrangements may be made for part-time enrolment in all programs.

MESc—All Options

MEng—Chemical, Civil, Mechanical, Environmental and Systems

PhD—Engineering Science

MASTER OF ENGINEERING SCIENCE

For MESc candidates an individual program will consist of a minimum of two graduate courses (or the equivalent), a thesis and a seminar. The program of study for each candidate will be approved by the appropriate Graduate Board. On the advice of this Committee and with the concurrence of the Chairman concerned, candidates may elect or be required to take graduate courses of Honor courses offered in other University departments.

Included are such courses as Mathematics, Computer Science, Chemistry, Physics, Geology, and Medical Sciences, e.g. Biochemistry, Biophysics, Microbiology, etc. The student is encouraged to select the program which best suits his individual interest and aptitude and which meets the general requirements of the Faculty of Graduate Studies.

With the approval of the Dean of the Faculty of Graduate Studies, a candidate for the degree of Master of Engineering Science who is unable to attend full-time study may undertake his course work on a part-time basis provided satisfactory arrangements can be made for his thesis work.

MASTER OF ENGINEERING

Master of Engineering (MEng) programs are designed primarily for the practising engineer and students wishing to obtain specialized academic training beyond the Bachelor's level. Emphasis is placed on specialized techniques, analysis and engineering design, associated with current engineering practices. MEng programs comprise a prescribed set of at least five courses together with a project and engineering report. The requirements are completed within one academic year (8 months) except in the case of part-time candidates.

DOCTOR OF PHILOSOPHY

The program of study for each candidate for the PhD degree must be approved by the Engineering Science Committee on Graduate Studies. The minimum requirements for the degree are listed below.

A. Six courses consisting of at least three from (1) and the remainder from (1), (2) and (3).

(1) An Engineering Science course at the 500 or 600 level.

(2) An Engineering Science course, outside the candidate's field of specialization, at a level not lower than 400.

(3) A course outside the Faculty of Engineering Science at a level not lower than 300.

B. A reading knowledge of at least one language other than English.

C. Comprehensive Examination: an oral or written examination normally taken in the first year of the PhD program. The main purpose of the examination is diagnostic, to assist the student and his committee in recommending a program of study.

D. Seminar: A candidate must prepare and present a paper or papers on his thesis research to the faculty and graduate students. A candidate may be required to submit essays on assigned topics.

E. Thesis. (PhD 690, MESc 590, MEng 500)

Preregistration of courses (deadline August 1st, each year).

COURSES

NOTE: All of the following courses may not be offered or may be offered in alternate years.

500. MEng Project and Report. Investigation of an engineering problem. A detailed engineering report is required and each candidate will present this material in a public lecture. Problems may be assigned in consultation with the candidate's employer./Staff.
6 hours, Both terms.

505. Electronic Instrumentation. Systems of electronic instrumentation for measurement (analog and digital), control, amplification, data processing and generation of time varying signals. (Primarily for non-engineering students; no prerequisites)./T. Bonnema.
2 hours lectures, 1 1/2 hours lab, Full course; two terms.

511a or b. Applied Catalysis 1. Principles of heterogeneous catalysis. Kinetics and mechanism of selected catalytic reactions. Case studies of several industrial catalysts and associated catalytic processes./K. A. Shelstad.
2 hours, Half course; one term.

512b. Advanced Chemical Reactor Theory and Design. Non-ideal flow in chemical reactors and its study through tracers, Residence time distribution functions and their determination; various states of mixing and their influence on the kinetics of the reaction. Practical design aspects of large commercial reactors. Mathematical modelling of reactors and elements of control./M. A. Bergougnou
2 hours, Half course; one term.

513a. Advanced fluidized Bed Reactor Theory and Design. Fundamentals of fluid-particle mechanics, of fluidization and of systems involving the interaction of fluids and particles, e.g. slurry reactors. Systematic study of the design and scale-up aspects of large commercial fluidized bed reactors./M. A. Bergougnou
2 hours, Half course; one term.

514. Food Engineering. Detailed review and analysis of the processes and operations of Food Production. Basic nutritional requirements for human foods such as proteins, fats, carbohydrates, vitamins and minerals. Discussed are the following industries: meat, dairy, starch, fats and vegetable oils, and brewing. Food preservation, additives and flavouring materials are also included./N. Kosaric and J. E. Zajic
2 hours, Full course; two terms.

515. Biochemical Engineering. The application of the unit operations of chemical engineering to biochemical processes. Course includes mixing, mass transfer of gases, batch and continuous reactor theory and kinetics of vitamins, antibiotics, steroids, enzymes, organic acids, single cell proteins and other classical fermentation products./J. E. Zajic and N. Kosaric
2 hours, both terms, 3 hour laboratory, one term, Full course; two terms.

516. Chemical Process Simulation. Simulation of chemical plants on the computer. Convergence and optimization problems in chemical plant simulation./A. I. Johnson
2 hours, Full course; two terms.

518. Advanced Process and Plant Design. Process engineering and feasibility design study of a new process to manufacture a chemical product. Detailed design of reactors and other main pieces of equipment, of control and start-up systems. Optimization and simulation of the plant on computer. Writing of the operating manual./M. A. Bergougnou
4 hours workshop, Full course; two terms.

519. Engineering Economics and Law. A critical examination of the procedures available for analysis and minimizing costs of industrial processes and operations. Selected topics on Engineering law such as contracts, patents and copyright are examined./C. J. G. Baker, W. V. Svrcek and J. E. Zajic
2 hours, Full course; two terms.

520a or b. Engineering Statistics and Reliability. Probability, statistics and reliability with special application to engineering; data analysis, probability distributions, sampling theory, probability of failure and elementary decision theory./A. G. Davenport
2 hours, Half course; one term.

521a. Properties of Concrete. Properties of the constituent materials; mix design, rheology of fresh concrete; strength, shrinkage and creep; other topics./M. P. Poucher
2 hours, Half course; one term.

521b. Reinforced Concrete. Treatment of contemporary analysis and design methods applied to structural elements and systems./M. P. Poucher and D. Harman
2 hours, Half course; one term.

522a. Advanced Soil Mechanics. Effective stress; shear strength parameters, stress-strain-time relationship, and pore pressure equations. Consolidation and settlement. Design and construction of various types of shallow and deep foundations./R. M. Quigley and K. Y. Lo
2 hours, Half course; one term.

523a. Geotechnical and Environmental Aspects of Soil in Land Utilization. Land utilization by man in relation to geology, mineralogy, physico-chemistry and geotechnical properties of component soils. Cation exchange reactions and effects of pollutants on soil properties. Erodability of soils in relation to moisture content, mineralogy, climate and attack by moving water./R. M. Quigley
2 hours, Half course; one term.

525a. Plates and Shells. Introduction to the classical analysis of plates and shells. Small deflection behaviour of plates, considering various shapes, loads and boundary conditions./S. H. Abu-Sitta
2 hours, Half course; one term.

525b. Plates and Shells II. Membrane and bending behaviour of cylindrical shells, translational shells and shells of revolution. Edge disturbance theory. Numerical methods./S. H. Abu-Sitta
2 hours, Half course; one term.

526. Science of Structures. A study of various structural forms and a statistical and dynamic description of their behaviour under wind, earthquake, snow, temperature and live load effects. Structural forms considered include long span bridges, towers and tall buildings. Implications for design are considered./A. G. Davenport
2 hours, Full course; two terms.

527a or b. Reading Course in Engineering Geology. Difficult design, construction and environmental problems markedly influenced by geological factors are studied in detail. Emphasis to be placed on such topics as: aggregate selection for concrete and asphalt mixes, geophysical methods of exploration used in engineering

practice, ground water and its importance in design, landfill, glacial deposits, frost action, permafrost, etc./ R. M. Quigley.(by arrangement only)
Half course; one term.

529b. Foundation Engineering. Design of foundations for all types of structures. Spread footing, raft and piled foundations, bulkheads and retaining walls, floated foundations, sheeted excavations, etc./Staff
2 hours, Half course; one term.

530. Electric Power Systems. General problems; elements of power systems; parameters of transmission lines, transformers, synchronous and induction machines; active-power and reactive power flows; voltage regulation: economic operation: power system stability: surge phenomena: special problems of extra-high-voltage transmission./L. S. Lauchland
2 hours, Full course; two terms.

531. Electromechanical Energy Conversion. Dynamic behavior of electromechanical energy converters as individual devices and as inter-connected devices in control systems and in power systems./L. S. Lauchland and I. I. Inculet
2 hours, Full course; two terms.

538. Electrostatic Theory and Engineering Applications. Electric fields and charges; duality between electrostatics and electromagnetics; bonding theory; theory of metals; semiconductors and dielectrics; static electrification; corona discharging; electrified aerosols; electrets; high voltage electrostatic generators; capacitors; single stage and two-stage electrostatic precipitators; xerography; paint sprayer; electrostatic hazards; static eliminators, etc./I. I. Inculet, J. D. Brown, G. S. P. Castle and A. Watson
2 hours, Full course; two terms.

539. Aerosol Mechanics. Methods of characterization and collection of aerosol particles for analytical purposes, methods for the generation of aerosols. Basic mechanics of aerosols, theory and practice of industrial filtration; electrostatic precipitators, cyclones, scrubbers etc./J. M. Beeckmans, J. D. Brown, G. S. P. Castle and I. I. Inculet
2 hours, Full course; two terms.

540a. Principles of Nuclear Reactors. Nuclear energy and nuclear reaction, fission process, critical mass, radioactivity, interaction of alpha, beta, gamma and neutron radiation with matter. The principle of the fission chain reactor. Reactor fuels, radiation protection and reactor safeguards./G. S. Emmerson
2 hours, Half course; one term.

540b. Nuclear Reactor Engineering. Nuclear reactor systems and characteristics. Engineering design aspects — materials, energy removal, power plant./G. S. Emmerson
2 hours, Half course; one term.

541a or b. Physical Measurements and Analysis. Selected topics in experimental measurements involving transducers, signal conditioning (wave form generation, amplifiers, frequency analyzers) and general instrumentation (detectors, analogue and digital read-out devices, tape recorders); techniques and evaluation in the measurement of strain, pressure, displacement, acceleration, flow, temperature, sound, surface roughness./J. E. K. Foreman
2 hours, Half course; one term.

542a. Viscous and Boundary Layer Theory. Review of essential mathematics, conservation of mass equation, Navier Stokes equation and some exact solutions including Hiemenz stagnation point flow, Low Reynolds Number flows, creeping flows, Stokesian flow. Blausius solution for the laminar flow along a flat plate, von Karman momentum integral equation, growth of laminar boundary layers. Orr-Sommerfeld equation, stability of laminar flows./T. E. Base
2 hours, Half course; one term.

542b. Applied Hydro- and Aero-Mechanics. Kinematics and dynamics of two and three-dimensional fluid

fields, vortex generation and dissipation; forces on cylinder with circulation, Blausius Theorem, conformal transformation, forces and moments on flat plates and airfoils; thin wing, finite wing; propeller and wind-mill theory./J. W. Stewart
2 hours, Half course; one term.

543a. Applied Thermodynamics. Brief review of statements of Zeroth, First, Second (Caretheordy and Born's approach) and Third Laws of Thermodynamics. Entropy, information theory and negative temperatures. Maxwell equations and fundamental relationships, Pfaffian forms of equations, Gibbs and Helmholtz free energies, chemical potential. Real Gas Behaviour, mixtures of real gases and their behaviour dissociation in chemical reactions and flows with chemical reactions./E. S. Nowak
2 hours, Half course; one term.

543b. Statistical Thermodynamics. Introduction to Kinetic theory of ideal and real gases. Some models for the thermodynamic and transport properties of real gases are developed./E. S. Nowak
2 hours, Half course; one term.

544a. Conduction Heat Transfer. One and two-dimensional conduction, transient conduction, variable conductivity, numerical solutions and advanced topics./E. S. Nowak
2 hours, Half course; one term.

544b. Convection Heat Transfer. Governing equations for flow in various coordinate systems. Free and forced convection in internal and external flows, similarity transforms, Reynolds analogy, turbulence, Von-Karmans analogy, liquid metals and selected topics./J. D. Tarasuk
2 hours, Half course; one term.

545a. Energy Conversion. Review of energy sources, methods of energy release such as combustion, and methods of energy conversion including turbo-machinery, positive displacement machinery and non-conventional methods. Economics of plant selection./R. K. Swartman
2 hours, Half course; one term.

545b. Solar Energy Utilization. Nature of solar radiation, flat plate collectors and their design, solar concentrators, solar stills, energy storage, solar power generation, and other techniques of solar energy utilization./R. K. Swartman
2 hours, Half course; one term.

546a. Advanced Vibrations I. Vibrations of lumped and distributed parameter systems like beams, frames and plates; modal analysis; random vibrations; applications to wind effects and earthquake engineering./M. Novak
2 hours, Half course; one term.

546b. Advanced Vibrations II. D'Alembert's and Hamilton's principles. Lagrange's equations, generalized coordinates; Ritz and Galerkin's method; nonlinear and self-excited vibrations and their applications to aerodynamic stability of structures and bridges; dynamic stability; integral transforms./M. Novak
2 hours, Half course; one term.

547a. Shock in Engineering. Analysis of shock loads on simple systems. Revision of Laplace Transform theory. Shock spectra and response spectra. Continuous systems with suddenly applied loads, visco-elastic material models, shock testing techniques, three dimensional stress systems. Shock wave theory, the detonation process, shock waves in water./T. E. Base
2 hours, Half course; one term.

548a. Convective Phenomena in Fluids. General discussion of free convection. Boussinesq approximation. Plumes, thermals, forced plumes and "buoyant" vortex rings in various environmental conditions. Density currents. Rayleigh-Jeffreys instability and Bernard cells. Langmuir helical vortices. Bubble induced convection./P. J. Sullivan
3 hours, Half course; one term.

549b. Noise Control. Effects of noise

on hearing; current noise criteria and anti-noise regulations; characteristics and treatment of noise from engines, motor vehicles, traffic, aircraft, ventilation systems. Participation in 3 to 4 sound laboratory experiments will be required./J. W. Stewart
Prerequisite 449a
2 hours, Half course; one term.

551. Mechanical Properties of Materials at High Temperatures. Mechanisms of deformation and sources of strength within materials at high temperatures. Failure at high temperatures. The development of materials for use at high temperatures./G. A. Geach
2 hours, Full course; two terms.

552. The History of Materials Science. History of the development and application of materials, its interplay with development and application of materials, its interplay with developments in other learning, technologies, war and the status of nations. Factors which have led to discovery and progress in the uses of materials./G. A. Geach
2 hours, Full course; two terms.

554a. X-ray Spectroscopy. Excitation processes, qualitative and quantitative analysis, matrix effects, soft x-ray spectrography, electron probe microanalysis, industrial application./J. D. Brown and I. J. Duerden
2 hours, Half course; one term.

554b. Spectroscopic Methods. Theory and applications of selected methods of spectroscopy including IRUV, Moss-bauer, etc. Topics chosen on basis of class interests./Staff
2 hours, Half course; one term.

555. Techniques for the Study of High Temperature Chemical Reactions. Review of chemical thermodynamics, thermodynamic diagrams and calculations, phase stability, shape stability, reaction rate theory, diffusion in solids, application of statistical mechanics, experimental techniques./J. S. Sheasby
2 hours, Full course; two terms.

556a. X-ray Diffraction in Engineering. Theory and practice of techniques to determine composition of multo-phase mixtures, lattice parameters, grain size, residual stresses, texture./I. J. Duerden
2 hours, Half course; one term.

556b. Advanced X-ray Techniques. Diffraction theory-scattering of x-rays by atoms, molecules, aggregations of atoms, and crystals. Use of reciprocal lattice and vector algebra. Errors in diffractometer measurements of diffraction angle and intensity. Precise measurement techniques. Mathematical interpretation of data./I. J. Duerden
Prerequisite: 556a or equivalent
2 hours, Half course; one term.

557. Alloy Theory. Electron theory of metals. Factors affecting formation and structure of phases. Types of phases. Thermodynamics of all alloys./I. J. Duerden
2 hours, Full course; two terms.

558b. Electron Microscopy. Electron Optics, diffraction contrast, phase contrast, resolution dark field imaging, identification of dislocations, Bergers vectors, sample preparation electron diffraction, crystal orientation, lattice parameters./J. D. Brown
1 hour lecture, 3 hour Lab., Half course; one term.

559b. Instrumental Techniques in Materials Science I. Introduction to the techniques of materials science, such as metallography, electrochemistry, vacuum technology, x-ray diffraction, and other instrumentation. The aim of the course is to give participants an adequate knowledge of the principles - theory and practice of these techniques./Staff
2 hours, Half course; one term.

560. Selected Topics in Biochemical Engineering. Course deals with specialized aeration techniques, viscosity effects, scale-up problems, process optimization, computer applications and simulation and new biochemical products./J. E. Zajic and N. Kosaric
2 hours, Full course; two terms.

561a or b. Air Pollution Control. An introduction to air pollution control. Topics include control of particulates by mechanical and electrostatic devices, principles of combustion and minimization of nitrogen oxides and particulate emissions, control of sulphur dioxide and of odours, and a review of control measures in certain chemical industries./J. M. Beeckmans and K. A. Shelstad
2 hours, Half course, one term.

562a. Water Pollution: Biological Unit Processes. Course covers all aspects of biological oxidation, including activated sludge, anaerobic digestion, trickling filters, oxidation ponds and lagoons, biological control, odours control, slimes, etc. Laboratory introduces unit operation relating to these topics./J. E. Zajic
2 hours lecture, 2 hours laboratory, Half course; one term.

562b. Water Pollution: Chemical Unit Processes. Subjects covered include information theory, chemical basis of pollution, treatment techniques for cyanide, chromium and phenolic wastes. Unit processes discussed are solvent extraction, flotation, chemical treatment, oxidation-exchange, absorption, wet combustion, incineration, sterilization and disinfection./J. E. Zajic
2 hours lecture, 2 hours laboratory, Half course; one term.

563a or b. Industrial Processes. This course provides a descriptive view of major industrial processes with special emphasis on the operations and problems relevant to control of waste by-products./W. Bulani
2 hours, Half course; one term.

564a. Microbial Ecology. A study of those aspects of micro-organisms that influence, and are influenced by environmental phenomena. Topics include growth and control of microbial populations, cycle of elements in the biosphere, biodegradation of natural and synthetic compounds, industrial fermentations, water-borne diseases and bacteriological standards of water quality./P. O. Wilkins
2 hours, lecture, 2-3 hours laboratory, Half course; one term.

564b. Aquatic Biology and Eutrophication. Ultra structure of protoplasm as it relates to the basic function of living substance. Morphology, growth, development and genetics of algal organisms is surveyed in the light of the role played by these organisms, in conjunction with rooted aquatics, in the phenomenon of artifical eutrophication./D. A. McLarty

565a or b. Legal and Administrative Controls of Pollution. Judicial control of pollution through common law, nuisance laws, legislation to regulate and establish standards, structures and control by local government authorities, and enforcement techniques./TBA
2 hours, Half course; one term.

566a or b. Effects of Environmental Contaminants. Air, water and soil pollution, noise, radiation, etc., and their effects upon man, animals, vegetation, meteorology and economic welfare in terms of overall human society and other eco-systems. Covers description of community environmental problems, physiology, epidemiology, survey methodology, interrelationships in eco-systems and global effects etc./J. L. Sullivan
2 hours, Half course; one term.

567. Environmental Engineering Seminar. A special course reviewing the latest developments in environmental understanding and management. Students prepare and present brief reports on topical technical and social environmental issues and participate in group discussions with class and faculty members./J. L. Sullivan
2 hours, Full course; two terms.

568a or b. Air Pollution Measurements and Surveys. Sampling for particulate and gaseous pollutants, measurement and control of noise, analysis of samples including instru-

mental methods, calibration procedures, design of surveys and interpretation. Laboratory covers: Sampling and analysis of ambient air pollution, particle size, frequency analysis, source sampling and analysis and control equipment studies./J.L. Sullivan and B. Volesky
2 hours lecture, 3 hours laboratory, Half course; one term.

569a or b. Environmental Policy Making. A study of political institutions and administrative procedures as they affect the development of programs for the managemnt and financing of pollution control./E. A. Beecroft
2 hours, Half course; one term.

571a. Random Processes (Turbulent Flow). Stochastic processes, with emphasis on methods of correlation and spectral analysis. Laboratory sessions; use of equipment of the Boundary Layer Wind Tunnel Laboratory./A. G. Davenport
2 hours, Half course; one term.

571b. Mechanism and Theory of Turbulent Flow. An introduction to the statistical theory of turbulence. Mixing length theories and applications to flow in pipes, boundary layers, wakes and jets. Statistical theory and scales, correlations, and spectra. Pre-requisite an undergraduate fluid mechanics course./T. E. Base
2 hours, Half course; one term.

574. Advanced Structural Analysis. Design - oriented analysis of high-rise buildings and other structures. Stiffness Method; Finite Differences; Finite Elements and Transfer Matrices applied to chimneys, plates, dams, shells etc./S. H. Abu-Sitta
2 hours, Full course; two terms.

575b. Dams and Slopes. Earth and earth-rock dams: design procedures, stability, steady seepage and drawdown; factors of safety. Mechanisms of failure in dams. Stability of natural slopes, excavations and embankments. Strength anisotrophy, stratified soils, fissured clays, residual strength./K. Y. Lo
2 hours, Half course; one term.

576a. Dynamics of Soils and Foundations I. Vibrations of foundations on soil, elastic elements and piles, machine foundations, turbomachinery frame foundations, mechanical models of foundations./M. Novak
2 hours, Half course; one term.

576b. Dynamics of Soil and Foundations II. Wave propagation, vibration of rigid bodies on half space, behavior of granular and cohesive soils under the effect of dynamic load such as earthquake./M. Novak
2 hours, Half course; one term.

577a. Rock Mechanics I. Intact and fractured rock. Structural defects, theories of failure, theory of rupture. Phenomenological theories. Statistical aspect of strength of rock. Mechanical behaviour of rocks./K. Y. Lo
2 hours, Half course; one term.

577b. Rock Mechanics II. Design problems in rock mechanics. Stability of rock slopes. Foundations on rock. Tunnels. Stabilization. In-situ stresses and their measurements./K. Y. Lo
2 hours, Half course; one term.

578. Soil Engineering Laboratory. Laboratory Testing techniques including triaxial, consolidation, direct shear, special compaction and stabilization, clay mineralogy by x-ray diffraction and fluorescence, aggregate classification, etc./Staff
3 hours, Half course; two terms.

579. Structural Design and Behavior. The study of selected design situations chosen to illustrate a variety of structural problems and to apply analytical techniques discussed in lectures./A. G. Davenport, M. P. Poucher, M. Novak, S. H. Abu-Sittu and D. Harman
1 hour lecture, 3 hour laboratory, Full course; two terms.

580b. Selected Topics in Urban Engineering. The urban and regional development trends in Canada. The

course is developed on a case history basis to enable students with an engineering background to relate their special interest to selected problems./Staff
2 hours, Half course; one term.

581a. Thermodynamics of Multicomponent Systems. Review of the thermodynamics of multicomponent liquidvapour systems. Application of computer methods for the prediction of equilibrium date./J. M. Beeckmans
2 hours, Half course; one term.

581b. Multicomponent Distillation. Review of modern methods for analyzing the fractionation of multicomponent systems in a distillation column./J. M. Beeckmans
2 hours, Half course; one term.

582a. Control Techniques with Applications. A brief review of classical control theory followed by an introduction to modern control theory. Application of the theory to design of control schemes./W. Y. Svrcèk
2 hours, Half course; one term.

582b. Advanced Control Techniques. Extends the material presented in 582a to include advanced analog control techniques (feed-forward, feed-forward-feed-back, etc.) and digital computer control of plants./W. Y. Svrcek
2 hours, Half course; one term.

583a. Air pollution Equipment Design. A course on the fundamentals of air pollution abatement equipment engineering. Introduction to particulate mechanics and scaling laws applied to particulate flow systems; theory of the cyclone, venturi scrubber, electrostatic precipitator and bag filter. Design of incinerators, afterburners, gas scrubbers and vapour adsorbers./J. M. Beeckmans
2 hours, Half course; one term.

583b. Air pollution Control Systems. Criteria for the selection and specification of air pollution control equipment, case studies of industrial air pollution problems and the control measures implemented to control them, economic studies of control systems and analysis of future trends./J. L. Sullivan
2 hours, Half course; one term.

584a. Deterministic Modeling of System Components. An introduction to subroutine oriented executive systems for computer-aided analysis of complex systems. A review of numerical methods used in the building of such systems and in the information modification effected in the unit computations of the system./A. I. Johnson
2 hours, Half course; one term.

584b. Modular Approach to System Analysis and Design. A discussion of the computer executive programs for the analysis and design of complex manufacturing systems. Both steady state and dynamic behaviour of systems will be studied. There will be an introduction to optimization techniques for large systems./A. I. Johnson
2 hours, Half course; one term.

585a. Applied Meteorology and Hydrology. Study of the influence of climate and other meteorological factors on engineering operations; examples include the effects of wind, earthquakes, snow and temperature. Study of rainfall and hydrology; runoff, storage, evaporation and snow melting./A. G. Davenport, W. H. Davis, N. Isyumov
2 hours, Half course; one term.

586a. Sanitary and Water Systems. Design and optimization of sanitary and pressure conduit systems including hydraulic and structural considerations. Special structures. Relevant geotechnical problems such as braced trench design, limitations imposed by urban geology and soil conditions./M. P. Poucher, S. H. Abu-Sitta, R. M. Quigley
2 hours, Half course; one term.

587a. Models of Methods and Time Measurement. The application of motion and time study utilizing flow charts, Operation Analysis, man and machine relationship techniques. These techniques are used in defining the problem related to expected cost, breaking the job down into operations, analyzing each operation to determine the most economical manufacturing procedures, applying proper time values, and determining the optimum methods./J. A. MacDonald
2 hours, Half course; one term.

587b. Plant Layout and Materials Handling. Analysis for design and operation of material handling systems with emphasis on industrial mechanization and automation. Analytical models and simulation of plant layout and material handling systems./J. A. MacDonald
2 hours, Half course; one term.

588a or b. Optimization Techniques. The objective of this course is to develop an understanding of the functions and methods of Operations Research in the solution of Systems problems. Areas covered will include topics in classical optimization, as well as linear and dynamic programming./W. Y. Svrcek
2 hours, Half course; one term.

589a. Highways. Planning, location, geometric design, safety, pavement design./W. H. Davis
2 hours, Half course; one term.

590. MESc Thesis.

601a. Design of Strong Materials. The course surveys the strengthening mechanisms in materials. This covers studies of not only metals and ceramics but also plastics, glasses, composites and surface coatings./C. Roy
2 hours, Half course; one term.

601b. Nuclear Reactor Materials. Physical properties of fissile and structural materials for nuclear reactors; thermal and irradiation effects; principles of fuel element design; behaviour of fuel elements in service./C. Roy
2 hours, Half course; one term.

602. Vibrational and Acoustics Laboratory. It is recommended that 549b be taken concurrently. Experiments conducted to illustrate: the use of instrumentation and techniques in the quantitative and qualitative analysis of sound and vibration./T. E. Base, S. M. Dickinson, J. E. K. Foreman, J. W. Stewart
Prerequisite: 466 or equivalent
1 hour lecture, 3 hour laboratory, Full course; two terms.

603. Applied Thermodynamics and Heat Transfer Laboratory. Topics include metrology, P-v-T measurements of engineering fluids, boundary layer studies by shadow graph schlerien and interferometry, heat transfer from various geometries; combined modes of heat mass and momentum transfer. An experimental and/or design project will be required as part of the course./T. E. Base, E. S. Nowak, J. D. Tarasuk
1 hour lecture, 3 hour laboratory, Full course; two terms.

604a or b Ecological Principles for Engineering. A synecological approach to ecology: the structure and function of ecosystems, the diversity, stability, and productivity of selected environments. Particular attention will be given to the interactions of the ecosystem elements and the ability of the systems to accommodate man-made stresses./W. N. Holsworth
2 hours lecture, 3 hours field-work, Half course; one term.

605a or b Solid Wastes Management and Re-Use. Collection and transport systems for solid wastes, disposal practices including sanitary landfill, composting and incineration, recycling and reclamation of solid wastes, energy recovery and general consideration of social and economic factors./J. L. Sullivan
2 hours, Half course; one term.

613. Advanced Mathematical Topics for Chemical Engineers. Application of operational and matrix and other advanced mathematical techniques to the solution of complex chemical engineering and environmental problems./M. A. Bergougnou and invited lecturers (Course can be given on a blocked basis.)
1 hour, Half course; two terms.

620a. Advanced Science of Structures I. Advanced problems and more detailed application such as the design of tall buildings, towers suspension bridges./A. G. Davenport
Prerequisite: 520a and b or equivalent.
2 hours, Half course; one term.

620b. Advanced Science of Structures II. A continuation of 620a./A. G. Davenport
Prerequisite: 620a or equivalent
2 hours, Half course; one term.

622a. Advanced Topics in Geotechnical Engineering I. Recent advances in theories, application and design concepts in soil and rock mechanics. Anisotrophy and inhomogeneity in geotechnical materials and other selected topics, /K. Y. Lo
2 hours, Half course; one term.

622b. Advanced Topics in Geotechnical Engineering II. Continuation of 622a./K. Y. Lo
2 hours, Half course; one term.

643a. Radiative Heat Transfer. A study of the Physics and the application of thermal radiation heat transfer which will include thermal radiation laws, characteristics of ideal and real systems, energy exchange concepts, geometric factors, energy exchange in grey enclosures, non-grey and non-diffuse system analysis, and energy transfer in absorbing and emitting media./J. D. Tarasuk
2 hours, Half course; one term.

643b. Advanced Topics in Thermodynamics and Heat Transfer. Selected topics which can be chosen to meet the needs of the class. For example, boiling heat transfer./E. S. Nowak
2 hours, Half course; one term.

651a. Crystal Plasticity. Introductory survey outlining the basic ideas of dislocation theory. Review of the application of dislocation theory to studies of certain specific processes in crystalline materials e.g., crystal growth, work hardening, fracture etc./C. Roy
2 hours, Half course; one term.

660. Biochemical Engineering Design. Design of all types of bioreactors are reviewed, e.g. open, closed, "4 phase", packed bed, etc. Also design features of all unit operations used to support the bioreactor and selected recovery processes are covered. Each student is required to design a biochemical and/or food engineering process./N. Kosaric and J. E. Zajic
3 hours, Full course; two terms.

662a. Industrial Waste Water Treatment Systems. Criteria for selection and specification of operations and equipment and their implementation in industrial waste water treatment systems; problems related to water pollution control in industrial and municipal chemical and biochemical treatment systems./N. Kosaric
2 hours, Half course; one term.

662b. Industrial Waste Water Treatment Design. Selected industrial problems in waste water treatment and design of chemical and biochemical treatment systems for specific industries such as pulp and paper industry, petrochemical and petroleum industry, integrated iron and steel industries and selected food industries./N. Kosaric,
2 hours, Half course; one term.

690. PhD Thesis.

910. Chemical and Biochemical Engineering Seminar. Review of research areas particularly under investigation at Western, other universities and industry. The objective is to deve-

lop the informational retrieval, oral and written communication skills of the student and to broaden his knowledge in current chemical and biochemical research areas./Staff
2 hours, Two terms.

920. Civil Engineering Seminar. Students' participation will include attendance at all civil group seminars and presentation of at least one seminar./Staff
2 hours, Two terms.

930. Electrical Engineering Seminar. Seminar series dealing with contemporary problems and advances in electrical engineering. Topics to be covered will depend upon student and faculty interest and will deal with subject matter other than just the students' research interest./Staff
1 hour, Two terms.

940. Mechanical Engineering Seminar. Seminar series with participation by mechanical graduate students and faculty./Staff
1 hour, Two terms.

English

UNIVERSITY COLLEGE: Room 180

Chairman: P. D. Fleck
Professors:
Atkinson, W. E. D., BA Cantab; PhD Chicago
Barker, A. E., BA, MA Toronto; PhD London, Professor of Renaissance Literature
Bates, R. G. N., BA, MA, PhD Toronto
Bolgan, Anne C., BA D'Youville; MA, PhD Toronto
Collins, T. J., BA, MA UWO; PhD Indiana
Conron, A. B., BA, MA UWO; MA, PhD Harvard
Fleck, P. D., BA, MA UWO: PhD Belfast
Graham, J. W., BA Manitoba; MA, PhD Toronto
Hair, D. S., BA UWO; MA, PhD Toronto
Hieatt, A. K., BA Louisville; PhD Columbia
Hieatt, Constance B., BA, MA Hunter College; PhD Yale
Klinck, C. F., BA, UWO; MA, PhD Columbia, FRSC, Professor Emeritus
Rans, G., BA, MA Cantab; PhD Leeds
Rajan, B., BA, MA, PhD Cantab, Senior Professor
Reaney, J., BA, MA, PhD Toronto
Sanborn, C. E., BA, MA, PhD Toronto
Sharp, Corona (Sister), BA UWO; MA, PhD Notre Dame
Stingle, R. M., BA, MA Toronto
Woodman, R. G., BA British Columbia; MA Manitoba; PhD Toronto
Associate Professors:
Bandeen, Betty I., BA UWO; MA, PhD Radcliffe
Chapin, D. F., BA, MA, PhD Toronto, Chairman of Department Committee on Graduate Studies
Devereux, E. J., BA, MA Newfoundland; DPhil Oxon
Kaula, D. C., BA Cornell; PhD Indiana
Parker, G. D., BA Acadia; MA Dalhousie; PhD Toronto
Somerset, J. A. B., BA Toronto; MA, PhD Birmingham
Wilson, H. R., BA, MA Toronto; PhD Michigan

Assistant Professors:
Dragland, S. L., BA, MA Alberta; PhD Queen's
Hensley, D. H., BA, MA Oregon; PhD Wisconsin
House, G. S., BA, MA, PhD California (Berkeley)
Lundgren, B. R., BA Manitoba; MA, PhD UWO
Straulman, Ann T., BA Wellesley; MA Kansas City; PhD Wisconsin
Surette, L., BA Queen's; MA, PhD Toronto
Tausky, T. E., BA McGill; BA Cantab; MA, PhD Yale

The Department offers programs leading to the MA and PhD degrees in English literature. All inquiries, requests, and applications for admission should be directed to the Chairman of the Committee on Graduate Studies in English, in care of the Department.

ADMISSION REQUIREMENTS

A. For the MA in English Literature:

1. To qualify for a one-year MA program, an applicant must have the equivalent of an Honors BA in English, with a minimum of ten Undergraduate courses. Such courses must be full academic year length. The equivalent in semester courses would be normally seventeen.

   The applicant must have been examined in five of his ten courses at the Honors level in five of the following areas of English Language and Literature: i) History of the English Language or General English Linguistics or Literary Criticism or the English Novel; ii) Old English or Middle English; iii) Renaissance; iv) Drama, including Shakespeare; v) Restoration and Eighteenth Century; vi) Nineteenth Century; vii) Modern; viii) North American.
2. Applicants must have at least a substantial B average in the English courses taken in undergraduate or qualifying programs. The substantial B average is a minimum requirement for application and does not guarantee admission.
3. Applicants whose honors degree did not include examination in Old English or Middle English either must take an honors course in one of these subjects or must write the honors examination in it, in addition to the full load of graduate courses.

B. For the PhD in English Literature:

1. The candidate must have an MA, or an equivalent, acceptable to the Department. Applicants should have at least a substantial B average in English courses in their undergraduate program and must have at least a substantial B average in previous graduate courses, with at least some admission. work being of A calibre. These are minimum requirements for application, and do not guarantee
2. The student must demonstrate a reading knowledge of two languages other than English which are useful in the pursuit of English studies, the first before he can be admitted to the Ph.D. program in English and the second to be completed before he submits a prospectus for his thesis.
3. The student must have taken at least one course in either Old English or Middle English at the Honors undergraduate or MA level. If he cannot meet this requirement, he must take such a course here before he can attempt the Qualifying Examinations and this course will be in addition to the normal load of graduate courses in English.
4. A candidate who proceeds directly from the MA year to the first year of residence for the Ph.D. must complete all requirements for the MA before

February 1 of his first post-MA year. Otherwise the candidate will not be recommended for government fellowships nor a Teaching Assistantship for the following year and may not be allowed to proceed beyond completion of the courses in which he is currently registered until the requirements for the MA have been fulfilled.

RESEARCH AREAS

The Department has research facilities in all areas of English Literature. Its particular strengths are in the Renaissance, Nineteenth Century, Twentieth Century, and Canadian Literature and Culture.

DEGREE REQUIREMENTS

A. For the MA in English Literature:

1. TYPES OF MA PROGRAM.

A candidate may elect either of these programs:

a) two graduate courses, one half course in bibliographical methods, and a thesis. A student electing this program will register in course work and in thesis work (English 590) at his first fall registration. He must have the prospectus for the thesis approved by his supervisors and in the hands of the Chairman of the Committee on Graduate Studies no later than eight weeks after registration.

b) four graduate courses, and one half course in bibliographical methods. If a student electing this program holds a teaching fellowship, he may register for only three courses in the fall and winter terms, and must take the other course in the preceding or succeeding summer session.

2. THE COMPREHENSIVE EXAMINATION

It is a requirement of the MA in English that a candidate demonstrate, by examination, that he has a comprehensive overview of English literature, a sense of relationship between periods, authors and works. Therefore, a student entering the MA program must write the Comprehensive examination at the first sitting of that examination after his registration. The passing grade is 70 (B).

3. COMPULSORY COURSE IN BIBLIOGRAPHY AND SCHOLARLY METHODS

English 606 is a compulsory half course for all students in the MA program. This course will include study of annotation, the history and nature of scholarship in English, documents, the history of book production, printing and editing.

4. LANGUAGE REQUIREMENT

Applicants must have a reading knowledge of one language, other than English, acceptable to the Department. An applicant who has taken one university course in the language beyond the level of Senior Matriculation will normally be regarded as having met the requirement.

An applicant without satisfactory formal training in the language beyond Senior Matriculation may apply for a special reading test. If necessary, the test may be tried again, but must be passed no later than two months before the Convocation at which the candidate receives his MA degree.

5. THESIS

Detailed regulations concerning MA thesis are given on a separate sheet, available on request from the office of Graduate Studies in English, Room 180, University College. A thesis must normally not exceed 25,000 words, including bibliography and other apparatus.

6. PROGRESSION

70 (B) is a passing grade in a graduate course. Students who do not maintain at least a B standing in each course may be allowed to take additional courses or may be required to withdraw from the program at the discretion of the Committee on Graduate Studies.

B. For the PhD in English Literature:

1. COURSE WORK

The requirement is normally a minimum of four full graduate courses in English after the MA, and normally a maximum of six. A student may audit any other courses in English at the discretion of the instructors involved. A student who has not passed an adequate course in bibliographical and scholarly methods must pass English 606.

2. COMPULSORY COURSE IN BIBLIOGRAPHY AND SCHOLARLY METHODS

English 606 is a compulsory half course for all students in a PhD program. This course will include study of annotation, the history and nature of scholarship in English, documents, the history of book production, printing and editing.

3. THE QUALIFYING EXAMINATIONS

These examinations will normally be taken no later than the end of the second year of residence. They consist of the following:

a) four written examinations based upon four of the following eight areas: Old and Middle English Language and Literature; English Drama to the Restoration; Renaissance Non-Dramatic; Restoration and Eighteenth Century; Nineteenth Century; Modern Literature; American; Canadian. At least one of these examinations must be in a period before 1800 and at least one in a period after 1800;

b) a written examination on a major text;

c) an oral examination on the candidate's area of concentration.

4. LANGUAGE REQUIREMENTS

The student must demonstrate a reading knowledge of two languages other than English which are useful in the pursuit of English studies, the first before he can be admitted to the graduate program in English and the second to be completed before he submits a prospectus for his thesis.

5. THESIS

Detailed regulations concerning PhD thesis are given on a separate sheet, available on request from the office of Graduate Studies in English, Room 180 University College.

6. PROGRESSION

Students who do not maintain at least a substantial B standing in each course may be allowed to take additional courses or may be required to withdraw from the program at the discretion of the Committee on Graduate Studies.

After admission to the program but before formal registration, the student will be asked to indicate his course preferences for the coming term. The final decision upon admission to particular courses will be made on Course Enrolment Day, the date of which will be announced to students when they are requested to list their preferences. The Department reserves the right to limit enrolment in any course.

The courses to be offered in 1973-74 are listed below and marked with an asterisk. The Department offers a number of teaching Assistantships which may be applied for upon admission to the program.

GRADUATE COURSES

SUMMER 1974

***570. Modern Drama** / Sister Corona Sharp.
Full course: one term.

***571. Joseph Conrad and D.H. Lawrence** / C.B. Cox.
Full course: one term.

***587. Autobiography in English Canadian Fiction** / C.F. Klinck.
Full course: one term.

1974-75

***500. M.A. Comprehensive.**

503-509. Literary Theory, Genres, and Problems.

***504. Le Morte D'Arthur and Idylls of the King: Studies in Malory and Tennyson** / D.F. Chapin and D.S. Hair.
Full course: two terms.

***506. Folklore and Literature** / C.B. Hieatt.
Full course: two terms.

***507. English Heroic Drama** / G.D. Parker.
Full course: two terms.

***508. Ontario Literature and Culture** / J. Reaney.
Full course: two terms.

520-525. Mediaeval Language and Literature.

***523. Chaucer and the Gawain-Poet** / A.K. Hieatt.
Full course: two terms.

526-528. Linguistics.

530-539. Renaissance Literature

***536. Renaissance English Humanism** / A.E. Barker.
Full course: two terms.

540-549. Literature of the Restoration and Eighteenth Century.

***546. Restoration Drama and Dramatic Criticism** / A. Straulman.
Full courses: two terms.

550-559. Romantic Literature.

***556. Romantic Language in Poetic Practice** / D.H. Hensley.
Full course: two terms.

560-569. Victorian Literature.

570-579. Modern Literature.

***575. Inheritance and Adaptation Studies in Eliot, Milton and Yeats** / B. Rajan.
Full course: two terms.

580-589. North American Literature.

***585. The Romance in America** / G. Rans.
Full course: two terms.

***589. Extended Forms in Canadian Poetry** / S.L. Dragland.
Full course: two terms.

***590. M.A. Thesis.**

***591. M.A. degree language requirement-first foreign language (non-credit).**

***606. Bibliography** / E.J. Devereux. This is compulsory for all students in the M.A. year or in a Ph.D. programme.
Half course: two terms.

610-620. Ph.D. Qualifying Examinations.

***610. Area of Concentration.**

***611. Oral in the Area of Concentration.**

***612. Major Text.**

***613. Old and Middle English.**

***614. English Drama to the Restoration.**

***615. Renaissance non-Dramatic.**

***616. Restoration and Eighteenth Century.**

***617. Nineteenth Century.**

***618. Modern Literature.**

***619. American.**

***620. Canadian.**

***690. Ph.D. Thesis.**

***692. Ph.D. degree language requirement-second foreign language (non-credit).**

Epidemiology and Preventive Medicine

MEDICAL SCIENCES BUILDING, Room 115

Chairman: Carol W. Buck
Professors:
Buck, Carol W., MD, PhD UWO
McWhinney, I. R., MB, BSc, MD Cambridge
Associate Professors:
Rand, C. G., BA Mt. Allison; MD, CM McGill; MPH Harvard, FRCP (C)
Stavraky, Kathleen M., MD, PhD UWO
Wanklin, J. M., BA, PhD UWO
Williams, J. I., BA Nebraska Wesleyan; MA New Hampshire; PhD Florida State

Assistant Professors:
Robertson, J. McD., DVM Toronto; MSc (Med) Pennsylvania
Sangal, S. P., MSc Dehra Dun India; PhD Johns Hopkins
Thurlow, H. J. A., BA, MA, MD UWO

Graduate training programs, leading to the MSc or PhD degree in Epidemiology are available for a limited number of qualified students with backgrounds in medicine, nursing, biology, mathematics or the social sciences. In exceptional cases, students from other disciplines may be considered. It is also possible for physicians proceeding to the Fellowship of the Royal College in some specialities to take Epidemiology as their basic science.

While the department is prepared to supervise students working in most areas of Epidemiology, the principal subjects of research interest include the epidemiology of chronic diseases (especially neoplastic disease and mental illness), child development, and health care.

In addition, a PhD program in Epidemiology with specialization in Biostatistics is offered, in collaboration with the Department of Mathematics, to a limited number of qualified students with a background primarily in mathematics or statistics.

In view of the need to seek financial support from outside sources, it is recommended that applications be submitted as early in the academic year as possible. Students should ensure that all necessary material is available prior to the published deadlines of the various funding agencies.

Applicants must hold an Honors Bachelor's degree or equivalent from a recognized university. Course requirements will be decided on an individual basis but, as a minimum, all students in the general stream will be required to complete successfully Epidemiology 510, 550, 551, 610 and 611 or present evidence of satisfactory equivalents.

For those students concentrating on Biostatistics, a typical program would be the following: **Required Courses** - Epidemiology 550, 551, 552, 553, 650, 651, 652, 653; Mathematics 345, 355, 455. **Elective courses** - *selected from Mathematics* 445, 465, 570-588 and Applied Mathematics 543. In addition, students will be expected to take elective courses in other departments and participate in the consultation activities within the Department of Epidemiology. All students will assist in the department's undergraduate teaching program.

Two academic years are usually needed to complete a Master's program, whereas three years is a practical minimum for the PhD. Shorter programs may be approved after consultation with the department. It should be noted that all courses will not necessarily be offered each year.

Students must meet all the requirements of the Faculty of Graduate Studies. In addition to the requirements laid down by the Faculty of Graduate Studies, the student must attain a mark of at least 70% in each of the courses taken for credit within this Department. Should the student fail to attain a mark of 70% in any such course, he will be required to write a special examination in which he must attain a mark of at least 70%. A student will not be permitted to write a special examination in more than two such courses while completing the course requirements for a degree in this Department. Special examinations must take place prior to registration for the next fall term.

Normally, at the end of the second year of the biostatistics program, there will be a written comprehensive examination followed by an oral examination. In some instances, upon the recommendation of the student's advisory committee, these examinations could be taken earlier. The comprehensive examination in any case

will cover the required course work as listed above. The second language credit is not required of any student in this department.

Every candidate will be required to submit a draft of his research project, which is acceptable to his supervisory committee, prior to the completion of the third term of his program. Failure to achieve this after appropriate guidance from his supervisors will necessitate withdrawal from the program.

Criteria of acceptability for a Master's project will differ from those at the doctoral level in that the former will require less originality in subject and/or design. Should any problem arise in connection with the research proposal or any other academic matter, the student shall have the right to approach the Departmental Graduate Studies Committee directly.

COURSES

510a. Biostatistics. An introduction to the fundamentals of experimental design and data analysis.
Half course; one term.

521a or b. Epidemiology in Family Medicine. This course deals with the application of epidemiologic methods to research in the following aspects of family practice: diagnosis, natural history of disease, case-control and cohort studies of etiology, clinical trials and the evaluation of innovations in methods of practice.
Half course; one term.

524a or b. Social Epidemiology. Offered jointly with the Department of Sociology. It includes an examination of social epidemiological methods, patterns of acute and chronic morbidity, and the effects of social and psychological factors on health behaviour.
Half course; one term.

545a or b. Community Aspects of Mental Health. Offered jointly with the Department of Sociology. It includes a study of the incidence and prevalence of mental disorders, their interrelationship with socio-cultural and emotional factors, and an evaluation of selected mental health programs and services.
Half course; one term.

546a or b. Health Care Organization. Offered jointly with the Department of Sociology. It will include an analysis of the distribution of health resources with special consideration given to the effectiveness of health care delivery, public health policy, the health professions, and medical economics.
Half course; one term.

550a. Vital Statistics. Rates, ratios, standardization, complete and abridged life tables, estimation and projection of fertility and mortality, migration, population composition, population projection and estimation
Half course; one term.

551b. Introduction to Epidemiology. Principles and methods of epidemiological investigation both of infectious and non-infectious disease, survey research, sampling, questionnaire and interview design, case-control studies, cohort studies, application of life tables to epidemiological data, estimation of the precision of screening and diagnostic tests, etc.
Half course; one term.

552a or b. Computer Programming and Data Processing.
Half course; one term.

553a or b. Practical Training in a Department of Health.
Half course; one term.

590. MSc Thesis.

610a or b. Principles of Epidemiological Research. This course deals with the logical foundations of epidemiology, the strategies available for epidemiologic investigations, techniques for the acquisition and processing of data, specific methods for the conduct of controlled therapeutic trials and the special problems arising in

the evaluation of quasi-experimental procedures.
Prerequisite: Epidemiology 550 and 551 or equivalents
Half course; one term.

611a or b. Biostatistics. Statistical methods of particular importance in epidemiology.
Prerequisite: Epidemiology 510 or its equivalent.
Half course; one term.

612a or b. Selected Topics in Epidemiology. A reading course on some specialized aspects of epidemiology, health care or biostatistics, chosen by the student in consultation with his or her supervisor. For doctoral students with departmental approval.
Half course; one term.

650a or b. Applied Regression Analysis. Both theoretical and practical aspects of the course will be emphasized. The topics covered are - least square, multiple linear regression, weighted least squares, non-linear regression, iterative and recursive procedures, analysis of covariance.
Half course; one term.

651a or b. Theory of Stochastic Processes. Discrete time process, fluctuation of sums of independent random variables, random walk, compound distribution, branching process, recurrent events, Markov chains and application.
Half course; one term.

652. Statistical Consulting. Students will work under the supervisor or other faculty member on various projects that come to the department.
Half course; two terms.

653a or b. Practical Training in a Department of Health.
Half course; one term.

690. PhD Thesis.

French

UNIVERSITY COLLEGE, Room 135

Chairman: C. A. Venesoen
Professors:
Bush, W. S., BA John B. Stetson U.; MA South Dakota; DU Paris
Lenardon, D., BA, BEd Alberta; MA, PhD Toronto
Sanders, J. B., BA, MA Manitoba; DU Paris
Torrens, R. W., BS Dartmouth; MA Harvard; PhD Cornell; Emeritus
Tuchmaier, H., BA Southwest Missouri; MA, DU Laval
Venesoen, C. A., LèsL, DèsL Laval
Associate Professors:
Atance, F. R., BA Toronto; MA Nebraska; PhD UWO
Baguley, D., BA Nottingham; MA Leicester; DU Nancy
Balsé, M. L., BA, MA, PhD Bombay; DU Paris (on leave 1973-74)
Creighton, D. G., BA, MA Toronto; PhD Columbia (on leave 1973-74)
Forsyth, L. H., BA Sask.; MA, PhD UWO
Heller, L. M., BA, MA, PhD Wisconsin
Issacharoff, M., BA London; DU Strasbourg
Jones, D. F., BA Smith; MA Columbia; PhD Brown
Walters, R. L., BA Oberlin; MA, PhD Princeton
Assistant Professors:
Arnold, I., BA London; MA British Columbia; PhD Toronto
Ross, M. H., BSc Dalhousie; LèsL. Orléans-Tours; MA Dalhousie; D3eC Orléans-Tours

Saraydar, A. C., BA California (Los Angeles); MA Chicago; PhD Berkeley
Youssef, Z., LèsL. Lausanne; DU Paris

The Department of French offers programs leading to the degrees of MA and PhD.

MA PROGRAM

There are two types of program leading to the MA. degree:

Option A - Four courses and an Extended Essay

Option B - Three Courses and a Thesis

Those students who intend to continue towards the Ph.D. are encouraged to take Option B.

An MA will normally require two academic years to complete. Two courses will be taken in the first year, throughout the Fall And Winter Terms. Students electing Option A will take two courses in the second year and will also write the Extended Essay. Students electing Option B will take one course in the second year, and will do research for and write the thesis. The student is free to choose those courses of interest to him, but consultation with the Director of Graduate Studies is recommended in course selection.

It is possible to complete an MA program in one full year, providing that students select Option B and that no other responsibilities are accepted, such as Teaching Assistantships. Under this program students will take three courses during the Fall and Winter Terms and write the thesis during the Summer Term.

Programs can be arranged for students who wish to do an MA on a part-time basis.

PH.D PROGRAM

All students desiring to undertake studies leading to the Ph.D. degree must have the explicit permission of the Department. (A student may not proceed automatically from the MA program to the Ph.D. program).

Course requirements for a Ph.D. are a minimum of four courses and will normally take two academic years to complete. Two courses will be taken in the first year and two courses in the second year. The student is free to choose the courses of interest to him, but consultation with the Director of Graduate Studies is recommended in course selection. While doing his course work, the student is also expected to do research in the area of his choice in order to be able to present a thesis proposal when the second year courses are complete, or shortly thereafter.

Students must maintain a substantial B average.

Research Experience: Candidates for admission to the Ph.D. program may be required to submit evidence of having successfully completed a research project.

Language requirements: Students undertaking the doctoral program must furnish evidence of a reading knowledge (equivalent to a credit at the first year university level) of a language, in addition to English and French, useful for doing Ph.D. work in French.

COURSES

The Department of French does not offer all the courses listed below in any one Academic Year. Most of these course titles refer to a general area of study. Detailed course descriptions and specific content of the courses offered each year will be outlined in a booklet issued by the

Department in January. A copy of this booklet may be obtained by writing directly to the Chairman of Graduate Studies, Department of French.

All full courses meet for one two-hour session per week and continue throughout the Fall and Winter Terms from September to May. All half-courses meet for one-hour session per week from September to May. Classes are conducted in French. All assignments and essays must be done in French.

500. MA Extended Essay.

510. Advanced French Composition*.
Half course; two terms.

520. Research Methods.
Half course; two terms.

530. Literary Criticism.
Full course; two terms.

531. The Romantic Movement.
Full course; two terms.

532. Symbolist Poetry*
Full course; two terms.

533. XIXth Century French Theatre.
Full course; two terms.

534. XIXth Century French Novel.
Full course; two terms.

535. XIXth Century French Thought.
Full course; two terms.

540. General Linguistics.
Full course; two terms.

541. Old French: Language and Literature.
Full course; two terms.

560. The Literature of French Canada.
Full course; two terms.

562. XVIth Century French Humanism.
Full course; two terms.

563. XVIth Century French Poetry.
Full course; two terms.

570. XVIIth Century French Tragedy.
Full course; two terms.

574. French Classical Thought.
Full course; two terms.

575. XVIIth and XVIIIth Century Comedy.
Full course; two terms.

580. XVIIIth Century French Thought.
Full course; two terms.

585. XVIIIth Century French Novel.
Full course; two terms.

588. French Art and Literature.
Full course; two terms.

590. MA Thesis.

600. XXth Century French Poetry.
Full course; two terms.

610. XXth Century French Theatre*.
Full theatre; two terms.

620. XXth Century French Novel.
Full course; two terms.

630. XXth Century French Thought.
Full course; two terms.

690. PhD Thesis.

695. PhD Foreign Language Requirement..
Non-credit requirement.

Geography

SOCIAL SCIENCES CENTRE, Room 2432

Chairman: W. W. Warntz
Professors:
Hossé, H. A., BA, MA Manitoba; PhD Ottawa; Professor Political Science
Nelson, J. G., BA McMaster; PhD John Hopkins
Nicholson, N. L., BA, MSc UWO; MEd. Toronto; PhD Ottawa, Senior Professor

Packer, R. W., BA, MA Cantab
Philbrick, A. K., BA, MSc, PhD Chicago
Pleva, E. G., BA, MA, PhD Minnesota; LLD, Waterloo Lutheran
Warntz, W., BS, PhD, Pennsylvania

Associate Professors:

Bjorklund, Elaine M., BSc Utah; MA Washington; PhD Chicago
Day, J., BSc, MSc UWO; PhD Chicago
Goodchild, M. F., BA Cantab; PhD McMaster
Janelle, D. G., BA SW Louisiana; MA, PhD Michigan State
Langtvet, O. P., CMag, CPhil Oslo
McDaniel, R., BA, MA UWO
Taylor, H. W., BA Westchester State; MA Indiana; PhD Maryland
Whebell, C. F. J. BA, MSc UWO; PhD London
Wightman, W. R., BA, MA UWO; PhD Durham

Assistant Professors:

Butler, P. W., BA Nottingham
Cecil, R. G., BSc, MA, PhD McGill
King, R. H., BSc Wales; MSc Aberdeen; PhD Saskatchewan
Lucknow, B. H., BA, MA Manchester; PhD McMaster
Smith, T., BA Cambridge; PhD John Hopkins
Troughton, M. J., BA, MA, B. Litt Oxford; PhD UWO
White, R., BA Swarthmore; MA, PhD North Carolina

The Department offers programs leading to the MA, MSc, and PhD degrees in Geography. The Department is prepared to supervise research within the principal interests of its staff, but particularly in the research foci of human geography (cultural, economic, historical, urban, political and agricultural), regional geography (particularly in the Western Hemisphere and Canada), resources planning, physical geography, and theoretical spatial systems.

ADMISSION

Applicants for entry into the Master's program must have an Honors Bachelor's degree or equivalent in Geography with at least a B average from a recognized university, or have a degree in some other program with at least a B average and have completed a series of courses to the satisfaction of the Department. Applicants for the PhD program who hold a Master's degree or equivalent are accepted at the discretion of the Department.

DEGREE REQUIREMENTS

The Master's Thesis and the PhD Thesis represent the end products towards which the program is directed. All degree candidates must defend their thesis at an oral examination. All graduate students must complete a program of courses consisting of Geography 543/643 (Field Research), and additional courses as specified at a diagnostic interview prior to registration. Master's students must also complete Geography 598 (Forum on Geographic Methodology). PhD candidates are required to demonstrate a reading knowledge of a language other than English which is acceptable to the Department (Geography 691).

Additional information on admissions, programs and regulations is available from the Coordinator of Graduate Studies, Department of Geography.

COURSES

500a. Analysis of Spatial Pattern. Methods for the description and analysis of geographic pattern. Probabilistic pattern-generating models, and optimising methods. M. Goodchild
2 hours lecture, Half course; one term.

500b. Models of Geographical Choice and Decision. Contemporary methods of analysis appropriate to consumer and recreational behavior, resource management and other applied fields. Scaling, preference structures and the analysis of qualitative data. M. Goodchild
2 hours lecture, Half course; one term.

520. Macrogeographic Systems and Environmental Quality. Major concepts in general spatial systems theory are reviewed and applied to data from the real world in an ongoing research framework. The course is designed to facilitate the investigation of the interrelatedness of the spatial configurations of physical, biological and socio-economic phenomena and the relevance of this to the quality of human life. Crisis problems are examined with emphasis on global patterns as well as regional ones. W. Warntz.
lectures 2 hours per week, tutorials as arranged, Full course; two terms.

522. Development Aspects in Industrializing Nations. (offered jointly with the Departments of Political Science and Sociology). R. G. Cecil (Geography), H. A. Hossé (Geography/Political Science), and Staff of participating Departments. The social, economic, political and spatial structure and interrelated development problems in selected countries or regions; area emphasis subject to student interest.
Full course; two terms.

530. Advanced Climatology. R. G. Packer
2 hours seminar, Full course; two terms.

531a. Slope Processes and Development. A critical examination of geomorphic processes operating on slopes and the development of slopes. R. G. Packer, and R. King
1 hour lecture, 3 hours labs, Half course; one term.

532a. Cultural Geography. The course examines the role of perception in the contexts of scientific and humanist viewpoints. Based upon a review of pertinent selections from the literature, it presents a systematic theory of the spatial characteristics of culture. A. K. Philbrick
seminar, Half course; one term.

532b. The Geography of Cultural Conflict. Models of intercultural conflict evaluated and developed. This course is primarily devoted to student seminars where application of the concepts examined in Geography 532a. and the ideas of the students are developed. Seminars cover a wide variety of topics, changing flexibly with the individual interests and capabilities of the group. A. K. Philbrick
Seminar/tutorial, Half course; one term.

533a. Urban Spatial Models. A critique of urban spatial models, including a review of recent literature emphasizing the development of inter-urban systems and the behavioral base of urban spatial structure. Problems of time-spatial forecasting and techniques of simulation are considered. D. G. Janelle
2 hours seminar/2 hours tutorial, Half course; one term.

534a. Urban Planning. Problems of urbanization, concepts and processes of planning for urban development, critical evaluation of current practices. H. A. Hossé
Seminar, Half course; one term.

534b. Regional Planning. Systems approach to comprehensive regional development, spatial relationship of

interactions within a region, examination of selected regional development schemes. H. A. Hossé
Seminar, Half course; one term.

535a. Development and Management of Natural Resources and the Environment. Use and deterioration of resources, landscapes and environment. Advanced studies of theory, practice, and problems. J. C. Day and J. G. Nelson
2 hours seminar, Half course; one term.

535b. Development and Management of Natural Resources and the Environment. Use of resources and environment. Integration of approaches with emphasis on case studies and current practice. J. C. Day and J. G. Nelson
2 hours seminar, Half course; one term.

537. Recreation Resource Analysis. The use of land and water for leisure and an analysis of factors affecting the variation in development and type of recreational activities; regional recreation resources; international aspects of the tourist industry. R. W. Butler
2 hours seminar, Full course; two terms.

539a. Evolving Concepts of Analyzing and Forecasting Spatial Development. A conceptual examination of the methods for investigating and forecasting spatial change including linear algebra, technological forecasting, simulation, historical analogy, mosaic synthesis and electronic display. R. McDaniel
2 hours seminar, Half course; one term.

539b. Design of Future Spatial Systems. An investigation into the social and technological changes which may significantly influence the future spatial patterns of human activities. Problems considered relate to substantive spatial change, new approaches to spatial research and spatial design criteria. R. McDaniel
2 hours seminar, Half course; one term.

540. Political Geography Seminar. A study of the spatially-derived elements of political systems; models of territoriality; and selected themes and case studies. C. F. J. Whebell
2 hours seminar, Full course; two terms.

543. Field Methods and Practices. Departmental field camps and field trips as arranged. Mandatory for all MA students. Staff
Full course; two terms.

545a. Studies of the Great Lakes Basin. E. G. Pleva.
2 hours seminar, Half course; one term.

547. Studies in Historical Geography. Methods, techniques and current research with special reference to Canada and Ontario. W. R. Wightman
Prerequisite: By Permission
Lecture/seminar, Full course; two terms.

550a. Selected Topics in Geography. Staff.
Seminar/tutorial, Half course; one term.

550b. Selected Topics in Geography. Staff.
Seminar/tutorial, Half course; one term.

560. Canada. Current research problems of national significance with emphasis on resource survey and development. N. L. Nicholson
Seminar, Full course; two terms.

569. Polar Lands. Recent research in the physical geography of polar lands; analysis of the cultural and economic factors involved in the development of polar areas. O. P. Langtvet
Seminar, Full course; two terms.

570. Latin America. Discussion of the problems of Latin America with particular emphasis on emerging social patterns and resource development. H. W. Taylor
2 hours seminar, Full course; two terms.

GRADUATE

581. Biogeography. Principles of the distributional patterns of plants and animals with special reference to southwestern Ontario. Staff
2 hours seminar, Full course; two terms.

590. MA Thesis. Staff.

598. Graduate Forum on Methodology. H. W. Taylor
Seminar.

643. Field Research Methods. Departmental field camps and field trips as arranged. Mandatory for PhD students. Staff
Full course; two terms.

645a. Problems in Environmental Analysis. E. G. Pleva.
2 hours seminar, Half course; one term.

650a. Selected Topics in Geography. Staff.
Seminar/tutorial, Half course; one term.

650b. Selected Topics in Geography. Staff.
Seminar/tutorial, Half course; one term.

690. PhD Thesis. Staff.

691. PhD Language Requirement.

698. Advanced Methodology. Staff.

NOTE: All the Courses listed above are not offered every year. Consult with the coordinator of Graduate Studies for specific information.

Geology

BIOLOGICAL AND GEOLOGICAL SCIENCES BUILDING, Room 128a

Chairman: W. S. Fyfe
Professors:
Dreimanis, A., Mag.rer.nat Riga; *DSc Waterloo*
Fyfe, W. S., BSc, MSc, PhD Otago, New Zealand; FRS
Hutchinson, R. W., BSc UWO; MSc, PhD *Wisconsin*
Reavely, G. H., BA, MA UWO; DIC London. Emeritus
Suffel, G. G. BSc, MSc Queen's; PhD Stanford. Emeritus
Winder, C. G., BSc UWO; MSc, PhD Cornell
Associate Professors:
Church, W. R., BSc, PhD Wales
Edgar, A. D., BA, MSc McMaster; PhD Manchester
Fleet, M. E., BSc, PhD Manchester
Hodder, R. W., BA Queen's; PhD California, Berkeley
Lenz, A. C., BSc, MSc Alberta; PhD Princeton
MacRae, N. D., BSc Queen's; MSc, PhD McMaster
Starkey, J., BSc, PhD Liverpool
Sutterlin, P. G., BSc McMaster; PhD Northwestern
Young, G. M., BSc, PhD Glasgow
Honorary Lecturers:
Bancroft, G. M., BSc, MSc Manitoba; PhD Cambridge. Associate Professor of Chemistry
Palmer, H. C., BSc St. Francis Xavier; PhD Princeton. Associate Professor of Geophysics
Quigley, R. M., BASc, MASc Toronto; PhD MIT. Associate Professor of Engineering Science
Whiteside, H. C. M., *BSc London; MSc Witwatersrand; PhD London.* Anglo American Corporation

ADMISSION

Detailed instructions may be obtained by writing the Graduate Student Co-ordinator, Department of Geology.

MSc Degree: Minimum requirements are two graduate or equivalent courses, one year residence, seminar, and thesis.

PhD Degree: Minimum requirements are oral qualifying examination, three years' residence credit, foreign language to the satisfaction of the Department, seminars, and thesis.

RESEARCH INTERESTS OF THE DEPARTMENT

Details on these abbreviated listings can be obtained from the Chairman of the Department or a member of faculty as indicated by course offerings. Generally, financial assistance for research is available for these studies.

X-ray crystallography and crystal structure determinations

Experimental petrology, mineralogy of undersaturated alkaline rocks and eclogites

Experimental studies of ore transport and high temperature fluid chemistry

Crystallography and phase chemistry of sulphide minerals

Structural geology of western Newfoundland and the Proterozoic in Ontario. Ultramafic rocks, ophiolites and high-pressure mineral assemblages

Archaean tectonics and magmatism

Genesis and metamorphism of base metal sulphide ores

Origin of mineral deposits, particularly rare-element pegmatites and evaporites

Carbonate petrology, Lower and Middle Paleozoic sediments

Glacial and Pleistocene geology especially sedimentation and stratigraphy

Invertebrate paleontology especially Paleozoic brachiopods, corals, graptolies and conodonts

Proterozoic sedimentation and stratigraphy especially Ontario

Systems design for computers, especially storage and retrieval

Department facilities and equipment, and financial assistance is summarized on the graduate poster, available upon request

An interdisciplinary **Quaternary Discussion Group** including participants from the fields of geology, geography and engineering meets on a regular basis.

COURSES

511a or b. Ore Mineral Studies. Discussions on recent advances in ore mineralogy and parallel laboratory studies. M. E. Fleet
4 hours, lecture and lab, Half course; one term.

515a. Advanced Mineralogy and Crystallography. Techniques for the analysis of solid materials: x-ray diffraction (powder methods), x-ray fluorescence, electron microprobe, atomic absorption, standard chemical and spectrographic methods, Mossbauer spectroscopy. Staff
3 hours, lecture and lab, Half course; one term.

515b. Advanced Mineralogy and Crystallography. Selected topics in advanced mineralogy and crystal chemistry. J. Starkey
3 hours, lecture and lab, Half course; one term.

517b. Advanced X-ray Crystallography. The fundamentals of X-ray crystallography and space group theory. Single crystal X-ray investigation. Crystal structure analysis. X-ray techniques applicable to polycrystalline aggregates to determine grain size,

strain residual stress, preferred orientation. J. Starkey
3 hours, lecture and lab, Half course; one term.

520. Igneous Petrology. Selected topics in theoretical experimental and chemical aspects of igneous petrogenesis and their relationship to field observations. A. D. Edgar
Prerequisite: Geology 420 or equivalent
4 hours, lecture and lab, Full course; two terms.

521. Volcanology. The nature and origin of volcanic phenomena in the light of direct experimental results, theoretical considerations, and field observation. The distribution, products, mechanism of eruption with detailed description of selected oceanic and continental volcanic districts. The application of volcanology to igneous petrogenesis and tectonism throughout geological time. Registration by permission. A. D. Edgar, R. W. Hodder
4 hours, lecture, lab. and seminar, Full course; two terms.

525b. Metamorphic Petrology. Paragenesis of metamorphic mineral assemblages. The relations between lithostatic and fluid pressure, stress, and kinetics in the range of metamorphic temperatures are considered in terms of the methods and results of experimental petrology. W. S. Fyfe, N. D. MacRae
3 hours, lecture, Half course; one term.

527b. Structure of Polycrystalline Materials. Introduction to the techniques and principles of fabric analysis. Selected topics and applications. J. Starkey
4 hours, lecture and lab, Half course; one term.

530a. Advanced Geochemistry. Selected topics in physical geochemistry with emphasis on processes within the crust. W. S. Fyfe, M. E. Fleet
3 hours, lecture and seminar, Half course; one term.

530b. Advanced Geochemistry. Selected topics in sedimentary geochemistry. M. E. Fleet, W. S. Fyfe
3 hours, lecture and seminar, Half course; one term.

538b. Economic Petrology. Selected topics. N. D. MacRae
3 hours, lecture and lab, Half course; one term.

539a. Sulphide-Silicate Geochemistry. Basic principles of sulphide phase chemistry with examples. Experimental sulphide and sulphide-silicate techniques. Discussion of sulphurization in igneous and metamorphic environments. Seminars and laboratory projects. N. D. MacRae
3 hours, Half course; one term.

540. Structural Geology. Principles of geomechanics and theories of rock deformation; structural analysis. W. R. Church
3 hours, lecture and lab, Full course; two terms.

542. Geotectonics. Selected topics. W. R. Church
3 hours, lecture, Full course; two terms.

544. Regional Metamorphism. A study of metamorphism as a phenomenon associated with orogenesis. W. R. Church
3 hours, lecture, Full course; two terms.

550. Metallogenic Relationships of Metallic Ore Deposits. Study of recent literature on the metallogenesis and origin of the major types of metallic ore deposits; their distribution in space and time, and theories of ore deposition. Study of ore suites, seminar discussions and major field trips constitute an important part of the course. R. W. Hodder, R. W. Hutchinson
4 hours, lecture and lab, Full course; two terms.

553. Non-metallic Mineral Deposits. A survey of principal industrial and non-metallic mineral deposits, particularly in North America. Eco-

nomic importance and uses of these commodities. Part lecture, part seminar-discussion treatment. R. W. Hutchinson
3 hours, Full course; two terms.

554. Mineral Industry. Various aspects of the industry considered in relationship to interdisciplinary fields. Mineral exploration and exploitation; mineral economics and taxation; mine evaluation and finance; mineral rights, ownership and law. Coverage by lecture, seminar, guest speakers. R. W. Hutchinson
3 hours, Full course; two terms.

NOTE: 553 and 554 are normally given in successive years; neither in 1973-74, 553 will be given in 1974-75.

559. Carbonaceous Fuels. The habitat of coal, petroleum, and natural gas; conditions of origin, methods of exploration, and economic aspects. P. G. Sutterlin and C. G. Winder
3 hours, lecture and seminar, Full course; two terms.

560a. Stratigraphy. An advanced course on stratigraphic principles. C. G. Winder
4 hours, lecture and lab, Half course; one term.

564. Advanced Sedimentation. Formation of sediments by physical, chemical and biological processes. G. M. Young
3 hours, lecture and lab, Full course; two terms.

567. Advanced Glacial Geology. Selected topics. A. Dreimanis
3 hour seminar, Full course; two terms.

568. Advanced Quaternary Geology. Selected topics. A. Dreimanis
3 hour seminar, Full course; two terms.

NOTE: 567 and 568 are usually given in alternate years: 567 is given in 1973-74.

569. Paleoecology. The interpretation of original conditions within the depositional environment from sediments, the primary and secondary features within the sediments, and the nature of the fossil record. The student should have had the courses in sedimentation and invertebrate paleontology. C. G. Winder
5 hours, lecture and lab, Full course; two terms.

570. Micropaleontology. Morphology, classification, ecology, and stratigraphic occurrence of principal forms. Conodonts are emphasized; laboratory exercises and problems. C. G. Winder
5 hours, lecture and lab, Full course; two terms.

575. Invertebrate Macropaleontology. Advanced study of selected groups of Paleozoic invertebrates. A. C. Lenz
3 hours, lecture and lab, Full course; two terms.

579. Organic Evolution and Fossils. Organic evolution from the geologic paleontologic viewpoint; incorporating biologic evidence. Illustrations from fossil record, and studies of particular invertebrates and vertebrate fossil groups, including man. A. C. Lenz
3 hours, lecture and lab, Full course; two terms.

581. Graduate Seminar. Staff.
2 hours, Full course; two terms.

585a or b. Special Topics. Staff and Visitors.
Half course; one term.

586. Special Topics. Staff and Visitors.
Full course; two terms.

588. Geological Data Analysis. Data presentation and analysis using graphic numerical and statistical methods; use of computers; courses in mathematics desirable but not required, includes a short course in Fortran IV. P. G. Sutterlin
4 hours, lecture and lab, Full course; two terms.

590. MSc Thesis.

591. Master's Degree Language Requirement (non-credit).

690. PhD Thesis.

691. PhD Degree Language Requirement (non-credit).

Geophysics

BIOLOGICAL AND GEOLOGICAL SCIENCES BUILDING, Room 62

Chairman: A. E. Beck

Professors:

Beck, A. E., *BSc London; PhD Australian National University; (on Study Leave)*

Carmichael, C. M., BSc, MSc, PhD UWO

Mereu, R. F., BSc, MSc Toronto; PhD UWO, Acting Chairman

Associate Professors:

Mansinha, L., BSc, MTech, IIT Karagpur; PhD British Columbia

Palmer, H. C., BSc St. Francis Xavier; PhD Princeton (on Sabbatical Leave)

Schloessin, H. H., BSc Zurich; PhD Cologne

Assistant Professor:

Hayatsu, A., BSc, MSc Tokyo; PhD Toronto

Visiting Assistant Professor:

Park, R. G., BSc Glasgow; PhD Keele

The Department offers courses leading to MSc and PhD degrees in Geophysics. The laboratories have facilities for research in terrestrial heat flow and geothermometry, rock magnetism and paleomagnetism, seismology, gravitation, methods of exploration geophysics, theoretical and model studies of the earth's interior, geochronology, gamma ray spectrometry, physical properties of rocks at high pressures and high temperatures. In any one year the selection of courses offered depends upon the programs of the students in the Department.

506a or b. Crustal Structure. A general course on the structure of the crust of the earth, together with a discussion of the mechanisms of mountain building and continent formation./H. C. Palmer
Half course; one term.

507a or b. High Pressure Physics. Review of experimental methods of generating high pressure. Discussion of *mechanical, thermal, electrical,* magnetic and optical properties of earth materials at conditions of high pressure and temperature./H. H. Schloessin
Half course; one term.

509a or b. Deformation. Application of the theories of elasticity, viscosity and plasticity to the problem of the deformation of the earth's crust. Mathematical theories of folding. Fault and fracture propagation. Applications of dislocation theory./L. Mansinha
Half course; one term.

512a or b. Theoretical Seismology. Introductory course. The following topics are covered: Stress, strain, equations of motion, dilatational waves, rotational waves, Rayleigh waves, Love waves, dispersion, reflection and refraction./R. F. Mereu
Half course; one term.

520a or b. Solid State Physics. A study of the elastic, thermal, electrical and magnetic properties of crystalline solids./C. M. Carmichael
Half course; one term.

550. Exploration Geophysics. The 550 set of courses are specialist courses in various exploration meth-

ods. The background theory and methods of interpretation will be discussed during term time and will be followed by a two week field camp in May when the students taking a course will be assigned a small field problem so that they may become familiar with the instruments used, field practice and interpretation of actual field phenomena./ Visitors and staff.

551a or b. Gravity Methods.
Half course; one term.

552a or b. Magnetic Methods.
Half course; one term.

553a or b. Electromagnetic Methods.
Half course; one term.

554a or b. Electrical Methods.
Half course; one term.

555a or b. Seismic Methods.
Half course; one term.

556a or b. Other Methods.
Half course; one term.

559b. Field Camp.
Half course; one term.

580. Graduate Seminar. Each student is required to (a) prepare a note in acceptable form for publication and give a full lecture on topic; (b) prepare a full paper in acceptable form for publication and give a 15-minute talk on the topic at a symposium./Staff
Full course; two term.

585a or b. Physics of the Earth I
Advanced special topics. Staff and Visitors.
Half course; one term.

586a or b. Physics of the Earth II
Advanced special topics. Staff and Visitors.
Half course; one term.

590. MSc Thesis.

690. PhD Thesis.

German

UNIVERSITY COLLEGE

Chairman; Raymond Immerwahr
Professors:
Immerwahr, R. M., AB Swarthmore; MA Northwestern; PhD California (Berkeley)
Tracy, G. L., BA Queen's; MA, PhD Wisconsin
Associate Professors:
Anderson, A. R., BA Toronto; PhD Brown
Schlutter, H. J., PhD Kiel
Spencer, Hanna, Staatsexamen Prague; PhD Prague
Assistant Professors:
Purekevich, Renata, BA, MA, PhD UWO

RESEARCH AREAS

German Literature from the eighteenth century to the present, including studies in literary history, history of ideas, genre and form, historical semantics, bibliography, stylistics.

DEGREE REQUIREMENTS

The Department of German offers courses leading to the degree of MA. There are two ways of qualifying for the MA degree: the student may take three courses and write a thesis or he may take four courses and submit a formal seminar report. All MA candidates will take a departmental oral examination.

COURSES

Not all of the following courses are offered in any one year. Normally, each member of the Graduate Faculty offers only one course a year, and only those courses are offered for which there is sufficient demand.

500a or b. Reading and Research. (Work with individual students on special reading and problems of critical evaluation).
Half courses; one term.

501a or b.-505a or b. Special topics.
Half courses; one term.

506a or b. Linquistics and Literary Style.
Half course; one term.

508a or b. New Linguistic Approaches to the Structure of German.
Half course; one term.

520. Middle High German and Early New High German. *Phonology, Morphology, Syntax and* Readings
Half courses; one term.

***523b. Mediaeval German Literature.** German medieval characters: their adaptations and transformations. A comparison of some important medieval works with their later adaptations./R. Kimpel
Half course; one term.

530a or b. German Literature of the Reformation, Counter Reformation and Baroque.
Half course; one term.

540a or b. Lessing and his Age.
Half course; one term.

545a or b. The Pre-Romantic Period and Sturm und Drang.
Half course; one term.

***550. Studies in Goethe.** A critical assessment of the narrative technique and major themes of Goeth's novels./F. Ness
Half course; one term. Summer.

***551. Goethe's Faust.** An intensive study of Goethe's Faust poem./H. J. Schlutter
Half course; one term.

552a or b. Schiller.
Half course; one term.

***560b. The Romantic Period. Holderlin.** A study of the poetic works of Holderlin./R. Immerwahr
Half course; one term.

570a or b. Nineteenth-Century German Drama.
Half course; one term.

***571a. The Novel of the Nineteenth Century.** A study of the major prose works of Theodor Fontane emphasizing his craft of fiction./A. R. Anderson
Half course; one term.

572a or b. Nineteenth-Century German Poetry.
Half course;one term.

573a or b. Heine. Das Junge Deutschland.
Half course; one term.

574a or b. Stifter and Keller.
Half course; one term.

***575b. Shorter prose from 1830 to the Present.** Readings and discussion of major German novellas and short stories of the nineteenth and twentieth centuries. Consideration of the poetics of fiction, particularly "Novellentheorie"./H. Spencer
Half course; one term.

580. Twentieth-Century German Drama.
Full course; two terms.

581. The Twentieth-Century German Novel.
Full course; two terms.

***582a. Topics in Twentieth - Century German Poetry.** A study of some major German poets of the twentieth century considering literary trends and movements and dealing also with formal and structural matters./G. L. Tracy
Half course; one term.

***583 Gottfried Benn.** Analyses and interpretations of recurrent themes in his poetry and prose./R. Purekevich

Half course; one term. Summer.

590. MA Thesis

*Courses given in 1973-1974

History

SOCIAL SCIENCES CENTRE, Room 4328

Chairman: J. Neville Thompson

Professors:

Balderston, W., BA, PhD Cornell

Kerr, D. G. G., BA McGill; PhD London; Senior Professor

Lander, J. R., BA, MA, MLitt Cantab

Rowe, J. G., AB Harvard; BD Episcopal Theological School; MA, PhD Toronto; Dean of Arts

Talman, J. J., BA, MA UWO; PhD Toronto; DLitt Waterloo; FRSC

Zaslow, M., BA, BEd Alberta; MA, PhD Toronto

Associate Professors:

Armstrong, F. H., BA, MA, PhD Toronto

Dreyer, F. A., BA Toronto; BA Oxon; PhD St. Andrews

Emerson, R. L., BA Dartmouth; AM Brown; MA, PhD Brandeis

Flaherty, D. H., BA McGill; MA, PhD Columbia

Gwynne-Timothy, J. R., BA, MA Toronto; DPhil Oxon

Hilborn, K. H. W., BA, MA Queen's; DPhil Oxon. Chairman of Graduate Studies in History
(until 1st May, 1974)

Hohner, R. A., BA, MA, PhD Duke

Hyatt, A. M. J., BA RMC; BA Toronto; MA Carleton; PhD Duke

McLaughlin, J. P., BA Queen's; PhD London

Metcalf, G., BA, MA Toronto; PhD London

Neary, P. F., BSc, MA Memorial; PhD London

Ogelsby, J. C. M., AB Stanford; MA, PhD Washington

Ruud, C. A., BA Willamette; AM Harvard; PhD Berkeley

Steele, I. K., BA Alberta; PhD London

Stockdale, W. H., BA, MA Alabama; PhD New York. Assistant Dean of Graduate Studies (until 31 August 1974; on leave 1974-75)

Thompson, J. N., BA McMaster; AM, PhD Princeton

Zoltvany, Y. F., BA Loyola; MA Montreal; PhD Alberta

Assistant Professors:

Avery, D. H., BA, BEd, MA Manitoba; PhD UWO

Banks, Margaret A., BA Bishop's; MA, PhD Toronto

Emery, G. N., BA Queen's; PhD British Columbia

Guinsburg, T. N., AB, MA, PhD Columbia. Assistant Dean of Social Science

Hahn, E., BA British Colombia; MA, PhD Yale

Metzger, F. K., BA Bowdoin; MA Pennsylvania; PhD Rutgers

Pospielovsky, D., BA Sir George Williams; MA School of Slavonic Studies (London); MPhil London School of Economics

Santosuosso, A., BA, MA, PhD Toronto

Simpson, C. M., BA Notre Dame; MA PhD Stanford

GRADUATE

ADMISSION REQUIREMENTS

Students may apply to begin the MA or PhD program in the Fall term only. Applicants desiring priority for financial assistance in 1974-75 should ensure that completed application forms and all supporting documents are in the hands of the Department of History not later than 1st February, 1974, although applications which are submitted before August 15th will be considered.

The MA and PhD programs provide opportunities for candidates to earn money while gaining academic experience. The Department awards a number of Assistantships, and students holding them either conduct tutorials in undergraduate survey courses or assist professors in other ways, including research.

MA Degree

All applicants must hold either (1) an Honors BA in History with first or second-class standing or (2) an equivalent qualification, such as a General BA (normally with at least four courses or eight semester courses in History) supplemented by a qualifying year consisting of at least four History courses at the Honors level.

Applicants are admitted at the discretion of the Department's Graduate Committee, subject to approval by the Dean. The Committee normally requires at least a middle B average (UWO 74%) in History, with an A in one History course. Applicants with a History average in the high B range (UWO 77-79%) may be admitted without an A. Applicants who do not fully meet these requirements are sometimes accepted on the basis of recommendations from instructors. Applicants with C standing in a General BA program may be admitted if they have achieved A or high B standing in a qualifying year, and have an overall B average on the courses of their final undergraduate year and qualifying year combined.

LANGUAGE REQUIREMENT (MA AND PhD)

Candidates for either the MA or the PhD must demonstrate a reading knowledge of one language, acceptable to the Department, other than English (or French when this is their mother tongue). The Department offers its own language examinations in Latin, French, German, Russian, Italian, Spanish, Portuguese, Chinese and Japanese. Use of a dictionary is permitted.

Except for those registered before October 1972, MA students are expected to fulfill the language requirement within one calendar year after first registration. If the requirement is not fulfilled within two years, a student can continue in the program only if he or she applies for and receives an extension of the deadline from the Department's Graduate Committee.

Students who take both MA and PhD in this Department are required to pass the language examination only once. (See History 591 and History 691 in the list of courses).

PhD Degree

Admission is granted at the discretion of the Department's Graduate Committee, subject to approval by the Dean. Candidates must normally hold an MA degree in History, and have achieved an A standard in a substantial part of their academic work. In some cases students in the thesis MA program in this Department may be allowed to proceed to PhD course work prior to completion of their MA theses.

AREAS FOR THESIS RESEARCH

MA candidates may undertake research (provided that a qualified member of the

Department is willing to supervise it) in any of the fields listed below for course MA comprehensive examinations.

PhD candidates may undertake research (with the same proviso) in the fields of Canada, England-Great Britain and the First British Empire. Work in other fields may be permitted in individual cases.

DEGREE REQUIREMENTS

Candidates should read the general University regulations for the MA and PhD degrees elsewhere in this Calendar.

MA DEGREE

Candidates may proceed to the MA degree by either the course or the thesis program.

(1) MA by Course

The Course MA program covers nearly a twelve-month period, beginning in September. After taking four courses during the regular academic session (September to May), the student devotes the summer to preparation for written and oral comprehensive examinations in three fields (History 589). The comprehensive examinations are normally held in August, though occasionally they may be extended into the early days of September. Under normal circumstances, a full-time student who fails to take the comprehensives in the first summer after registration is not allowed to continue in the program.

At least two of the courses (other than History 589) must be at the graduate level. The two additional courses may be chosen from the third and fourth year undergraduate Honors courses in History. A student may be allowed to take a graduate or Honors course in another discipline as a substitute for one of the History Honors courses, with the approval of both Departments concerned. No student will be permitted to take more than two courses on any one of these five areas: Canada, the United States, Europe, Great Britain (not including the British Empire) and the group of subjects designated below as "Other History".

In choosing courses a student should keep in mind the fields selected for History 589. However, no graduate course will be as broad as a field, and no undergraduate course as intensive; a student preparing for comprehensives will therefore find it necessary to read widely on his own, with guidance from his advisors. The fields are divided into three categories, as follows, and no more than two fields may be chosen from any one category:

North America

Canada to 1763

Canada, 1759-1867

Canada since 1867

United States, 1775-1877

United States since 1865

Europe (including the British Isles)

Mediaeval Europe (including Britain), 1000-1400

Europe (including Britain), 1400-1648

Europe (including Britain), 1648-1815

Europe, 1789-1914

Europe since 1871

Great Britain, 1760-1914

Great Britain since 1832

Other History

First British Empire

Second British Empire and Commonwealth

Latin America

International Relations, 1815-1945

International Relations since 1890

History of Warfare

When examiners are available, individual students may arrange special fields in any category with the Chairman of Graduate Studies. All course and field selections are subject to approval by the Graduate Committee, or by the Chairman of Graduate Studies acting on the Committee's behalf. When two fields with similar titles overlap chronologically to a major degree, students will not normally be permitted to take both.

Candidates must obtain at least a B (70%) in **each** course. At the discretion of the Graduate Committee, those who fail to achieve this standard may be required to withdraw from the program or permitted to proceed to History 589 under conditions. To pass the latter, a candidate successful in all other courses must obtain an **Average** of at least 70% on the three fields, and a mark of at least 70% on **two** of the fields.

The course MA program may be taken on a part-time basis. The four required courses (other than History 589) must be completed within four calendar years after first registration. All written and oral comprehensive examinations must be taken as a group within five calendar years after first registration. Summer School and Extension courses at the third and fourth year Honors level may be counted towards a part-time course MA, but only by prior arrangement with the Chairman of Graduate Studies. As in the full-time program, two of the courses (in addition to History 589) must be graduate courses. Classes in a few such courses are sometimes held in the evenings.

(2) MA by Thesis

Two graduate courses are required. One of them may be chosen from another discipline, with permission of both Departments concerned. All course selections are subject to approval by the Graduate Committee, or by the Chairman of Graduate Studies acting on the Committee's behalf.

With the permission of the Graduate Committee, an Honors undergraduate History course at the third or fourth year level may be substituted for one of the graduate courses, but in this case the student will complete additional assignments. Students desiring the necessary permission should apply in writing, with reasons for their request, to the Chairman of Graduate Studies, Department of History, preferably not later than 1st September.

Students may be required to withdraw if they obtain less than 70% in either course.

The major requirement is a thesis (History 590), based on original research and demonstrating capacity for independent critical judgment. The candidate will submit to his supervisor an outline of his projected thesis research not later than 15 November of his first year. (Part-time students are exempted from this rule, but must submit such outlines when their supervisors so require).

Full-time students are urged to complete their theses within twelve months after first registration. All students are required to submit their theses to the

Department not later than 30 September of the first calendar year after the calendar year in which course work is completed. Candidates who fail to meet this deadline cannot continue in the program, unless they apply for and receive an extension from the Department's Graduate Committee. Application for such an extension must be made in writing to the Chairman of Graduate Studies not later than 15 September. The application must include statements on (a) the candidate's reasons for tardiness; (b) what has been accomplished so far; (c) what remains to be done. Normally an application for extension will not be approved unless it is supported by the candidate's supervisor.

MA theses in History are restricted in length to approximately 150 pages, excluding bibliography, except when the Chairman of Graduate Studies and the supervisor have granted permission, prior to submission of the thesis, for a student to exceed the limit.

When a thesis is submitted, the candidate is examined orally on the thesis itself and (at the examiners' discretion) on the field in which it falls — e.g., 19th Century Britain, or the political history of Canada since Confederation.

Thesis MA candidates who are eligible for part-time status may transfer to the part-time course MA program, retaining full credit for courses already completed, provided that the normal deadlines for the part-time course MA can be met.

PhD DEGREE

Courses

Two graduate courses (other than History 686) are normally required. One of them may be chosen from another discipline, with permission of both Departments concerned. All course selections are subject to approval by the Graduate Committee, or by the Chairman of Graduate Studies acting on the Committee's behalf.

Candidates must have an A (80% or better) in one course and at least a B (70%) in the other. Candidates may be required to withdraw at any time if the Graduate Committee concludes that their work is unsatisfactory.

Comprehensive Examinations (History 686)

Shortly after initial registration each student will select, with the approval of the Chairman of Graduate Studies, three fields of study. At least one field is to be in North American history, and at least one in the history of Europe (a term interpreted as including the British Isles). These may be chronological fields (e.g., Tudor England or Canada since Confederation) or functional fields (e.g., United States Economic History since 1850, or English Social History since 1800). In each field there will be comprehensive written and oral examinations. In a normal program these examinations will be held in October of the candidate's second year, some six months after completion of course work.

At the discretion of the Graduate Committee, a doctoral candidate who fails in one of the three fields is required either to repeat the examinations in all three fields or to withdraw from the program.

Thesis

A thesis showing evidence of scholarly research and originality is the major requirement. The candidate will select a topic in consultation with his supervisor and will present an outline of his projected thesis no later than December of the second year of a normal doctoral program. When the thesis is submitted, the candidate will be called upon to defend it in a faculty oral examination.

PhD theses in History are restricted in length to approximately 400 pages, excluding bibliography, except when the Chairman of Graduate Studies and the

supervisor have granted permission, prior to submission of the thesis, for a student to exceed the limit.

Period of Study

Candidates will normally be required to spend at least two academic years in residence.

For additional information, write to the Chairman of Graduate Studies, Department of History.

COURSES

NOTE: A good reading knowledge of French is required in History 504 and 544. For History 531, students should have a good reading knowledge of one of the following languages: French, German, Italian, Latin.

Not all of the courses will be offered in any one year

504. French Canadian Origins: Selected Topics in the Early History of French Canada. Y. Zoltvany
2 hours, Full course; two terms.

505. Urbanization in Canadian Development, 1759-1914. Concentration on eastern Canada before Confederation. The course will deal with the causes and stages of urban evolution, inter-urban rivalries, evolution of trade and business connections, rise and continuity of urban elites with their effects on politics, and city planning and architecture. F. H. Armstrong
2 hours, Full course; two terms.

508. Selected Topics in the Social, Economic and Cultural History of Ontario, 1780-1920. Emphasis on primary and major secondary sources. An effort is made to turn to practical account the particular interests of each student. J. J. Talman.
2 hours, Full course; two terms.

511. Federal Elections in Canada, 1867-1972. Lectures, and seminars based on individual research, on topics relating to election issues, campaign techniques, results, etc. D. G. G. Kerr.
2 hours, Full course; two terms.

513. The Opening of the Canadian North. M. Zaslow.
3 hours, Full course; two terms.

523. Tudor and Early Stuart England. A study of the economic, social, religious and governmental development of early modern England. J. R. Lander.
2 hours, Full course; two terms.

525. British Science and Society in the 17th and 18th Centuries. A study of the development of modern science and its impact on British society. Reading of original material will be emphasized. W. Balderston
3 hours, Full course; two terms.

527. Great Britain in the 18th and 19th Centuries: Selected Topics.
2 or 3 hours, Full course; two terms.

528. Great Britain in the 20th Century: Selected Topics.
2 hours, Full course; two terms.

531. Selected Topics in Mediaeval History and Society. First Term: The Evolution of Feudal Society to the Middle of the 11th Century. Second Term: Papacy and Monarchy in the 12th and 13th Centuries. J. G. Rowe.
2 hours, Full course; two terms.

544. French Society and Government, 1763-1852. Emphasis on breakdown of the old regime in the context of the "democratic revolution" of late 18th Century, reorganization of France under revolutionary and Napoleonic regimes, search for stability under the constitutional monarchies, and revolution of 1848 and its aftermath. J. P. McLaughlin.
2 hours, Full course; two terms.

553-556. Selected Topics in the History of the United States.. At

least one course will be offered in 1974-75: **The Origins of the United States.** American society in the 17th and 18th Centuries, including the period of settlement and the American Revolution. D. H. Flaherty
3 hours, Full course; two terms.

565. Selected Topics in the First British Empire. I. K. Steele
2 hours, Full course; two terms.

570. Historiography and Accounts of the Enlightenments. R. L. Emerson
2 hours, Full course; two terms.

578. Warfare. Survey of war in the modern period. Emphasis on economic and social consequences of war, and impact of technology on warfare. Though the course varies according to student interests, it includes the most prominent theoretical writers on warfare from Machiavelli to Herman Kahn. A. M. J. Hyatt.
3 hours, Full course; two terms.

579. Military and Strategic Studies: Selected Topics. A course taught by a visiting professor on his field of specialization.
3 hours, Full course; two terms.

581. Selected Topics in International Relations. A comparative study of the origins and outbreak of the First and Second World Wars, followed by examination of the origins and nature of the Cold War. K. H. W. Hilborn.
2 hours, Full course; two terms.

582-584. Specialized Historical Studies. Courses offered on a variety of subjects by members of the Department and visiting professors. The subjects available will normally change, at least to some extent, from year to year.
2 or 3 hours, Full course; two terms.

585a or b. Directed Readings on a Selected Topic. Supervised by a member of the Department.
Sometimes available in the Summer as well as in Fall and Winter terms.
Half course; one term.

586a and b. Directed Readings on a Selected Topic. Supervised by a member of the Department.
Sometimes in the Summer as well as in Fall and Winter terms.
Half course; one term.

587. Directed Readings on a Selected Topic. Supervised by a member of the Department.
Full course; two terms.

589. Directed Study: Preparation for Course MA Comprehensive Examinations (three fields).
Full course; one term.

590. MA Thesis.

591. MA Language Requirement non-credit.

686. Directed Study: Preparation for PhD Comprehensive Examinations (three fields).
Full course; two terms.

690. PhD Thesis.

691. PhD Language Requirement non-credit. Students who have successfully completed History 591 are not required to take History 691.

History of Medicine and Science

SOCIAL SCIENCE CENTRE

Chairman: F. L. Holmes
Professor:
Holmes, F. L., BS MIT; MA, PhD Harvard
Associate Professor:
Richardson, R. A., BA Sir George Williams; MA McGill; PhD Wisconsin
Assistant Professor:
Plotkin, Howard, BA Michigan; PhD Johns Hopkins

GRADUATE

A program leading to a graduate degree is not yet available. Candidates for the MA or PhD degree in History may take a graduate or Honors course in history of science.

COURSES

540a. History of Scientific Ideas. An introductory survey of the historical growth and expansion of scientific ideas from antiquity to the 20th century. Particular attention will be given to the development of the biological sciences during the past two centuries.
2 hours per week; Lecture-discussion. Half course; one term.

640a or b. Selected Topics in the History of Scientific Thought. An advanced reading and research seminar or tutorial, focusing on either the biological or physical sciences in accordance with the interests of students.
1 hour per week. Full or half course; one or two term.

Library and Information Science

SCHOOL OF LIBRARY AND INFORMATION SCIENCE
Dean: W. J. Cameron
Professors Emeritus:
Colvin, Laura C., AB William and Mary; ABLS, AMLS Michigan
Reitman, E., L. és L. Paris
Professors:
Cameron, W. J., BA, MA Victoria, NZ; PhD Reading.
Hotimsky, C. M., ACIA Shanghai; MA Waterloo
Lee, R. E., BA Guilford; BSLS, MFA North Carolina; PhD Chicago
Prodrick, R. G., BA Toronto; MS Columbia; MA Toronto
White, Janette H., BA Toronto; MS Columbia
Associate Professors:
Dolan, F. T., BSc St. Francis Xavier; MSc Georgia Institute of Technology
Fyfe, Janet, MA Edinburgh; FLA
Jamieson, Alexis J., BA, BLS McGill; MA McMaster
Neill, S. D., BA, BLS, MEd Toronto
Pendrill, G. R., BA, MA Cantab; Dip Lib London; FLA
Sudar, D., BA, BLS Toronto
Tague, Jean M., BA Alberta; BLS McGill; PhD Western Reserve
Assistant Professors:
Hudgins, W. H., BA Toronto; MLS UWO
Rayward, W. B., BA Sydney; Dip Lib NSW; MS Illinois; PhD Chicago
Schulte-Albert, H. G., BA, BS Kent; MA, MS, PhD Case Western
Svenonius, Elaine, AB Barnard; MA Pennsylvania; PhD Chicago

The School of Library and Information Science began studies in September 1967. In October 1968 the School was visited for accreditation purposes by a Committee of the American Library Association. The Committee on Accreditation of the American Library Association, which is the accrediting agency for both Canada and the United States, accepted in January 1969 the visiting Committee's report and accredited the School's MLS program.

As soon as appropiate authorization from the Ministry of Colleges and Universities is obtained, the School is prepared to admit a limited number of students to a PhD program concentrating on bibliographic control.

ADMISSION:

Candidates for admission into the Master of Library Science program must have, from a recognized University, an honors Bachelor's degree or equivalent with at least a B standing over the last 10 courses.

Candidates who have a three-year or four-year general Bachelor's degree may raise their degree to the equivalent of an honors degree by undertaking a year (two terms) of undergraduate studies as a Special (Undergraduate) Student. Application forms may be obtained from the Office of the Registrar.

Candidates who have a three-year Bachelor's degree with a high B average (i.e. 75%) over the last 10 courses taken may be permitted to substitute a post-baccalaureate year at a College of Education or its equivalent for the "Special Undergraduate Year" program.

Candidates who hold an honors Bachelor's degree and who wish to transfer at the end of one year from other accredited graduate library schools with a two-year MLS or its equivalent may complete their MLS after two terms.

Proficiency in English is required of non-English speaking students who are required to show evidence of proficiency by satisfactory achievement in the University of Cambridge Certificate of Proficiency in English, or the Test of English as a Foreign Language administered by the US Educational Testing Service.

The School operates on a trimester system and students may be admitted in September, January or May. Application forms may be obtained from the School of Library and Information Science.

PERIOD OF STUDY

Dependent upon the conditions laid down upon admission to the Faculty of Graduate Studies, a student may complete his studies for the MLS in two or three consecutive terms. It is possible to earn the MLS in summer terms or in summer sessions plus a final term. The program may also be taken part time.

LANGUAGE REQUIREMENTS

Because of the importance of languages in the field of Library and Information Science, a reading knowledge of at least one language other than English is expected. The second language must be useful in study and research in the School's field of knowledge.

COURSE REQUIREMENTS

Required courses are: 511, 512, 513, 520, 530, 551, 552, 553, and 580. Other courses may be required in a particular program by decision of the School's Council.

For two-term students, 552, 553, and 580 are required, and others may be required in individual cases.

Every elective is not necessarily offered in any one term. For more information, refer to the Calendar of the School of Library and Information Science.

COURSES:

501. Old World Intellectual and Cultural Foundations.
Seminar, Half course; one term.

502. New World Intellectual and Cultural Foundations.
Seminar, Half course; one term.

503. Bookcollecting and Librarianship.
Seminar, Half course; one term.

504. Intellectual and Cultural Foundations of Classification.
Seminar, Half course; one term.

505. Bibliography and Librarianship.
Seminar, Half course; one term.

507. Systems Analysis and Libraries.
Seminar, Half course; one term.

508. Guided Reading.
Seminar, Half course; one term.

511. Professional Theory and Methodology: Humanities.
Seminar and Lab, Half course; one term.

512. Professional Theory and Methodology: Social Sciences.
Seminar and Lab, Half course; one term.

513. Professional Theory and Methodology: Science and Technology.
Seminar and Lab, Half course; one term.

514. Special Topics in the Humanities.
Seminar, Half course; one term.

515. Special Topics in the Social Sciences.
Seminar, Half course; one term.

516. Special Topics in Science and Technology.
Seminar, Half course; one term.

517. Information Resources in Languages other than English.
Seminar, Half course; one term.

519. Problems in the Organization of Information.
Seminar, Half course; one term.

520. Administrative Theory and Practice.
Seminar, Half course; one term.

521. General Principles of Administration.
Seminar, Half course; one term.

522. Library Planning.
Seminar, Half course; one term.

523. Administrative Theory and Practice: Library Administration.
Seminar, Half course.

524. Administrative Theory and Practice: Schools.
Seminar, Half course; one term.

525. Services to Children and Young Adults.
Seminar, Half course; one term.

527. Community Services: Local, Regional, National.
Seminar, Half course; one term.

528. Administrative Theory and Practice: Higher Education.
Seminar, Half course; one term.

529. Special Libraries.
Seminar, Half course; one term.

530. Research Methods.
Seminar, Half course; one term.

531. Research Principles and Practice in the Humanities.
Seminar, Half course; one term.

532. Special Research Topics in the Humanities.
Seminar, Half course; one term.

534. Research Principles and Practice in the Social Sciences.
Seminar, Half course; one term.

536. Special Research Seminar.
Seminar, Half course; one term.

537. Research Principles and Practice in Science and Technology.
Seminar, Half course; one term.

538. Guided Research I.
Seminar, Half course; one term.

539. Guided Research II.
Seminar, Half course; one term.

540. Special Topics in Librarianship.
Seminar, Half course; one term.

541. Comparative Librarianship.
Seminar, Half course; one term.

542. Periodical Literature.
Seminar, Half course; one term.

543. Historical Development of Children's Literature.
Seminar, Half course; one term.

544. Canadiana.
Seminar, Half course; one term.

545. Slavic Libraries and Librarianship.
Seminar, Half course; one term.

547. History of Science.
Seminar, Half course; one term.

551. Language, Logic and Mathematics.
Seminar, Half course; one term.

552. Systems and Computers-Fundamental.
Seminar, Half course; one term.

553. Systems and Computer Applications.
Seminar, Half course; one term.

556. Introduction to Information, Communication, and Coding Theory.
Seminar, Half course; one term.

557. Mathematical Models in Library and Information Science.
Seminar, Half course; one term.

558. Special Topics in the Computer Control of Information.
Seminar, Half course; one term.

559. Audiovisual Theory and Practice.
Lab and Seminar, Half course; one term.

561. Art Libraries and Information.
Seminar, Half course; one term.

562. Business Libraries and Information.
Seminar, Half course; one term.

566. Law Libraries and Information.
Seminar, Half course; one term.

567. Medical Libraries and Information.
Seminar, Half course; one term.

569. Music Libraries and Information.
Seminar, Half course; one term.

571. Archives Theory and Practice.
Seminar, Half course; one term.

580. Master's Seminar.
Seminar, Half course; one term.

Mathematics

ENGINEERING & MATHEMATICAL SCIENCES BUILDING, Room 305

Chairman: D. Borwein
Professors:
Ali, M. M., BSc, MSc Dacca; MS Michigan; PhD Toronto
Borwein, D., BSc Witwatersrand; PhD, DSc London: FRSE.
Cole, R. H., BA UWO; MA, PhD Wisconsin. Senior Professor
Moore, J. T., BA UWO; MA Wisconsin; PhD Chicago
Ritcey, L. F. S., BA Mount Allison; MA Harvard; PhD Chicago, ASA; LLD Winnipeg
Thierrin, G., Lic. Math, Doc. Math Fribourg; Doc. Math Paris
Associate Professors:
Bode, A. E. M., BA, MA Saskatchewan
Bryan, R. N., BA, MA, PhD Utah
Cass, F. P. A., BSc, MSc Victoria, NZ; PhD UWO
Chan, L. K., BSc Hong Kong Baptist; MA, PhD UWO
Haq, M. S., BSc, MSc Dacca; MA, PhD Toronto
McKay, D. O., BA, MA, PhD Buffalo
Robinson, I. J. W., BA, MSc Queen's; PhD UWO
Shawyer, B. L. R., BSc, PhD St. Andrews
Wonnacott, T. H., BA UWO; PhD Princeton
Assistant Professors:
Baskerville, J. C., BS SUNY at Cortland; MS Purdue; PhD Cornell
Biggs, R. G., BS Stanford; PhD British Columbia
Bruen, A. A., BSc, MSc Dublin; PhD Toronto

Dawes, A. M., BSc Victoria; MSc, PhD Toronto
Delkin, J. L., BA Reed; MA British Columbia; PhD UWO
Florence, J. B., MA St. Andrews; MSc Newcastle-upon-Tyne; PhD Simon Fraser
Heinicke, A. G., BSc, MSc Manitoba; PhD British Columbia
Klass, W. C., BSc West Indies; MA, PhD Toronto
Miller, C. B., BA Saskatchewan; AM, PhD Illinois
Milnes, P., BSc, MA, PhD Toronto
Rankin, S. A., BA, MA Saskatchewan; PhD Ottawa
Reis, C. M., BA, MA Oxon; PhD Michigan State
State, E. Y., BSc Toronto; AM, PhD Illinois
Strube, R. F. E., BS MIT; MS, PhD Michigan
Vranch, J. K., BSc, MA, PhD Waterloo

The Department of Mathematics offers programs leading to the degree of MA and PhD. At present particular research interests of the faculty include the following: Combinatorial Analysis, Commutative Algebra, Group Theory, Ring Theory, Ordinary and Partial Differential Equations, Summability Theory, Number Theory, Actuarial Mathematics, Mathematical Statistics, Foundations of Mathematics, Semigroups, Operator Algebras, Algebraic Topology, Topological Groups, Automata.

DEPARTMENTAL REGULATIONS

These are additional to the general regulations listed earlier in this announcement.

MA Degree

(1) A candidate with a General Bachelor's Degree will be required to enrol in the Faculty of Science as a Special (Undergraduate) Student and to complete satisfactorily a minimum of five undergraduate Honors Mathematics courses before being considered for admission to an MA program in Mathematics.

(2) A candidate having an Honors Bachelor's Degree shall complete satisfactorily a minimum of four Mathematics courses numbered 300 or above, at least two of which shall be at the graduate level. At the discretion of the Department a candidate may be permitted to substitute a thesis for not more than two courses.

PhD Degree

(1) At the discretion of the Department, an applicant may be required to complete a one-year program of approved courses before being accepted as a candidate for the PhD Degree.

(2) In addition to fulfilling the thesis requirement, a candidate shall complete satisfactorily a minimum of seven Mathematics courses numbered 300 or above of which at least five must be at the graduate level. A candidate holding an approved Master's degree may be exempted from at most four of these courses unless he has successfully completed more than the minimum number of courses required for this degree. In the latter case the candidate may be exempted from more than four courses.

(3) A candidate will be required to pass a Departmental oral examination; this examination will be primarily concerned with the contents of his thesis, but may include questions of a general nature relating to his field of specialization.

(4) Each candidate will be required to present at least one paper at a graduate seminar, on a subject to be approved by his supervisor.

(5) Each candidate must have a reading knowledge of at least one language other than English, which is deemed by this Department as being useful in his research.

COURSES

Note: Not all of the following courses will be offered in 1974-75..

500-559. Pure Mathematics.

501. Measure and Integration Theory.
Full course; two terms.

502. Topics in Summability Theory.
Full course; two terms.

503. Functional Analysis with Applications to Summability Theory.
Full course; two terms.

504. Complex Analysis.
Full course; two terms.

505. Ordinary Differential Equations.
Full course; two terms.

506. Number Theory.
Full course; two terms.

507. Foundations of Mathematics.
Full course; two terms.

509. Functional Analysis.
Full course; two terms.

510. Topics in Analysis.
Full course; two terms.

511. Partial Differential Equations.
Full course; two terms.

512. Integral Transforms and Eigenfunction Expansions.
Full course; two terms.

514. Theory of Recursive Functions and Computability.
Full course; two terms.

515. Algebra.
Full course; two terms.

516. Theory of Groups.
Full course; two terms.

517. Theory of Semigroups.
Full course; two terms.

518. Theory of Rings.
Full course; two terms.

519. Algebraic Theory of Automata.
Full course; two terms.

520. Algebraic Topology.
Full course; two terms.

560-569. Actuarial Mathematics.

561. Advanced Life Contingencies and Construction of Mortality Tables.
Full course; two terms.

570-588. Mathematical Statistics.

572. Theory of Linear Estimation.
Full course; two terms.

573. Structural Analysis.
Full course; two terms.

574. Topics in Multivariate Analysis.
Full course; two terms.

580. Theory of Statistical Inference.
Full course; two terms.

581. Characteristic Functions and Probability.
Full course; two terms.

582. Theory of Estimation and Testing of Hypothesis.
Full course; two terms.

583. Design of Experiments.
Full course; two terms.

584. Non-parametric Statistics.
Full course; two terms.

585. Stochastic Processes.
Full course; two terms.

586. Multivariate Analysis.
Full course; two terms.

588. Theory of Sampling.
Full course; two terms.

589. Directed Reading and Research. (No part of the minimum course requirements can be fulfilled by this course.)

590. MA Thesis.

690. PhD Thesis.

691. PhD Degree Language Requirement (non-credit).

NOTE: At the discretion of his committee of advisors, a candidate for either the MA or the PhD degree may be permitted to substitute certain graduate courses in other Departments for Mathematics courses.

Medicine

UNIVERSITY HOSPITAL, Room 505f

Chairman: R. W. Gunton

Professors:

Barton, W. B., MD UWO
Bondy, D. C., MD UWO
Gunton, R. W., MD UWO; DPhil Oxon
Hession, B. L., MD, MSc UWO
Lefcoe, N. M., BSc McGill; MD Vanderbilt
Lewis, J. A., MD UWO
Linton, A. L., MD, ChB Glasgow
Manning, G. W., MA, MD, PhD Toronto
Smith, D. R., MD UWO
Watson, W. C., MB, ChB, PhD, MD Glasgow

Associate Professors:

Ahuja, S. P., MB, Bs Nagpur, India
Borda, I. T., MD Budapest
Cameron, W. M., MD UWO
Chamberlain, M. J., MB, ChB, MRCP, MD Birmingham
Chodirker, W. B., BSc, MD Manitoba
Clarke, O., BA, MA, MB, ChB, MD Cantab
Green, R. N., MD McGill
Harth, M., MD Toronto
McDonald, J. W. D., MD, PhD UWO
Rodger, N. W., BSc, MD Manitoba
Roach, M. R., BSc, New Brunswick; MD, CM McGill; PhD UWO
Stuart, R. K., MD UWO
Toogood, J. H. MD Toronto
Wolfe, B. M., BA Saskatchewan; BM, BCh, MA Oxon; MSc McGill
Wood, T. E., BA, MD UWO; MSc McGill

Assistant Professors:

Ahmad, D., LM, LRCPI, MRCPI Ireland
Austin, T. W., MD UWO
Barr, R. M., MD UWO
Bell, D. A., MD UWO
Boughner, D. R., MD, PhD UWO
Cain, J. P., MD UWO
Cordy, P., MD Toronto
Goddard, M. D., MB, ChB New Zealand
Jones, D. T., BA, MD UWO
Kostuk, W. J., MD UWO
McCourtie, D. R., MD UWO
Redinger, R. N., BA, MD UWO
Shaw, D. B., BSc St. Francis Xavier; MD, CM, PhD McGill
Stiller, C. R., MD Saskatchewan
Tevaarwerk, G. J., BA, MD UWO
Ulan, R. A., MD Alberta

Graduates in Medicine may obtain further training in internal medicine at the intern, resident, or fellow level - through a program which integrates the clinical and research facilities of St. Joseph's, Victoria, University, Westminster Hospitals.

This program is designed to qualify individuals for fellowship examination of the Royal College of Physicians and Surgeons of Canada, but is also available to those involved in other specialty training areas.

Postgraduate training in clinical research is offered in cardiology, pulmonary disease, endocrinology, gastroenterology, haematology, renal disease, therapeutics, allergy and immunology and others. Varied facilities in these disciplines are available for animal and human research, combined with clinical traineeship.

Music

FACULTY OF MUSIC BUILDING, Room 236

Dean: H. J. McLean

Professors:

Green, J. P., MusBac Toronto; MM Eastman; ARCT. Chairman, Music Education

Greene, G. K., AMus, BA, BEd, MA Alberta, PhD Indiana. Chairman, Music History

Haenselman, C. F., BMusEd, MusM Colorado, PhD Indiana

McKellar, D. A., MusBac Toronto; MM Eastman; AMus London, Ontario

McLean, H. J., BA, MusB, MA Cantab; AMus Manitoba; LRSM, ARCM, FRCO, FRCCO

von Kuster, C., MusBac Toronto; LRCT

Visiting Professor:

Tsutsumi, T., To Ho Conservatory, Tokyo; Artist Diploma in Cello, Indiana

Associate Professors:

Aldrich, R., MusBac Victoria, Wellington; LRSM, LGSM

Bray, K. I., MusBac Toronto; MM Eastman

Clements, P. J., MusBac, MM Michigan

Downs, P. G., BA Leeds; MusM, PhD Toronto

Giron, A., BMus Oberlin, MA Tulane

Hughes, R., MusBac, BEd, MusM Toronto

Johnson, D. J., BA Sterling, Kansas;MA Colorado

McIntosh, J. S., MusBac Toronto, MM, DMA Eastman. Chairman, Applied Music and Performance

Stark, J. A., BA Minnesota; MusM, PhD Toronto

VanOstrand, G., BS New York State; MM, DMA Eastman

Wuensch, G., PhD Vienna; DipMus Vienna State Academy. Chairman, Music Theory and Composition

Assistant Professors:

Bratuz, Damiana, MDipl Trieste; MM St. Louis; MusDoc Indiana

Pendle, Karin, BA Minnesota; MM, PhD Illinois

Riseling, R., BMEd Illinois Wesleyan; MM Texas

Seiffert, S., BM Eastman; MA Brown; DMA Eastman

NOTE: Students may apply to begin the graduate program in the Fall Term only. The application deadline is April 15th.

COURSES

Those marked * will be offered in 1974-75.

***530a or b. Music Bibliography and Research Techniques Bibliography.** Half course; one term.

582a or b. Research Tutorial. Half course; one term.

THEORY AND COMPOSITION

501. Theory Review I for Graduates (no credit).

502. Theory Review II for Graduates (no credit).

510. History and Pedagogy of Theory.
Full course; two terms.

512a or b. Advanced Orchestration.
Half course; one term.

***514. Analytic Techniques.**
Full course; two terms.

***515a. 16th Century Stylistic Counterpoint.**
Half course; one term.

***516b. 18th Century Stylistic Counterpoint.**
Half course; one term.

517a or b. 20th Century Counterpoint.
Half course; one term.

***518. Composition.**
Full course; two terms.

590. MMus Thesis.

590. MMus Composition Thesis.

MUSICOLOGY AND LITERATURE

503. Survey of Music History I for Graduates (no credit).

504. Survey of Music History II for Graduates (no credit).

534. Music Notation.
Full course; two terms.

536. Seminar in Medieval and Renaissance Music.
Full course; two terms.

538. *Seminar in Baroque* Music.
Full course; two terms.

540. Seminar in Pre-Classic and Classic Music.
Full course; two terms.

542. Seminar in Twentieth Century Music.
Full course; two terms.

544. Performance Practices in Early Music.
Full course; two terms.

***545. Seminar in the Interpretation of Musical Styles.**
Half course; two terms.

546. Beethoven.
Full course; two terms.

***548a or b. History* of Music Criticism**
Also available in Summer Term
Half course; one term.

***550. Verdi and Wagner.**
Full course; two terms.

552. *Studies in Gregorian* Chant.
Full course; two terms.

***554. From Symphony to Symphonic Poem.**
Full course; two terms.

***556. Schoenberg and His School.**
Full course; two terms.

555. Art Song.
Full course; two terms.

557a. Keyboard Literature to 1700.
Half course; one term.

558b. Keyboard Literature from Bach to Beethoven.
Half course; one term.

559a or b. Piano Literature of the 19th Century.
Half course; one term.

560a or b. Seminar I in Choral Literature.
Half course; one term.

561a or b. Seminar II in Choral Literature.
Half course; one term.

562. Bach and Handel.
Full course; two terms.

564a or b. History of Vocal Art.
Half course; one term.

590. MA Thesis.

591. First Foreign Language Requirement.
(no credit).

592. Second Foreign Language Requirement.
(no credit).

MUSIC EDUCATION

***570. Advanced Conducting.**
Half course; two terms.

572. Advanced Brass Techniques.
Half course; two terms.

574. Advanced Woodwind Techniques.
Half course; two terms.

***576. Advanced Choral Techniques.**
Half course; two terms.

578. Advanced String Techniques.
Half course; two terms.

***580. Music Education Seminar.**
Full course; two terms.

591. MMus Thesis.

PERFORMANCE

***509. Applied Music.**
Full course; two terms.

513. Phonetics for Singers (no credit).

***545. Seminar in the Interpretation of Music Styles.**
Half course; two terms.

590. Document for MMus in Performance.

590. MusM Recital.

Nursing

KRESGE SCHOOL OF NURSING BUILDING

Dean: M. Josephine Flaherty
Professors:
Aikin, R. Catherine, RegN; BA, BN McGill; MA Chicago (on Sabbatical Leave)
Flahety, M. Josephine, RegN; BScN, MA, PhD Toronto
Griffin, Amy E., RegN; BA Toronto; MSc Wayne; EdD Columbia. Coordinator of Graduate Programs
Hibbert, Dorothy M., RegN; BS, MA, Professional Diploma Columbia
Wood, Vivian, RegN; BScN UWO; EdM Boston
Associate Professors:
Horn, Ethel, RegN; BS, MA Columbia
Mantle, Jessie, RegN; BN McGill; MScN California
Assistant Professors:
Creeggan, Sheila, RegN; BScN Windsor; MScN UWO
Gerhard, Wendy, RegN; BScN, MScN UWO
Given, Janice, RegN; BScN UWO; MEd Toronto
Potter, Thelma, RegN; BN McGill; MScN Boston

ADMISSION REQUIREMENTS

Entrance is to the graduate year of programs in administration or in teacher preparation for graduates in the year 1971 or later of either the four-year Basic Nursing Program (B.Sc.N.) or the three-year Program for Registered Nurses (B.Sc.N.) of the Faculty of Nursing, The University of Western Ontario or equivalent. Such graduates must have attained a B average in their total program. This may change during the coming year to conform with General Admission Requirements.

It is recognized that there have been marked changes in university nursing

education. All other applicants will therefore have their credentials assessed individually. They may be required to take the Special Undergraduate Year or part thereof and attain a designated standard in order to become eligible for entry into graduate study. Students having a B.A. in some discipline other than nursing, who may or may not hold an undergraduate diploma in nursing, will also be assessed individually and special programs at the undergraduate level in nursing in preparation for graduate study in nursing may be devised.

Admission of students from countries other than Canada will be considered on an individual basis. Students coming directly from countries outside North America may be required to attend summer school to complete at least one course with a designated level of achievement and/or to have a period of planned clinical experience in their area of interest in nursing. Foreign students may also be required to furnish evidence of their proficiency in the English language. (See General Admission Requirements). Following this, a final decision will be made re the applicant's admissibility to the program in either the special undergraduate or the graduate year.

RESEARCH AREAS OR SPECIALTIES

The faculty believes that every professional discipline has an obligation to research its own practice and that teaching research and service in a university should be closely aligned and mutually supportive. The Faculty of Nursing is engaged in educational programs to prepare nurses, teachers and administrators. It is, therefore, reasonable to expect some faculty and graduate students to be engaged in research in each of nursing, teaching and administration. A diversity of research has been pursued within the broad scope of these three areas. Such diversity may continue or it may be the decision of the faculty to select some one or two circumscribed foci of excellence within these three areas to which priority will be given.

COURSE REQUIREMENTS

A. Major in Administration

(a) **Special Undergraduate Year** - 28, 500a, 505, 3 electives (2 of these must be in General Education (Undergraduate or Graduate); one of these may be in Nursing (Undergraduate) or in General Education (Undergraduate or Graduate)).

(b) **Graduate Year** - 600b, 601, 590 (Thesis) or 589 (Alternate), 1 elective which may be a Graduate Course in Nursing or a Senior or Graduate Course in General Education.

B. Major in Teaching

(a) **Special Undergraduate Year** - 28, 500a, 505, 3 electives in General Education, one of which must be a Natural, Biological or Medical Science.

(b) **Graduate Year** - 600b, 604, 605, 606, 607, 608.

COURSES

28. Research-Statistics. Introduction to research methodology, evaluation, utilization: the contribution of research to the theory and practice of nursing: basic statistical concepts related to sampling, measures of central tendency, variability, probability, correlation, and significance.
Full course; two terms.

500a. Health Services and Their Development. An historical approach to the study of current issues in health services, especially nursing; the significance of the past in relation

to problems of the present; society's concern for health; social, economic, political, legal and philosophical influences in health services.
Half course; one term.

505. Theory and Practice in Nursing. An examination of the nature of nursing and the theoretical justification for its practice. Implicit in the course is the student's responsibility to define her learning and practice goals, and to evaluate the effectiveness of her planned nursing intervention. A nursing practicum is included
Full course; two terms.

590. Thesis. Instructions regarding the thesis are on file in the office of the Coordinator of the Graduate Programs who will review these instructions with the students.

589. Alternate to Thesis.
(1) Comprises Nursing 604 **Research in Nursing** or a course in research at a comparable level in another discipline.
(2) One senior or graduate course in General Education or a graduate course in Nursing.

600b. Current Issues in Nursing. Factors bearing on these issues, alternate courses of action; role of the professional in society; the professionalization of nursing.
2 Hours Lecture, Half course; one term.

601. Nursing Administration. Theories and skills of administration with emphasis on current and evolving administrative responsibilities assumed by nurses. Students whose interest in Nursing Education or Nursing Service (Hospital or Community) will have guided study in depth in their respective interest areas.
Equivalent of two full courses; two terms.

604. Research in Nursing. Continued examination of the nature and methodology of research in nursing and utilization of findings. Advanced experience in the identification of researchable problems in nursing, designing, implementing and reporting a carefully circumscribed study in the student's area of choice, i.e., clinical nursing, nursing education, nursing administration.
Full course; two term.

605. Education and the Teacher's Role. Part 1. An examination of education in contemporary society focusing upon an investigation of the functions, organization and values of schooling in society, and their implications for the nursing curriculum.
Part 11. An examination of the role of teacher and aspects of curriculum development in nursing education.
Full course; two terms.

606. Assessment of the Student Nurse. Discussion of the problems and methodology of teacher-made tests in nursing education; interpretation of grades; fundamentals of assessment of laboratory experience. Examination of registration, licensure, certification and standardized tests in nursing.
Full course; two terms.

607. Human Learning and Planning for Teaching. Basic concepts of teaching, course and lesson planning and planning for learning experiences relevant to course and lesson objectives. Study of theoretical constructs associated with learning Teaching practice is an integral part of the course.
Full course; two terms.

608. Examining Student Nurse Problems. Development of skills in the exploration, analysis and decision making relevant to student nurses' problems through the case method approach. Issues may be personal, academic or social. Examination of educational counselling, occupational information and placement services for student nurses. Case-writing is included.
Full course; two terms.

NOTE: in several courses a variety of field experiences are included. Students should make provision for the additional time and expenses which may be incurred.

Obstetrics and Gynaecology

UNIVERSITY HOSPITAL

Chairman: Earl R. Plunkett
Professors:
Armstrong, D. T., BSA Toronto; MS, PhD Cornell
Plunkett, E. R., MD PhD UWO
Associate Professor:
Harding, P. G. R., MD, MSc UWO
Assistant Professors:
Collins, J. A., MD UWO
Possmayer, F., BSc Toronto; PhD, UWO
Raud, H. R., BSc, MSc, PhD McGill
Yuzpe, A. A., MD, MSc UWO

Within the Department there is an active basic and clinically applied program of Reproductive Endocrinology. In addition Foetal and Uterine Physiology are under investigation, with the support of a special clinical facility for monitoring the foetus and forces of labour. The third area of special interest involves the Endocrine and Immunological aspects of Gynaecological cancer.

Clinical investigations are carried out in collaboration with the Departments of Physiology, Paediatrics, as well as other departments on occasion.

Opportunities for a year of clinical investigation approved by the Royal College of Surgeons of Canada are available for suitable applicants.

Graduates in Medicine may apply for training in Obstetrics and Gynaecology at the intern, resident or fellow level — through a program which integrates the clinical and research facilities of Victoria, St. Joseph's and the University Hospitals.

Such further training is designed for those who wish to qualify for Fellowship in the Royal College of Surgeons of Canada, or for the degree of Master of Clinical Science (MClSc).

Ophthalmology

3 NORTH, VICTORIA HOSPITAL

Chairman: Charles Dyson
Clinical Professor:
Dyson, C., MD UWO
Associate Professor:
McKinna, A. J., BA, MD McGill
Clinical Associate Professors:
Nicholls, J. V. V., BA, MD, CM, MSc, McGill

Thompson, C. A., BA, MD, CM McGill
Clinical Assistant Professors:
Collyer, R. T., BA, MD UWO
McFarlane, D. C., MD UWO
Mills, D. W., BA, BSc Carleton; MD, MSc (Med) Queen's

The Department of Ophthalmology is approved by the Royal College of Physicians and Surgeons of Canada for the training of seven residents in this specialty. The course is three years in length and utilizes the facilities at Victoria, St. Joseph's, Westminster and University Hospitals. Each year approximately fifteen formal lectures on the basic sciences and clinical aspects of Ophthalmology are given by members of the staff. Additionally, candidates are enrolled in the Lancaster Course in basic sciences in Ophthalmology over a period of ten weeks in the second summer of the residency.

Otolaryngology

UNIVERSITY HOSPITAL

Chairman: F. J. Rounthwaite
Professor:
Greenway, R. E., MD UWO
Rounthwaite, F. J., BSc, MD, CM McGill.
Associate Professor:
Ruby, R. R., MD UWO
Clinical Associate Professors:
Babb, J. W., BA, MD UWO
Burnett, W. H., MD Toronto
Clinical Assistant Professor:
Leboldus, G. M., MD UWO

The Department of Otolaryngology offers a four year postgraduate course of training approved by the Royal College of Physicians and Surgeons of Canada, leading to the FRCS(C) examinations. One year of general internship is a prerequisite for entering this course. The four years consist of three years of training in the specialty of otolaryngology, and one year of general surgery in the various Teaching Hospitals in London.

Paediatric Dentistry

Division of Orthodontics

DENTAL SCIENCES BUILDING, Room 1012

Degree offered: Master of Clinical Dentistry (M.Cl.D.) in Orthodontics
Chairman: W. Stuart Hunter, Division of Orthodontics
Professors:
Eastwood, A. W., DDS Dalhousie; BDS Liverpool; MS Michigan
Feasby, W. H., DDS Toronto; MSc Manitoba; Dip. Paed. Toronto; FRCD; Chairman, Department of Paediatric Dentistry
Hunter, W. S., DDS Toronto; MS, PhD Michigan; Chairman, Division of Orthodontics

Associate Professor:
Wright, G. Z., BSc Manitoba; DDS Toronto; MSD Indiana.
Clinical Assistant Professor:
Way, D. C., DDS Toronto; MS Michigan; FRCD.

ADMISSION REQUIREMENTS

A candidate must possess the D.D.S. degree or equivalent from an approved dental school. Normally, only applicants who have graduated with at least a B standing and who, by their undergraduate records, have demonstrated the potential ability to succeed in graduate work, will be considered. Preference shall be given to those candidates having a minimum of two years in general practice or one year of approved internship. Preference will also be given to applicants possessing a license to practise in Ontario.

The application deadline is December 15th for the program beginning each July following.

DEGREE REQUIREMENTS

The program of studies covers 24 continuous months (beginning in July). Appropriate basic science courses are required from the following list at the discretion of the Professional Degree Committee (Dentistry) of the Faculty of Graduate Studies.

Anatomy 510. Current topics in Anatomy.
Half course; two terms.

Anatomy 535. Dental Gross Anatomy and Embryology.
Full course; two terms.

Anatomy 536. Dental and Oral Histology.
Full course; two terms.

Anatomy 563a. Embryology.
Half course; one term.

Anatomy 564b. Neuroanatomy.
Half course; one term.

Epidemiology 510a. Biostatistics.
Half course; one term.

Physiology 541a. Seminar in Physiology.
Half course; one term.

Physiology 562a. Metabolic and Reproductive Physiology.
Half course; one term.

In addition, courses basic to orthodontics are required as follows:

COURSES

501. Cephalometrics.
Half course; one term (summer term only).

502a. Radiologic Anatomy and Interpretation.
Half course; one term.

503a. Management of Children.
Half course; one term.

504b. Genetics.
Half course; one term.

511. Development of Occlusion.
Full course; two terms.

512. Growth and Development of the Human Face.
Full course; two terms.

513. Interceptive Orthodontics.
Full course; one term.

521. Biomechanics.
Full course; one term (summer term only).

522. Diagnosis and Treatment Planning.
Full course; three terms.

523. Clinical Experience.
Full course; three terms.

590. Master's Thesis.

Paediatrics

UNIVERSITY HOSPITAL, 10th Floor

Chairman. J. E. Boone
Professors:
Boone, J. E., MD Toronto; FRCP(C)
Haust, M. Daria, MD Heidelberg; MSc Queen's; FRCP(C)
Jaco, N. T., BA, BSc, MA, BM, BCh Oxon; MRCP; CRCP(C); DCH England
Valentine, G. H., MB, ChB Bristol; MRCS (Eng); MRCP London, DCH (Eng); FAAP; FRCP(C)
Associate Professors:
deVeber, L. L., MD Toronto; FRCP(C)
Hinton, G. G., BSc, MD, CM McGill; DCH (Eng); FRCP(C); CRCP(C)
Li, M. D., MB National Taiwan; FRCP(C)
Clinical Associate Professors:
Vincent, J. E., MDCM Queen's; BSc McGill; FAAP; CRCP(C)
Assistant Professors:
Amacher, A. L., MD UWO; FRCS(C)
Blume, W. T., BA Princeton; MDCM McGill; FRCP(C)
Bolton, R. J., MD Queen's; FRCP(C)
Ecclestone, E. R., MD UWO; FRCP(C)
Hardie, M. J., MB, ChB Aberdeen; CRCP(C)
Jenner, M. R., BA, MD Saskatchewan
Reid, W. D., MD UWO; FRCP(C)
Clinical Assistant Professors:
Cram, D. M., MD, MSc UWO; FRCP(C)
Dubois, J. R., BSc, MD Michigan; CRCP(C)
Li, K. T., MB Taiwan; CRCP(C)
McKim, Mary E., MD Toronto; CRCP(C)
Nicholson, J. R., BA, MD UWO; FAAP; CRCP(C)
Rajic, D. S., MD Graz; CRCP(C)
Riese, R. R., BA, MA, PhD UWO
Walker, F. A., MDCM McGill
Whelen, W. S., BSc, MDCM McGill; FAAP; CRCP(C)
Visiting Assistant Professor:
Deshpande, Tara, MBBS Nagpur; MD (Paediatrics) Bombay.
Honorary Lecturers:
Feasky, W. H., DDS, Dip Paed, Toronto; FRCD(C)
McAlpine, K. L., MD UWO; CRCP(C)

The Department of Paediatrics of the University of Western Ontario offers varied training in general and sub-specialty paediatrics depending on the background and

career aspirations of applicants. Two main programs are offered - General Paediatrics for straight interns and rotating interns, and two core years in General Paediatrics and Paediatric sub-specialties for those who are interested either in paediatrics as a major part of family medicine or in a career in paediatrics as a specialty. Residents with more than two years' training may select on an individual basis a further one or two years in clinical paediatrics, basic science or medical sub-specialties leading to qualification for examinations of the Royal College in Paediatrics.

At the University Hospital Paediatric Department clinical facilities are offered for residency training with especial emphasis on genetic problems. Research laboratories are engaged in studies of electron microscopy of muscular dystrophy and of the foetal nervous system, in enzyme polymorphism in relation to population genetics and in growth hormone assays of selected children.

An active neonatal intensive care unit exists at St. Joseph's Hospital where detailed studies are performed on this important aspect of paediatric care. The research activity at War Memorial Children's Hospital centre around cardiology, pulmonary physiology, neurology, immunohaematology, biochemical aspects of the respiratory distress syndrome, sociological aspects of leukaemia.

At Children's Psychiatric Research Institute various research opportunities exist in the fields of mucopolysaccharides and aminoacidopathies and for investigations in the area of human cytogenetics with particular reference to the use of somatic cell hyperdization techniques in linkage studies as well as fluorescent and enzyme digestive techniques in chromosome identification. An opportunity to participate in this investigational work is available to suitable applicants.

Division of Medical Genetics

Chairman: H. C. Soltan
Professor:
Valentine, G. H., MB, ChB Bristol; MRCS (Eng); MRCP London; DHC (Eng); FAAP; FRCP(C)
Clinical Associate Professor:
Soltan, H. C., BA, MD UWO; PhD Toronto. Joint appointment in Anatomy
Honorary Lecturers:
Gatfield, P. D., MD Queen's. Joint appointment in Biochemistry.
Gordon, B. A., MDCM, MSc, PhD Queens. Joint appointment in Biochemistry
Sergovich, F. R., BA McMaster; PhD UWO. Joint appointment in Anatomy
Singh, R. P., BA, MSc, PhD UWO. Joint appointment in Anatomy.
Walden, D. B., BA Wesleyan; MSc, PhD Cornell. Joint appointment in Plant Sciences
Walker, F. A., MDCM McGill

Members of the Division of Medical Genetics may supervise students proceeding to an M.Sc. or Ph.D. degree through their joint membership in one of the Basic Science Departments of the Faculty of Medicine.

Research interests of members of the Division include basic and applied human cytogenetics, teratology and birth defects, inherited metabolic disorders particularly the mucopolysaccharidoses and aminoacidopathies, population genetics of biochemical variants and clinical genetics.

Divisional seminars are held each month and opportunities for physicians in Residency Training Programs who wish to participate in clinical genetic investigation and genetic counselling will be provided.

Pathology

DENTAL SCIENCES BUILDING, Room 4045

Chairman: A. C. Wallace

Professors:

Gardner, D. G., DDS Toronto; MSD Indiana; Diplomate, American Board of Oral Pathology. Chairman of Division of Oral Pathology (on Sabbatical Leave 1973-74)

Haust, M. Daria, MD Heidelberg; MSc Queen's; FRCP (C)

Kaufmann, J. C. E., MB, ChB Capetown; MRCPath (Neuropathology)

McCaughey, W. T. E., MB, BCh, MD Queen's, Belfast; MRCPath

Wallace, A. C., BA, MD UWO; FACP; FRCP (C)

Associate Professors:

Anderson, C. MD Beunos Aires; MRCPath

Frei, J. V., MDCM Queen's; MSc, PhD McGill; FRCP (C) (on Sabbatical Leave 1973-74)

Sapp, J. P., DDS Dalhousie; MS Michigan; Diplomate, American Board of Oral Pathology. (Acting Chairman of Division of Oral Pathology)

Warren, B. A., BSc (Med), MBBS Sydney; DPhil, MA Oxford; FRCPA; MRCPath.

Assistant Professors:

Ball, M. J., MD Toronto; CRCP (C) (Neuropathology)

Beattie, L. M., MD UWO; FRCP (C); FRCS (C); DTM & H (Liverpool)

Gilbert, J. J., MDCM McGill; FRCP (C) (Neuropathology)

Lewis, F. N., BA, MD UWO; MRC Path; FRCP (C)

Wysocki, G. P., BSc, DDS Alberta; PhD North Carolina

Clinical Professors:

Mills, D. M., BA, MD UWO; FRCP (C)

Smout, M. S., MD UWO; MRC Path; FCAP; FRCP (C)

Clinical Associate Professors:

Davies, Eleanor M., MD Toronto; FRCP (C)

Ramzy, I., MB, BCh, DMSc Path, MD Path Cairo; FRCP (C)

Slinger, R. P., BA, MD Toronto; MRC Path; FRCP (C)

Clinical Assistant Professors:

Enriquez, A. A., MD Santo Tomas; FRCP (C)

Troster, M. M., MD Toronto; FRCP (C)

Turnbull, D. I., BSc; MDCM McGill

ADMISSION REQUIREMENTS

Appropriate knowledge of biological science is required for graduate training which is available to the MSc and PhD degrees in Pathology. Medical, Dental and Veterinay graduates are eligible for admission into the MSc and PhD programs. Applicants for the MSc degree who have a Bachelor's degree in Science are accepted at the discretion of the department. Qualification for Fellowship in Pathology of the Royal College of Physicians and Surgeons of Canada is governed by the By-Laws of the Royal College.

Training may be arranged in the Health Sciences Centre of the University or in the Pathology Departments of the Teaching Hospitals. Dental graduates may be supervised in their study for the Fellowship in the American Academy of Oral Pathology or Certification by the American Board of Oral Pathology.

RESEARCH AREAS

Normally the research supervised will be within the principal interests of the staff of the Department. The research activities in the Department include the study of

the development of tumour metastases, immunofluorescent techniques and their application, electron microscopy of renal and liver biopsies, tissue culture and the alteration of cell lines by carcinogens, the arterial wall in atherogenesis, the giant cell lesions of bone and tumours of the jaw, synovial microcirculation, vascular permeability, muscular dystrophy, the motor end-plate, quantitative morphometry in neuropathology, platelet aggregation and adhesion, the physiopathology of thrombosis and the development of vessels in tumours.

DEGREE REQUIREMENTS

A thesis is required for both the MSc and PhD degrees. Every candidate must defend his thesis at an oral examination. The coursework in these programs will be selected on the advice of the candidate's supervisory panel. It will depend upon each candidate's prior experience and will be orientated towards providing a general background of pathology for the specific requirements of his research topic. A comprehensive examination may be required in some cases.

COURSES:

500a. General Pathology. A survey or core course in general pathology intended for individuals who desire some acquaintance with fundamental processes of disease. Some knowledge of gross and microscopic anatomy is desirable.
18 hours, Full course; one term.

510. Current Topics in Pathology. A seminar course held throughout the year.
Half course; three terms.

511. Oral Pathology Seminar.

512b. Experimental Pathology. A course of lectures and demonstrations dealing with modern methods of investigating disease processes. Topics covered may vary from year to year but include electron microscopy, transplantation techniques, immunofluorescent methods, study of disease in living tissues.
Prerequisite: some previous survey course in general pathology
Half course; one term.

530b. General Medical Pathology. A course of lectures, demonstrations and laboratory periods dealing with fundamental aspects of disease processes. Subjects include inflammation and repair, regressive changes, vascular diseases, disorders of growth and neoplasia, specific examples of inflammation.
Full course; one term.

589. Comprehensive. Course of individual instruction for MSc candidates involving reading assignments and attendance at specified lectures aimed at providing a general background of knowledge for the specialized thesis topic of the candidate. An assessment of the experimental investigation carried out by the candidate will be made.
Half course; two terms.

590. MSc Thesis.

610. Comprehensive (PhD).

630. Special Human Pathology. A comprehensive course in human pathology, taught on a regional and systemic basis. Primarily for Medical Students.
Prerequisite: Pathology 530
60 hours, Full course; two terms.

631. Special Pathology. A course in human pathology taught on a regional and systemic basis. It is designed for students who require a less detailed course than 630.
Full course; two terms.

630. Special Pathology for Dental Students.
Prerequisite: Pathology 512 or 530
Full course; two terms.

640. Oral Pathology. A course designed primarily for dental students, in pathology of the teeth, oral cavity and related structures. The oral manifestations of many systemic diseases, as well as the systemic ma-

nifestations of oral disease, are also discussed.
72 hours. Full course; one and one-half terms.

641. Graduate Oral Pathology. The pathology of the teeth, oral cavity and related structures are considered in detail. Selected topics such as neoplasms of the oral cavity, oral cytology, and histologic technique are also studied.
160 hours. Full course; three terms.

689. Comprehensive. Course of individual instruction for PhD candidates involving reading assignments and attendance at specified lectures aimed at providing a general background of knowledge for the specialized thesis topic of the candidate. An assessment of the experimental investigation carried out by the candidate will be made.
Half course; two terms.

690. PhD Thesis.

Pharmacology

MEDICAL SCIENCES CENTRE, Room 275

Chairman: C. W. Gowdey
Professors:
Gowdey, C. W., BA, MSc, DPhil Oxon
Hamilton, J. T., BSc, PhD Edinburgh
Parker, J. M., MD Manitoba; DPH, PhD Toronto
Philp, R. B., DVM Toronto; PhD UWO
Associate Professors:
Colhoun, E. H., BSA Toronto; PhD Cantab
Hirst, M., BSc, PhD Liverpool; PhD UWO
Assistant Professor:
Hersey, L. W., BSc McGill; MD, PhD UWO; CRCP (C); FACA

ADMISSION

Students with an MD, DDS, DVM, or an Honors degree in the Biological or Medical Sciences, Chemistry, or Pharmacy are accepted as candidates for the degree of MSc and PhD in Pharmacology. Applications for admission should, in the first instance, be made to the Chairman of the Department.

RESEARCH INTERESTS

The present research interests of the Department are in the pharmacology of the cardiovascular system, decompression sickness, thrombus formation, and neuromuscular transmission; in relations between chemical structure, enzymes and pharmacological activity, and in neuropharmacology. Facilities are available for research in these and other fields in Pharmacology.

DEGREE REQUIREMENTS

Although the emphasis is on research in the graduate programs, students are required to take formal courses. The number and selection of these courses will depend in part upon the student's previous training.

COURSES

501. General Physiology and Pharmacology. (given in cooperation with the Department of Physiology.). A survey of the principles of general physiology and pharmacology.
Full course; two terms.

GRADUATE

511a. Pharmacology of the Autonomic Nervous System.
Half course; one term.

530. Medical Pharmacology. The course of lectures deals with the absorption, distribution, metabolism and excretion of drugs, the relation between chemical structures and pharmacological activity, the mechanism of action, therapeutic uses, contraindications and toxic effects of the clinically important drugs.
Full course; two terms.

531. Neuropharmacology (Medical) - Part of Neurological Science (in cooperation with the Departments of Anatomy, Biochemistry, Physiology and Clinical Neurological Science). A study of the effects of both endogenous chemical substances and drugs on neuromuscular transmission and on the central nervous system in both health and diseased states including drugs used in anesthesia, and anesthetic agents.
Full course; two terms.

532. Neurological Sciences (Medical). (in cooperation with Departments of Anatomy, Biochemistry and Physiology.).
Full course; two terms.

541. Seminar. The preparation of essays and the presentation of scientific reports or papers on assigned topics in pharmacology.
Half course; two terms.

560b. Selected Topics in Pharmacology at an advanced level. This course will deal with contemporary problems in pharmacology with stress upon environmental toxicology.
Half course; one term.

561. Chemical Pharmacology. Pharmacological screening, pharmacodynamics, structure-activity relationships, metabolism and toxicology of selected drug classes.
Full course; two terms.

580. Laboratory and Tutorial. A course of training in the techniques employed in modern pharmacological investigations. Opportunity for original projects will be provided. The tutorial will supplement both lecture and laboratory work.
Full course; two terms.

590. MSc Thesis.

610. Advanced Pharmacology.
Prerequisite: Course 530 or equivalent
Full course; two terms.

690. PhD Thesis.

Philosophy

TALBOT COLLEGE, Room 313

Chairman: R. W. Binkley
Professors:
Binkley, R. W., BA Colorado; PhD Minnesota
Butts, R. E., BA, MA Syracuse; PhD Pennsylvania
Davis, J. W., BA, MA, PhD Boston
Hooker, C. A., BSc, PhD Sydney
Johnson, A. H., BA Mt. Allison; MA, PhD Toronto; FRSC. Senior Professor
Johnson, H. J., BA Alfred; PhD Chicago
Leach, J. J., BA Heidelberg; MA Trinity; PhD Michigan State
Associate Professors:
Block, I., BA Vanderbilt; MA, PhD Harvard
Bronaugh, R. N., BA Oregon; MS, PhD Wisconsin
Bub, J., BSc Cape Town; PhD London
Freed, B., BA Kenyon; PhD Berkeley

Hockney, D. J., BA McMaster; PhD Cornell
Lennon, T., BA Manhattan College; PhD Ohio State
Marras, A., BA Colgate; PhD Duke
Maynard, P., AB Chicago; PhD Cornell
Pearce, G., BA William & Mary

Assistant Professors:

Harper, W., BS Rensselaer Polytechnic Institute; MA Rochester
Muehlmann, R. G., BA Indiana; PhD Iowa
Nicholas, J. M., BSc Sussex; MSc Sussex

Visiting Professors:

Demopolous, W. BA Minnesota
Rescher, N, BS Queens; MA, PhD Princeton

Two programs with different degree requirements are offered by the Department. The first, the *regular* program leads to both the M.A. and Ph.D. degrees in philosophy, and permits concentration in epistemology, metaphysics, ethics and value theory, history of philosophy, philosophy of mind, and other areas. The second is a *special* program concentrating in philosophy of science. It offers courses and seminars leading to the Ph.D. degree only. In order to accommodate students with diverse backgrounds in science and philosophy the admission and degree requirements of the special program are quite flexible. Details must be approved by the Director of the Philosophy of Science Program.

COURSES

The Department of Philosophy offers approximately 18-20 courses each year. Topics will be chosen from among the below listed areas of Philosophy. A list of topics to be offered will be circulated to all students in the spring of each year.

500a or b—515a or b. Topics in History of Philosophy.
Half course; one term.

516a or b—525a or b. Topics in Logic and Philosophy of Logic.
Half course; one term.

526a or b—530a or b. Topics in Ethics.
Half courses; one term.

531a or b—540a or b. Topics in Epistemology.
Half course; one term.

541a or b—550a or b. Topics in Metaphysics.
Half course; one term.

551a or b—560a or b. Topics in History and Philosophy of Science.
Half course; one term.

561a or b—570a or b. Topics in Contemporary Philosophy.
Half course; one term.

571a or b—580a or b. Selected Topics in Philosophy.
Half course; one term.

585. MA Comprehensive Examination.

586. PhD Qualifying Examination.

590. MA Thesis.

690. PhD Thesis.

GRADUATE

Physical Education

THAMES HALL, Room 119

Dean: E. F. Zeigler
Professors:
Fairs, J. R., BSc UWO; MA Columbia
Hayden, F. J., BA UWO; MS, PhD Illinois
L'Heureux, W. J., BA UWO; MA Michigan; LLD New Brunswick
Yuhasz, M. S., BA UWO; MS, PhD Illinois
Zeigler, E. F., AB Bates; AM, PhD Yale
Associate Professors:
Barney, R. K., BS, MSc, PhD New Mexico
Carron, A. V., BPE, MA Alberta; EDD California
Cunningham, D. A., BA UWO; MSc Alberta; PhD Michigan
Eynon, R. B., BA UWO; MS Illinois
Leyshon, G. A., BA UWO; MS Illinois; PhD Oregon
Paton, G. A., BA UWO; MA Michigan; PhD Illinois
Stothart, J. P., BPE, MSc Alberta, PhD Penn State
Wearring, G. A., BA UWO; MS Southern California; PhD Michigan
Assistant Professors:
Milne, D. C., BA, BPE McMaster; MA, PhD Michigan State
Petrie, B. M., DippPE Sydney; BPE, MA Alberta; MA, PhD Michigan State
Richardson, J. R., BPHE Toronto; MSc Alberta; PhD Michigan
Semotiuk, D. M., BPE, MA Alberta; PhD Ohio State

The Faculty has offered a graduate program leading to the Master of Arts degree since 1963. Preparations and plans for a doctoral degree in Physical Education have been underway for some time, and the fall of 1975 has been set as the target date for the initiation of this program.

ADMISSION

Applicants are admitted at the discretion of the Department. The minimum requirements are as follows:

1. Graduation in Honors Physical and Health Education from the University of Western Ontario with first or second class standing, or from an accredited university with an equivalent degree and standing.
2. Graduation in any other course with first or second class standing and completion of such additional make-up work as may be determined by the Admissions Committee.

DEGREE REQUIREMENTS

The normal program of study consists of a thesis plus seven one-term courses, one of which must be P.H.E. 501. A minimum of four courses (plus 501) are selected from the list below. The remaining courses are normally senior or graduate courses related to the candidate's area of study, conducted by another department of the University.

All theses must be defended at an oral examination. Students may petition to substitute four (4) completion additional one-term courses for the thesis requirement. Non-thesis candidates, upon successful of their course work, are required to pass written and oral comprehensive examinations conducted by a Graduate Program Examining Board.

SPECIALIZATION

The Faculty is prepared to supervise research within the principal interests of its members. Two general areas of specialization are offered:

A. Arts and Social Science - (1) the history, philosophy and comparative aspects of physical education; (2) sociology and social psychology; and (3) administrative theory.

B. Bio-Science - (1) exercise physiology, scientific training in sport, and anthropometry; (2) motor learning and performance, growth and development; (3) anatomical and analytical kinesiology; and (4) health.

Additional information is available from the Chairman of Graduate Study and Research, Faculty of Physical Education.

COURSES

501a. Research Methods in Physical Education. Review and analysis of the characteristics and methods of scientific research. Application of research methods and techniques in physical education and sport. Critical review of published studies. Thesis planning and organization. Students with very limited training in basic descriptive and comparative statistics are asked to supplement their background through individual study. F. J. Hayden
3 hours lecture-seminar, Half course; one term.

502a. The Analysis of Human Performance. Human movement and physical activity are analyzed from a functional perspective. Emphasis is placed upon the acute and chronic effects of exercise on human functional capacity. Techniques for measurement of aerobic capacity and the prescription of therapeutic exercises are explored. D. A. Cunningham
2 hours lecture, 2 hours lab, Half course; one term.

503a. Analysis of the Superior Athlete. The performance of superior athletes in their specific sports is analyzed. Field measurements of athletes are undertaken metabolically, telemetrically and cinematographically. Performance at altitude and in high temperature conditions is studied. The various analytic approaches to the study of the superior athlete are integrated and applied by the student to specific sports in project work. M. S. Yuhasz
2 hours lecture, 2 hours lab, Half course; one term.

504b. Science and Principles of Modern Sports Training. Investigation of the scientific basis of cardio-respiratory and strength training programmes. R. Eynon
3 hours lecture. Evening, Half course; one term.

505a or b. Advanced Science and Principles of Modern Sports Training. Investigation of preparation for performance in selected environments and nutrition and performance. R. Eynon
Half course; one term.

506a. The Administration of Physical and Health Education. Examination of selected theoretical administrative concepts and theories in the classroom and in the field. Class hours are devoted to discussion in theory in administration and the research implications of these theories. The field of experience is intended to serve as a laboratory for the examination of theory in a practical situation and will require the student to spend a reasonable amount of time "living in" and analyzing organizational behaviour. G. Paton
3 hours lecture. Evening, Half course; one term.

507a or b. Program Development in Physical and Health Education. Focuses upon program development as it relates to the diverse sport, athletic, recreational, and educational organi-

zations in our field. The approach taken is intended to permit course members the possibility of critically examining their own area of interest. G. Paton
3 hours lecture, Half course; one term.

508b. Anthropometry and Body Composition. Studies the importance of body proportions as related to performances in specific activities and compares variations in human morphology among different groups. Outlines the anthropometric procedures in the determination of body composition. Analyzes the methods and values in the classification of body types. M. S. Yuhasz
2 hours lecture, 2 hours lab, Half course; one term.

510a. A Cultural-Historical Study of Physical and Health Education. A study of body doctrines in Western culture with special reference to the history of physical education. A cultural analysis of the history of the body will be undertaken. Topics include: asceticism, social control mechanisms and the liberation of the body in contemporary society. Some consideration will also be given to meanings of play, work and leisure in Western society. J. Fairs
3 hours lecture, Half course; one term.

511a. The History of Canadian Sport. An investigation of the factors related to the origin, growth and development of the sporting movement in Canada from the 17th century to the present with particular emphasis on examination and interpretation of the literature relative to the roles played by religion, government, population, economics, crises, geography, and entrepreneurship in the rise of the Canadian sporting phenomena. R. Barney
3 hours lecture, Half course; one term.

512a. Health Problems and the Individual. The study of man and his health. Emphasis is placed upon individual health problems and the decision-making process including the role of physical activity in health. G. Wearring
3 hours lecture-seminar, Half course; one term.

513b. Health Problems in Society. The study of health problems related to social and cultural factors. Included is an examination of current societal health problems with implications for modification and change. G. Wearring
Prerequisite: 512a
3 hours lecture-seminar, Half course; one term.

541. Analytical Biomechanics. The study of quantitative human motion analysis including fundamental and advanced techniques in cinematography, electromyography, accelerometry, electrogoniometry and force-time analysis. J. P. Stothart
2 hours lecture, 1 hour lab, Half course; one term.

545a. Growth and Motor Development. The parameters of physical growth; principles of motor development; sequential development in fundamental motor skills; assessment of motor performance in children; learning disabilities and perceptual-motor handicaps in children. D. C. Milne
3 hours lecture, 1 hour lab, Half course; one term.

546a or b. Field Experiences in Motor Development. Supervised advance graduate learning experiences in motor development through in-service training in a variety of remedial perceptual-motor development programs being carried out by various agencies and institutions in the London area. D. C. Milne
Prerequisite: 545a
1 hour lecture, 3 hours lab, Half course; one term.

553a. Theory of Motor Performance. Approaches to the analysis of perceptual-motor skill; components of skill; proprioception and skill develop-

ment; nature of movement; time co-ordination in skill; models of mechanisms underlying skill development; the acquisition of skill. J. Richardson
3 hours lecture, Half course; one term.

554b. Advanced Topics in Motor Learning. Single Channel Operation; the effects of sensory loading; stress and performance; fatigue and performance analog computer simulation. J. Richardson
Prerequisite: 553a
2 hours lecture, 2 hours lab, Half course; one term.

555a or b. Individual Study or Research. Faculty
Half course; one term.

556b. Philosophy of Physical Education and Sport. Introduction to the philosophical analysis of physical education and sport (with some reference to school health and recreation education) in the light of the leading philosophical tendencies; possible implications for educational agencies; analysis of completed research, and the delineation of one's personal philosophy based on the persistent historical problems facing the profession. E. Zeigler
1 hour lecture, 2 hours seminar, Half-course; one term.

557a or b. Advanced Philosophy of Physical Education and Sport. Students with a more specialized interest in this area of investigation are encouraged to familiarize themselves with the body of knowledge in the area. Examples of the various philosophical approaches are analyzed and critiqued. Students are encouraged to carry out an investigation based on the particular approach to investigation which seems to fit their background and interests. E. Zeigler
Prerequisite: 556a
1 hour lecture, 2 hours seminar, Half course; one term.

Note: Students wishing to enrol in 556 or 557 would find it helpful to have certain preliminary courses at the undergraduate level; examples would be introductory courses to philosophy, philosophy of religion, and philosophy of education.

558a. Sociology of Sport. Systematic analysis of social influences upon the practice of sport in North American society. Special attention is devoted to the inter-relationships between sport and various social institutions. B. Petrie
3 hours lecture, Half course; one term.

559b. Social Psychology of Sport. Systematic analysis of the social psychological phenomena influencing the participants in the sporting situation. The inter-relationships between athletes, coaches and spectators and the sources of strain in such relationships are evaluated. A. Carron
3 hours seminar, Half course; one term.

560b. Comparative and International Sport and Physical Education. Systematic examination of sport and physical education in cross-cultural perspective where manifestations of the various forms of physical activities are viewed as being products of the ecological, demographic and sociocultural sub-systems. Theoretical, conceptual and methodological, phases of comparative research will also be considered. D. Semotiuk
2 hours lecture, 1 hour seminar, Half course; one term.

570a or b. Special Topics. Intensive study and discussion of specific topics and/or issues in the areas of sport, dance, play, and exercise. Provides an opportunity for the instructor to explore a particular topic at depth with a small group of students.
1 hour lecture, 2 hours seminar, Half course; one term.

Seminar. Students are required to attend the Graduate Seminar which meets weekly during the second term to hear and to discuss papers and reports on current issues and recent research presented by faculty, visitors and students.

Physics

PHYSICAL SCIENCES BLDG. Room 125

Chairman: W. P. Alford
Professors:
Alford, W. P., BSc UWO; PhD Princeton
Brannen, E., BA, MA Toronto; PhD McGill
Ferguson, H. I. S., BSc, MSc, PhD UWO
Forsyth, P. A., BA, MA Saskatchewan; PhD McGill; FRSC, (Director, Centre for Radio Science)
Hay, D. R., BSc, MSc UWO; PhD McGill
Lyon, G. F., BA, AM, PhD Saskatchewan
McGowan, J. W., BSc St. F.X.; MSc Carnegie Mellon; DSc Laval
Moorcroft, D. R., BASc, MSc Toronto; PhD Saskatchewan
Nuttall, J., BA, PhD Cambridge
Rose, G. S., BSc, PhD Birmingham
Vogan, E. L., BSc, MSc UWO; PhD McGill
Associate Professors:
Bow, Y. F., BS National Chakiang; MS, PhD Michigan State
Froelich, H. R., BSc Berlin; MSc, PhD UWO
Fulford, J. A., BSc, PhD UWO
Jarmain, W. R., BA UWO; MA Wisconsin
John, P. K., BSc Kerala; MSc Madras; PhD Ohio State
Jones, J., BSc, PhD Sheffield
Lowe, R. P., BSc, PhD UWO
Murty, R. C., BSc Andhra; MSc, Dip. Lib. Bombay; PhD UWO
Stewart, T. W. W., BSc, MSc UWO; PhD London
Tong, B. Y., BSc Hong Kong; MLS, MA California, Berkeley; PhD California, San Diego
Whippey, P. W., BSc, PhD Reading
Assistant Professors:
Gaily, T. D., AB Oregon State; MS, PhD Washington
Gallaher, D. F., BASc, MSc British Columbia; MA Toronto; PhD Washington
Lane-Smith, D. R., BSc, MSc Manchester; PhD Durham
Rosner, S. D., BSc Toronto; AM, PhD Harvard
Tunaley, J. K. E., BSc, PhD Sheffield

Many of the following projects are carried out in conjunction with other departments, for example Applied Mathematics, Astronomy, Biophysics, Chemistry, the London Clinic of the Ontario Cancer Treatment and Research Foundation and the Faculty of Engineering Science. Research is also carried out under the auspices of the Centre for Radio Science which maintains laboratories on and off campus. Strong connections exist with local industry.

Atomic and Molecular Physics - Theoretical atomic and molecular structure: theoretical and experimental collision studies involving electrons, ions, positrons, atoms, molecules and photons.

Lasers and Plasma Physics - Molecular and atomic lasers: laser spectroscopy, air pollution studies; interaction with plasmas.

Physics of the Lower Atmosphere (Troposphere) - Studies of thermal convection and atmosphere electricity; vapour, heat and charge transfer in clear air and storm systems. Lightning emissions.

Physics of the Upper Atmosphere (Ionosphere) - Theoretical and experimental studies of the normal and disturbed high atmosphere; ionic inhomogeneities; optical and radar observations of meteor trails, ionic and electronic concentrations and diffusion studies using signals from ground based and satellite borne transmitters; radio aurorae, airglow; radio emissions from the sun at metre wavelengths.

Design and Applications of Accelerators - Racetrack microtrons as sources of electrons and millimetre and submillimetre waves, X-rays and vacuum ultraviolet radiation. Development of the racetrack microtron as an analytical and as a therapeutic device.

Solid State Physics - Theoretical studies of amorphous materials: diffusion and emission of positrons from surfaces giving information on work functions, surface and band properties of solids; experimental studies of the properties of ionic compounds; fluctuations in conducting materials.

Other Programs are being actively followed. In theoretical nuclear physics - scattering and nuclear models; Radiological Physics - medical applications of high energy electrons and X-ray beams and of ultrasound; use of the laser to study photo-absorption and destruction of retinal material.

For greater detail please consult our graduate brochure which is available in many Departments or may be obtained on request.

MSc REQUIREMENTS

The minimum requirements for the MSc degree in Physics may be met in one of the following two ways.

(i) Two half courses from courses numbered 501-509.
Two half courses from courses numbered 501-532
A research thesis (590)

(ii) Four half courses from courses numbered 501-509.
Four half courses from courses numbered 510-532.
A report or review paper (580).
Participation in research (581)

With the permission of the candidate's advisory committee, some graduate courses in other departments may be substituted for those listed above. With similar permission one of the graduate half courses (except 501-509) may be replaced by one undergraduate course at the senior undergraduate level.

PhD REQUIREMENTS

The minimum requirements for the PhD degree in Physics are

Half courses 501-505 inclusive
Five half courses selected from courses numbered 510-532
Courses 601 and 602
A seminar (658)
A research thesis (690)
Competence in digital computer programing

With permission of the student's advisory committee graduate courses from other departments may be substituted for courses numbered 510-532. Credit for work done prior to registration for a PhD in this department will be given up to a maximum of three full courses. Honors graduates of exceptional ability may be

permitted to register directly into a preliminary year of a PhD program. During this year the minimum requirements are half courses 501 to 505 inclusive and a review paper (580) related to the area of the proposed doctoral thesis.

COURSES

501a or b. Classical Physics. Introduction to tensor analysis, relations between the strain tensor and stress tensor, energy of elastically deformed bodies, waves in bounded and unbounded media.
3 lecture hours, Half course; one term.

502a or b. Classical Electrodynamics. Advanced problems in potential theory. Boundary value problems with waves; scattering, radiation and diffraction problems.
3 lecture hours, Half course; one term.

503a. Quantum Physics. A first graduate course in quantum physics. Approximation methods and applications to atomic and molecular physics. Symmetries: angular momentum, spin, the exclusion principle, quantisation of electromagnetic radiation.
3 lecture hours, Half course; one term.

504a or b. Statistical Physics. An introduction to probability theory leading to a discussion of common stochastic processes. The canonical and grand canonical ensembles etc. Applications to simple physical and biophysical systems.
3 lecture hours, Half course; one term.

505a or b. Mathematical Methods of Physics. A course designed to give the student a working knowledge of the methods most commonly used in solving physical problems.
3 lecture hours, Half course; one term.

510a or b. Modern Optics*. Theory and operation of the laser. Laser application, numerical ray tracing, high resolution interferometry, transforms and transfer functions.
2 lecture hours, Half course; one term.

511b. Advanced Quantum Mechanics*. The material is more advanced than that given in 503a. Relativistic quantum mechanics, second quantisation, Feynman diagrams and applications.
2 lecture hours, Half course; one term.

512a. Theoretical Solid State Physics*. One electron and many-electron theories. Properties of metals, semiconductors, insulators and superconductors. Phonons and phonon-electron interactions. Spin interaction and theories of magnetism.
2 lecture hours, Half course; one term.

512b. Theoretical Solid State Physics*. One electron and many-electron theories. Properties of metals, semiconductors, insulators and superconductors. Phonons and phonon-electron interactions. Spin interaction and theories of magnetism.
2 lecture hours, Half course; one term.

513a. Theoretical Nuclear Physics* General properties of nuclear forces, nuclear models and many-body theory. Interactions between nucleons and radiation, nuclear reactors and elementary particles.
2 lecture hours, Half course; one term.

513b. Theoretical Nuclear Physics*. General properties of nuclear forces, nuclear models and many-body theory. Interactions between nucleons and radiation, nuclear reactors and elementary particles.
2 lecture hours, Half course; one term.

514a. Relativity Theory*. Relativity in tensor form. The theory of gravitation. Selected topics in general relativity.

2 lecture hours, Half course; one term.

514b. Relativity Theory*. Relativity in tensor form. The theory of gravitation. Selected topics in general relativity.
2 lecture hours, Half course; one term.

515a. Plasma Physics*. Hydromagnetic approach to a magnetoplasma. Boltzmann equation, waves in a warm plasma. Transport phenomena, stability theory, plasma heating and thermonuclear fusion.
2 lecture hours, Half course; one term.

515b. Plasma Physics*. Hydromagnetic approach to a magnetoplasma. Boltzmann equation, waves in a warm plasma. Transport phenomena, stability theory, plasma heating and thermonuclear fusion.
2 lecture hours, Half course; one term.

516a or b. Theoretical Atomic and Molecular Spectra*. General theory of transition probability and resonances. Nuclear magnetic resonance, electron paramagnetic resonance optical spectra. Molecular beam spectroscopy. Mossbauer effect. Pressure shifts and broadening, wall shifts.
2 lecture hours, Half course; one term.

517a or b. Collision Theory*. A discussion of topics in the quantum theory of collision processes with emphasis or applications to atomic physics.
2 lecture hours, Half course; one term.

521a. Ionised Media in the Terrestrial and Solar Atmosphere*. An introduction to the processes involved and the behaviour of the ionosphere/magnetosphere and solar atmosphere.
2 lecture hours, Half course; one term.

521b. Ionised Media in the Terrestrial and Solar Atmosphere*. The use of radio waves as a diagnostic tool in investigations of the ionised terrestrial and solar atmospheres.
Half course; one term.

522a. Physics of the Lower Atmosphere*. An introductory survey of the physical processes in the terrestrial atmosphere from surface to the lower statosphere. Micrometeorology; transfer of heat, moisture, momentum and pollutants.
2 lecture hours, Half course; one term.

522b. Physics of the Lower Atmosphere*. Atmospheric dynamics, precipitation and electricity (in fair weather and thunderstorm conditions).
2 lecture hours, Half course; one term.

524a. Experimental Spectroscopy*. A study of the spectra of atoms and diamotic molecules leading to a detailed insight into their structure.
2 lecture hours, Half course; one term.

524b. Experimental Spectroscopy*. A selection of topics in modern spectroscopic applications.
2 lecture hours, Half course; one term.

525a. Radiation Dosimetry*. Introduction to dosimetry in therapy and its implications.
2 lecture hours, Half course; one term.

525b. Radiation Dosimetry*. Instrumentation, apparatus and methods.
2 lecture hours, Half course; one term.

526a. Advanced Electronics*. Advanced theory of network analysis and synthesis. Active filters, antenna pattern sythesis.
2 lecture hours, Half course; one term.

526b. Advanced Electronics*. Information theory, Boolean algebra, digital techniques. The philosophy of integrated circuits, principles of high

speed devices and applications.
2 lecture hours, Half course; one term.

531. Current Topics.
2 lecture hours, Half course; two term.

532. Advanced Topics.
2 lecture hours, Half course; two terms.

580. Review Paper. A report or review paper for MSc candidates in option (ii) or candidates in the preliminary year to a PhD.

581. Research Participation. A course for the MSc candidates in option (ii): an introduction to research techniques by participation under the direction of an individual faculty member. This may be theoretical or experimental work undertaken during the summer months.

590. MSc Thesis.

601. Comprehensive Examination I. A required examination for PhD candidates normally taken in the autumn of the year after registration. Its primary purpose is to detect weaknesses in the candidates general knowledge of physics in order that corrective study may be arranged. For that reason those who do not receive a passing mark at the first attempt are permitted to take the examination a second time about six months later. No more than two attempts are permitted.

602. Comprehensive Examination II. An oral examination on the review paper on the candidate's thesis topic; this is obligatory for PhD students. The purpose of this examination is to determine the adequacy of the student's knowledge of his area of research and related areas at the graduate level. It would normally be completed within two years of registration.

658. Graduate Seminar. A comprehensive and critical appraisal of a current or recent development in Physics.
Full course; two terms.

690. PhD Thesis. Attention is drawn to the following courses in Applied Mathematics: 521, 522, 530, 531, 532, and 554. Co-ordination of the offerings of the two Departments, where suitable, is in hand for implementation in 1973-74

* These courses may not be given every year.

Physiology

MEDICAL SCIENCES BUILDING, Room 223
Chairman: V. B. Brooks
Professors:
Armstrong, D. T., BSA Toronto; MS, PhD Cornell (also Professor of Obstetrics and Gynaecology)
Brooks, V. B., BA Toronto; MS Chicago; PhD Toronto
Calaresu, F. R., BA Pavia; MD Milan; PhD Alberta
Dellow, P. G., BDS, MBBS Adelaide; FRACDS
Mogenson, G. J., BA, MA Saskatchewan; PhD McGill (also Professor of Psychology)
Associate Professors:
Bondy, D. C., MD UWO; FRCP (C) (also Professor of Medicine)
Harding, P. G. R., MD, MSc UWO; FRCS (C). (also Associate Professor of Obstetrics and Gynaecology)
Mercer, P. F., DVM Toronto; PhD Cornell
Seguin, J. J., BSc, MSc, PhD UWO
Squires, B. P., BA, MD, PhD UWO

Wiesendanger, M., MD Zurich

Assistant Professor:

Girvin, J. P., MD UWO; PhD McGill (also Assistant Professor of Clinical Neurological Sciences

The Department of Physiology accepts qualified candidates for the degrees of MSc and PhD. The usual requirement for admission is an MD, DDS, or Honors Degree in Science. In special cases, students with other qualifications may be accepted for a Special (Undergraduate) Year to achieve adequate standing. Applications for admission, in the first instance, should be made to the Chairman of the Department.

The research interests of the Department are currently in the following general fields: Neurophysiology, with special emphasis on motor control, central neural control of the cardiovascular system, central neural control of water and energy balance and behavior; nerve muscle physiology; endocrinology and neuroendocrinology of reproduction; cardiovascular physiology; gastrointestinal physiology; oral physiology; perinatal physiology; and renal physiology. Up to date equipment and facilities are available for research in these fields of physiology.

In addition to the general systematic course, tutorials, directed reading and research, graduate seminar courses are provided in co-operation with other Departments of the Faculty.

Students who wish to read for the MSc in Physiology will take, or provide satisfactory evidence of having successfully completed the following courses, or their equivalent: Physiology 500, 501 and 514, a course in Biochemistry and such other courses as the Department may require.

Students who wish to read for the PhD in Physiology will take or provide satisfactory evidence of having successfully completed the following courses, or their equivalent: Physiology 500, 501, 511, 512 and 614, a course in Biochemistry, a course in Statistics, and such other courses as the Department may require.

In arrangement with the Department of Biochemistry, students may take Biochemistry and Physiology as a major subject.

In addition to course and research work, graduate students and fellows in the Department must, as part of their training, demonstrate and tutor in various courses. Specific Departmental regulations for the direction of candidates may be obtained from the Department.

COURSES:

500. Mammalian Physiology. A survey of the physiology of various systems (e.g. cardiovascular, digestive, respiratory, etc.) of the mammal.
(Prerequisites: Chemistry 203 or equivalent; Physics 20 or 22; One of Mathematics 20, 24, 27 or Applied Mathematics 20, Biology 20 or by permission of the Department).
2 lectures, 3 laboratory hours, Full course; two terms.

501. General Physiology and Pharmacology. A survey of cellular and general physiology and general pharmacology.
(Prerequisites: Chemistry 203 or equivalent; Physics 20 or 22; One of Mathematics 20, 24, 27 or Applied Mathematics 20; Biology 20; or by permission of the Department).
2 lectures, Full course; two terms.

511. Current Topics in Physiology A. Discussion of advanced topics in physiology.
Full course; two terms.

512. Current Topics in Physiology B. Discussion of advanced topics in physiology.
Full course; two terms.

514. Tutorial and Comprehensive in Physiology (MSc).

541a. Seminar. The presentation of scientific papers and reports and the writing of essays on assigned topics.
2 hours, Half course; one term.

542a. Physiology of Exercise. A study of the response and regulation of the human cardiovascular respiratory and neuromuscular systems to acute and chronic exercise.
(Prerequisite: Physiology 342 or equivalent)
1 lecture, 3 laboratory hours, Half course; one term.

543b. Neurophysiology. A study of the physiology of the central and peripheral nervous systems. In this course, neurophysiology will be presented at a more advanced level than in Biology 310 or an equivalent survey course in Physiology, but at a less quantitative level than Physiology 463.
2 lectures, Half course; one term.

561a. Systematic Mammalian Physiology. Special physiology of the blood and other fluids, the cardiovascular and respiratory systems.
2 lectures, Half course; one term.

562a. Metabolic and Reproductive Physiology. Role of the endocrine system in regulation of metabolism and reproduction in mammals.
2 lectures, Half course; one term.

563b. Advanced Neurophysiology. Selected major topics in neurophysiology will be studied in detail at an advanced and quantitative level.
(Prerequisites and Corequisites: Biophysics 461a, Anatomy 464 (or equivalents approved by the Department).
2 lectures, Half course; one term.

564b. Systems Analysis in Physiology. The use of control system theory in physiology and a study of some examples.
1 lecture., Half course; one term.

565b. Neurophysiology of Autonomic-Somatic Integration. A study of the integrated responses of the whole animal to environmental changes in terms of the internal and external activities controlled by the nervous system.
2 lecture hours, Half course; one term.

566a. Body Water and Renal Physiology. Body fluid compartments and kidney function.
2 lectures, Half course; one term.

567b. Selected Advanced Topics in Physiology. A seminar course, by arrangement with the Department of Physiology.
Half course; one term.

568b. Laboratory course in Electro- and Neurophysiology. An introduction to experimental electro- and neurophysiology. The course will be oriented towards obtaining quantitative data from experimentation for subsequent analysis. Conference sessions will be held at which results will be discussed and plans for further experimentation made. Minimum 10 hours per week.
(Corequisite: Physiology 463; or equivalent by consultation with the Department)
Half course; one term.

569b. Gastrointestinal Physiology. A study of gastrointestinal secretion, digestion, absorption and motility including hepatic physiology.
2 lectures, Half course; one term.

580. Laboratory and Tutorial. Laboratory research projects and instrumentation in physiology. Open only to honors students in Physiology. Minimum 10 hours per week.
Full course; two terms.

590. MSc Thesis.

614. Tutorial and Comprehensive in Physiology (PhD).

690. PhD Thesis.

Plant Science

BIOLOGICAL AND GEOLOGICAL SCIENCES BUILDING, Room 232

Chairman: J. B. Bancroft

Professors:
Bancroft, J. B., BSc British Columbia; PhD Wisconsin
Cook, F. S., BA, PhD Toronto
Hickman, C. J., BSc, PhD, DSc Birmingham
McKeen, W. E., BSc, MSc, PhD Toronto
McLarty, D. A., BA UWO; PhD Columbia
Orloci, L., BSF Sopron; MSc, PhD British Columbia
Walden, D. B., BA Wesleyan; MSc, PhD Cornell
Wilson, D. G., BA Toronto; BA, MA, Queen's; PhD Wisconsin

Associate Professors:
Cavers, P. B., BSA Toronto; D.I.C. London; PhD Wales
Day, A. W., BSc, PhD Reading
Fahselt, M. D., BA Saskatchewan; PhD Washington
Greyson, R. I., BA British Columbia; MSc, PhD Oregon
Jancey, R. C., BSc, MSc Southampton; PhD Sydney
Hopkins, W. G., BA Wesleyan; PhD Indiana
Phipps, J. B., BSc Birmingham; PhD UWO
van Huystee, R. B., BA, MA Saskatchewan; PhD Minnesota
Wellman, Angela M., BSc, PhD Bristol

Visiting Assistant Professors:
Cummins, J. E., BSc Washington State; PhD Wisconsin
Harle, J. R., BSc, MSc Alberta; PhD Washington State
Hayden, D. B., BSc, PhD UWO
Maun, M. A., MA, MSc American University of Beirut; PhD Washington

Honorary Lecturers:
Lee, T. T., BSc Naking; MSc, PhD Wisconsin
Minshall, W. H., BSA Toronto; MSc, PhD McGill
Richardson, L. T., BA McMaster; MA, PhD Toronto
Ward, E. W. B., BSc Wales; MSc, PhD Alberta

Graduate students are accepted for programs of research, together with course work, leading to the degree of MSc and PhD in Botany. The research interests of the Department are as follows:

ECOLOGY. Plant Population Dynamics; comparative ecology of closely related species living in the same area; seed dormancy and seedling establishment. Ecological impact of herbicides on the reproductive biology of plants in artificial and natural ecosystems; effects of pollutants on germination, growth, and reproduction of trees; floral induction and initiation in the Gramineae. Analysis of vegetation and environment, including ordination, classification, and species pattern. Acclimatization of plants to cold; influences of photoperiod and growth regulators on increased resistance to cold injury.

GENETICS. The control of gene duplication and expression. The genetic and cell cycle aspects of morphogenesis. Mitotic segregation, cell cycle and genetic control of plasmogamy and karyogamy, and somatic nuclear division in fungi. Inheritance of parental flavonoid compounds, biochemical pathways of hybrids. The description of genetically determined organ variability in plants *(Lycopersicum, Nigella,* and *Zea)*. Chemical mutagenesis and genetic analysis of induced mutants in *Arabidopsis*. Genetic control and function of isozymes of dehydrogenases and

proteases in higher plants. Genetic control of pigment accumulation and plastid development in mutants of maize. Numerical analysis of chromosome structure and breakage point data. Somatic cell cytogenetics *(Zea)*, with particular reference to analysis of variation in chromosomes, a study of somatic association, and chromosome replication; autoradiographic studies of nuclear cycle, including the action of some chemicals on chromosome breakage. Aspects of germination and growth of adenine-requiring mutants of *Neurospora;* mutation rates during cryogenic storage of fungi.

GROWTH AND DEVELOPMENT. Influences of parent plants and their environment on seed size, dormancy and germination patterns. Development and characteristics of isoenzymes of malic dehydrogenase in maize tissue: germination, growth and development of pollen and spores; occurrence and distribution of bryophytes in Southwestern Ontario. The cell cycles of lower eukaryotes emphasizing the regulation of replication and morphogenesis. Analysis of initiation and growth of flowers and other organs and an analysis of hormonal control of organogenesis. Developmental and physiological characteristics of chloroplast mutants of maize. Molecular development of chloroplast structure and photosynethetic activities. The relationships between metabolic patterns and growth and differentiation of cells; isozyme patterns of various cell populations in tissue cultures of *Arachis hypogaea.* Floral induction, initiation, and development of inflorescence in cool season grasses. Analysis of aberrant phyllotaxy in maize; physiological genetics of corn pollen. Investigations of course and rate of breakdown of 'native' lignin by microorganisms; metabolism of aromatic acids which are derivable from lignin; studies on the occurrence and metabolism of organic acids. Physiology of herbicidal action; metabolic root pressure and solute uptake.

MICROBIOLOGY. Biological and biophysical characteristics of certain simple icosahedral plant viruses and their inheritance. Genetic and developmental studies of *Ustilago violacea.* Biology of plant pathogenic fungi, especially phycomycetes; root-fungus relationships; biology of zoospores; chytrid parasitism of algae. Powdery mildews and their host-parasite relationships. Field and laboratory studies of fresh water algae; Eutrophication of inland waters. Cryogenic storage of biological materials, mechanisms of resistance to freeze thaw injury; cytology of somatic nuclei in fungi; regulation of germination; ethane, methane and natural gas oxidation by fungi; systematics of some Fungi Imperfecti. Effects of pesticides on soil microflora in relation to plant disease control; selective toxicity and mode of action of systemtic fungicides. Physiology of psychrophilic fungi, especially plant pathogens; chemical factors in disease resistance.

SYSTEMATICS AND STATISTICAL PLANT SCIENCES. Biochemical systematics with emphasis on flavonoids, alkaloids and free amino acids, and evaluation of their usefulness as taxonomic characters. Depsides and depsidones as criteria in lichen taxonomy. Quantitative taxonomic studies in the tribe Podalyrieae (Leguminosae). Statistical ecology and systematics of plant populations. Studies in the theory and methodology of systematics, particularly the effect of character selection on classification. Biosystematics of Ontario *Crataegus* (hawthorn).

COURSES:

The topics of each course vary from year to year as well as with the instructor or instructors concerned.

Credit may be obtained for the same course in successive years. The courses may be given in one term only.

550. Advanced Morphogenesis and Differentiation/R. I. Greyson. Selected topics in differentiation and morphogenesis in plants.
2 hours, Full course; two terms.

552. Advanced Plant Physiology and Biochemistry/F. S. Cook, D. B. Hayden, W. G. Hopkins, D. G. Wilson. Selected topics in the physiology and biochemistry of growth, development and metabolism.
2 hours, Full course; two terms.

553. Advanced Ecology I/P. B. Cavers, M. A. Maun. L. Orloci. Topics in Experimental Plant Ecology, Sampling Theory, and Experimental Design.
2 hours, Full course; two terms.

554. Advanced Genetics I/J. E. Cummins, A. W. Day, M. D. Fahselt, J. R. Harle, D. B. Hayden, D. B. Walden, A. M. Wellman. Topics in Biochemical Genetics, Cytogenetics and Microbial Genetics.
2 hours, Full course; two terms.

556. Biochemical Systematics/M. D. Fahselt. Topics in Biochemical systematics, including flavonoids, alkaloids and amino acid distribution.
2 hours, Full course; two terms.

558. Numerical Techniques in Taxonomy/R. C. Jancey, J. B. Phipps. Topics of historical and current interest in numerical taxonomy.
2 hours, Full course; two terms.

559. Philosophy of Systematics/R. C. Jancey, J. B. Phipps. A study of the historical development and theory underlying various approaches to Systematics.
2 hours, Full course; two terms.

560. Freshwater Algae/D. A. McLarty. Topics of current interest will be considered that relate to the nutritional requirements of fresh water algae with particular reference to the role that they play regarding artifical eutrophication.
2 hours, Full course; two terms.

561. Virus/J. B. Bancroft. Biophysics, biochemistry and biology of plant viruses.
2 hours, Full course; two terms.

570. Mycology and Plant Pathology/C. J. Hickman, A. M. Wellman. Current topics of importance and interest in mycology and plant pathology.
2 hours, Full course; two terms.

571. Host-parasite Relations/W. E. McKeen. Principles of penetration, infection colonization and resistance to plants.
2 hours, Full course; two terms.

590. MSc Research and Thesis /Staff.

652. Advanced Plant Physiology and Biochemistry II/F. S. Cook, D. B. Hayden, W. G. Hopkins,. D. G. Wilson. Selected topics in the physiology and biochemistry of plants.
2 hours, Full course; two terms.

653. Advanced Ecology II/L. Orloci. Topics in the Theory of Vegetation Classifications
2 hours, Full course; two terms.

654. Advanced Genetics II/J. E. Cummins, A. W. Day, M. D. Fahselt, J. R. Harle, D. B. Hayden, D. B. Walden, A. M. Wellman. Selected topics of current interest in genetics.
2 hours, Full course; two terms.

659. Advanced Radiobiology/R. B. van Huystee. Current topics of interest and importance in the radiobiology of cells.
2 hours, Full course; two terms.

690. PhD Research and Thesis /Staff.

GRADUATE

Political Science

SOCIAL SCIENCE CENTRE, Room 3266

Chairman: B. B. Kymlicka

Professors:

Barnard, F. M., BA, MA Oxon; PhD Leicester
Beecroft, E., BA, MA Toronto; PhD Yale
Dawson, W. F., BA Toronto; MA Queen's; DPhil Oxon
Hossé, H. A., BA, MA Manitoba; PhD Ottawa
Pearson, N., BA Durham; FRTPI

Associate Professors:

Cartwright, J. R., BA Queen's; MA, PhD Toronto
Dobell, W. M., BA McGill; MA, BLitt Oxon
Dunlop, C. C., BA, MA Queen's
Kymlicka, B. B., BA British Columbia; MA, PhD Columbia
Melvin, R. A., BA Manitoba; PhD Alberta
Noel, S. J. R., BA Memorial; MA, DPhil Oxon
Sansom, T. R., BA New Brunswick; PhD London

Assistant Professors:

Cohn, T. H., BA Michigan; MA Wayne State; PhD Michigan
Khanh, H. K., BA Johns Hopkins; MA Lehigh; PhD California
McDougall, A. K., BA McGill; MA Carleton; PhD Toronto
Vernon, R. A., BA Cantab; MA Sussex; PhD London
Westmacott, M. W., BA Calgary; MA Carleton; PhD Alberta

FIELDS OF STUDY

The Department offers three fields of study for doctoral candidates: Canadian government and politics, including intergovernmental relations and provincial government; urban and regional studies, with particular emphasis on public administration and inter-disciplinary approaches to urban problems; and political theory, with special emphasis on the Enlightenment, 19th century thought and contemporary theory. Also offered at the M.A. level are programs in international relations and comparative politics, the latter covering studies of Western and Eastern Europe, Latin America, Africa and Asia.

MA DEGREE

Admission Requirements

Candidates are admitted at the discretion of the Department. Applications for admission and all supportive documentation must be submitted by August 12th. The minimum requirements for admission are as follows:

1. Graduation in Honors Political Science from The University of Western Ontario with first or second class standing or graduation from another accredited university with an equivalent degree and standing.
2. Graduation in Honors or four-year programs other than Honors Political Science from The University of Western Ontario or another accredited university, provided that the applicant achieved a first or second class standing in his program and has successfully completed six undergraduate political science courses distributed among the major fields of political science, with an average standing in these courses of at least second class honors. At the discretion of the Department, one or two closely related courses in subjects other than Political Science may be substituted for one or two of the six political science courses.

3. Graduation in ordinary General degree programs of The University of Western Ontario or other accredited universities with first or second class standing, plus the completion of a Special (Undergraduate) Year, consisting mainly of senior honors political science courses, with first or second class standing.

Period of Study

Applicants who meet one of the above requirements will need a minimum of one year in attendance.

Requirements

Three graduate courses and a thesis are required for the degree. No more than two courses may be in any one sub-field of the discipline. In exceptional circumstances, and with the prior approval of the Department, a candidate may take one graduate course offered by another Department or Faculty of the University.

The thesis, in which the candidate must exhibit his ability for research and critical judgment, must be defended orally. The Department also reserves the right to require an oral or written comprehensive examination which would cover the three courses chosen by the candidate and/or to require the candidate to withdraw at any time if his work is unsatisfactory.

PhD DEGREE

Admission Requirements and Periods of Study

Candidates must normally hold an MA degree in Political Science or its equivalent, and they will be required to spend at least two years in residence. Application for admission and all supportive documentation must be submitted by August 12th

Requirements

1. **Courses:** Candidates will normally be required to take three courses in their first year of residence, one of which will be Political Science 500 (if not already taken as part of the MA program) and the remaining two related to his PhD thesis field. A graduate course offered by another Department may be substituted for one of the two non-compulsory courses; in that case, however, permission of both Departments concerned must be obtained first. Candidates must obtain at least a B grade in all courses and may be asked to withdraw at any time if in the Department's judgment their work is unsatisfactory.
2. **Candidacy Examination:** At the end of his first year in residence, the candidate will be required to undergo an oral comprehensive examination which will cover mainly, though not exclusively, three fields of specialization chosen by the candidate.
3. **Languages:** The Department will require the candidate to have a satisfactory knowledge of any language or languages, classical or modern, which may be necessary to his field of research.
4. **Statistics:** The Department will require the candidate to have skill in statistics whenever necessary to his field of research.
5. **Thesis:** A thesis showing evidence of scholarly research and orginality is the major requirement. The candidate will select a topic in consultation with his advisor. An outline of the proposed thesis must be submitted to the Department for approval, normally at the end of his first year in residence. The thesis must be defended at a faculty oral examination.

GRADUATE

COURSES:

500. The Scope and Method of Political Science.
Full course; two terms.

501. Contemporary Political Thought.
Full course; two terms.

502. Research Techniques and Social Statistics.
Full course; two terms.

503. History of Political Thought.
Full course; two terms.

504. Selected Problems in Political Philosophy.
Full course; two terms.

505. Political Psychology.
Full course; two terms.

510. Theories of International Politics.
Full course; two terms.

511. International Organization.
Full course; two terms.

512. Studies in Foreign Policy.
Full course; two terms.

520. Provincial and Local Government in Canada.
Full course; two terms.

521a. Politics of Urban Planning.
Half course; one term.

521b. Politics of Regional Planning.
Half course; one term.

522. *Development* Aspects in Industrializing Nations. (Offered jointly with Geography and Sociology)
Full course; two terms.

523. Municipal Administration in Canada and Abroad.
Full course; two terms.

530. Canadian Governmental Institutions.
Full course; two terms.

531. Canadian Political Processes.
Full course; two terms.

532. Comparative Federalism.
Full course; two terms.

540. Canadian Public Administration.
Full course; two terms.

541. The Policy-Making Process.
Full course; two terms.

542. The Control of Administration.
Full course; two terms.

543a. Managing the City-Canadian Aspects.
Half course; one term.

543b. Managing the City-International Aspects.
Half course; one term.

545. The Politics and Administration of Pollution Control.
Full course; two terms.

550. United States Government and Politics.
Full course; two terms.

560. Comparative West European Politics.
Full course; two terms.

561. Comparative Communist Systems.
Full course; two terms.

562. The Politics of Developing Countries.
Full course; two terms.

564. The Commonwealth.
Full course; two terms.

565. Electoral Studies.
Full course; two terms.

570. Selected Topics.
Full course; two terms.

590. MA Thesis.

690. PhD Thesis.

All courses listed are not necessarily offered every year. For further information write to the Chairman, Graduate Committee, Department of Political Science.

Psychiatry

UNIVERSITY HOSPITAL, Room 100F21

Chairman: G. F. D. Heseltine

Professors:

Aufreiter, J., MD, LMCC Vienna; FRCP (C)
Heseltine, G. F. D., BA Manitoba; LMSA West London; DPsych. McGill; CRCP (C); MRC Psych Eng; MRCP (Eng); FRCP (C); FAPA
Hobbs, G. E., BA, MD Toronto; MPH Michigan; FRCP (C), FAPA

Associate Professors:

Bacal, H. A., BA, MDCM McGill
Keil, W. E., MD UWO; FRCP (C)
Mai, F. M., MB S. Africa; MD S. Australia
MacPherson, C., BSc Mt. Allison; MSc, Dalhousie; PhD Columbia
Max, P., BA, MD UWO; FRCP (C)
Tillmann, W. A., MD, MSc UWO; FRCP (C)

Clinical Associate Professors:

Goldberg, B., BSc New Brunswick; MDCM Dalhousie; FRCP (C)
Wickware, D. M., MDCM Queen's; DPsych Toronto; FRCP (C)

Assistant Professors:

Frelick, L., MD Queen's; FRCP (C)
Gort, G. H., MD Alberta; FRCP (C)
Jurjans, V., MD Tuebingen; FRCP (C)
McLeish, J. C., MD UWO; FRCP (C)

Clinical Assistant Professors:

Aufreiter, G., MD Vienna
Conlon, M. F., MB Ireland; DPM London; MRC Psych. London, England
Deinum, E. Jeanne, MD UWO; DPsych Toronto; FRCP (C)
Dubois, J. R., BSc, MD Michigan; FRCP (C)
Galbraith, D. A., MD UWO; FRCP (C)
Heasman, G. A., MB, BS London; MRC Psych; FRCP (C)
Summerby, J. H., BSc, MDCM McGill; FRCP (C)
Thompson, M. G., BSc, MD Toronto; DPsych.; FRCP (C)

Graduate training in Clinical Psychiatry is provided for suitable applicants wishing to qualify for Certification or Fellowship examinations of the Royal College of Physicians and Surgeons of Canada.

The program for postgraduate training in psychiatry is oriented toward a dual goal. Its aim is to give medical practitioners a solid foundation in basic psychiatry and the opportunity to develop expertise in a special area of interest.

On the individual level, the program is designed to allow the student ample opportunity for expression of his own unique ingenuity and scientific curiosity. The teaching staff offer core material, guidance in its manipulation and aid in the student's pursuit and utilization of current theoretical concepts. Wherever possible, flexibility of choice in time, place and pace for learning is left to the postgraduate. Through representation on committees, residents are expected to participate actively in departmental decision making processes. The department therefore encourages applications for residency programs from students who will maintain a healthy skepticism and a constructively critical attitude toward both the program and the subject matter contained therein.

The academic and clinical work is individualized to meet the needs of the particular postgraduate while at the same time it is comprehensive enough that

the resident receives the required core training in the many areas necessary for the Royal College examinations.

In his first two (core) years the resident concentrates on the basic body of knowledge necessary for assessment, formulation, diagnosis, treatment and prevention of mental illness. In his last two (specialty tract) years he continues his supervised long term psychotherapy cases while delving more deeply into the concepts and techniques applicable to the subspecialty of his choice. Throughout, every effort is made to ensure that the academic and clinical aspects of the program are experienced.

A. PHASE 1 - CORE PROGRAM

For the purposes of core training in the resident's first two years the hospitals are treated as specialized modules in a total learning continuum. Each hospital has a director of education and an education committee and each is responsible for a defined area of the total program. The subject matter has been divided into sections which closely correspond to that in some of the major textbooks.

The principal areas of concentration in seminars, lectures and clinical demonstrations in the four core modules may be outlined as follows:

Module 1: The London Psychiatric Hospital and St. Thomas Psychiatric Hospital are responsible for teaching programs in the following areas:

1. History of Psychiatry
2. Assessment in Psychiatry
3. The Psychiatric Syndromes - The Organic and Functional Psychoses
4. Personality Disorders - Sexual Deviations
5. Psychiatric Emergencies
6. The Organic Therapies - Physical and Psychopharmacological
7. Geriatric Psychiatry
8. Forensic Psychiatry
9. Health Service Delivery System
10. Fields Related to Psychiatry - Psychology, Social Work, Psychiatric Nursing, others.

The lectures and seminars on the above topics concentrate on assessment, psychiatric emergencies and the functional and organic psychotic disorders.

Module 2: St. Joseph's and Victoria General Hospitals, with their allied community agencies, are responsible for teaching in the following areas:

1. Current Theories of Personality and Psychopathology - Classical Psychoanalysis, Cultural and Interpersonal Psychoanalytic and Psychodynamic Theories and Personality Theories derived from Psychology
2. Psychiatric Syndromes - Psychoneurotic Disorders, Personality Disorders, Stress Reactions, Addictions, and Border Line States
3. Psychotherapies - Individual, Group, Family, Milieu, and Evaluations of Psychiatric Treatment

Module 3: The Children's Psychiatric Research Institute, Children's War Memorial Hospital and Madame Vanier Children's Services are responsible for teaching in the following areas:

1. All of Child and Adolescent Psychiatry, including assessments, functional and organic psychoses, the neuroses and personality disorders, and the treatments used therein.
2. Mental Retardation

3. Genetics in Psychiatry
4. Sociology and Psychiatry
5. The Role of the Family in Psychiatry
6. Epidemiology
7. Hallucinogens
8. Concepts of Normality in Psychiatry
9. Normal Psychosexual Functioning

Concentration is on number 1 of the above. This module also has some seminars on current theories of personality and psychopathology and introduces the student to learning theory.

Module 4: The University Hospital in this module, attempts to cover many of the academic areas not previously elucidated in the first three modules. It covers the following areas:

1. Basic Biological Sciences - Neurochemistry, Psychopharmacology, Sleep and Dreams, Neurophysiology (with concentration on the cortex and limbic system)
2. The basic Psychological Sciences - Perception, Cognition, Memory, Learning, Motivation, Ethology and Social Communication
3. Basic Sociocultural Sciences - Anthropology and Psychiatry, Sociology and Psychiatry
4. Experimental Psychopathology
5. Neurology
6. Psychosomatic Medicine
7. Psychiatric Disorders not in standard nomenclature - atypical psychoses, post-partum disorders, others

B. PHASE 2 - SPECIALTY TRACTS

For his second two-year period the resident delineates a personal program with his tutor, the department and the coordinator of the particular specialty network in which he wishes to further concentrate. The following are among the networks available for specialty training: Child & Youth, Geriatric, Forensic, the Psychotherapies (individual, family and group), the Behavioral Therapies, Liaison, Community, Psychoanalysis, Psychosomatic Research.

A detailed description of the Program is available on request.

Psychology

SOCIAL SCIENCES CENTRE, Room 7406

Chairman: W. J. McClelland
Professors:
Gardner, R. C., BSc Alberta; MSc, PhD McGill
Jackson, D. N., BSc Cornell; MS, PhD Purdue
McClelland, W. J., BA, MA Toronto; PhD London
Mogenson, G. J., BA, MA Saskatchewan; PhD McGill
Neal, Leola E., BA, MA, PhD Toronto. Dean of Women
Paivio, A. U., BSc, MSc, PhD McGill
Turner, G. H., BA, MA, PhD Toronto

Vanderwolf, C. H., BSc Alberta; MSc, PhD McGill
Williams, D. C., BA Manitoba; MA, PhD Toronto. President and Vice-Chancellor
Wright, M. J., BA UWO; MA, PhD Toronto

Associate Professors:

Bucher, B. D., AB Knox; PhD Princeton; PhD Pennsylvania
Chambers, D. A., BA British Columbia; MSc, PhD McGill
Denny, J. P., BA Toronto; PhD Duke
Kendall, S. B., BA Indiana; PhD Emory
Kimura, D., BA, MA, PhD McGill
Lobb, H. O., BA, BEd, MEd Saskatchewan; PhD Toronto
Murray, H. G., BA, MA UWO; PhD Illinois
Pederson, D. R., BA Minnesota; MA, PhD Iowa
Pylyshyn, Z. W., BEng McGill; MSc, PhD Saskatchewan
Reitz, W. E., BA Pennsylvania State; MA Illinois; PhD Pennsylvania State
Roberts, W. A., BSc Maryland; MA, PhD Bryn Mawr
Rollman, G. B., BA Rochester; MA, PhD Pennsylvania
Schnore, M. M., BA, MA UWO; PhD McGill
Siess, T. F., BA Valparaiso; PhD Minnesota
Taylor, F. W., BA, MA, PhD Toronto
Vidmar, N. J., AB MacMurray; AM, PhD Illinois
Wilkinson, F. R., BA Utah; MA Hawaii; PhD Michigan State

Assistant Professors:

Baran, D., BA McGill; MA Columbia; PhD Michigan
Boles, J., BA Cornell College; PhD Indiana
Carlson, P. M., BS Wisconsin; PhD Washington
Chamberlain, L. W., BSc UWO; PhD Keele
Evans, D. R., BA Toronto; MA Ottawa; PhD Toronto
Fay, T. L., BA Michigan; MS, PhD Northwestern
Hamacher, J. H., BA UWO; MA Toronto; PhD Cornell
Murphy, K. C., BA, PhD Minnesota
Neufeld, R. W. J., BA Alberta; MSc, PhD Calgary
Pepper, S., BA Toronto; PhD Stanford
Prytulak, L. S., BA Toronto; PhD Stanford
Reberg, D., BA, MA Western Michigan; PhD McMaster
Siegel, J. A., BA Purdue; PhD Michigan
Siegel, W., BA Toronto; PhD Michigan
Simner, M. L., BA Syracuse; MSc North Carolina State; PhD Cincinnati
Smeriglio, V. L., BA Brown; MA, PhD Iowa
Sorrentino, R. M., BA S.U.N.Y. Buffalo; MA American; PhD S.U.N.Y. Buffalo
Spence, I., MA Glasgow; MA Guelph; PhD Toronto
Stone, G. L., BA U.C.L.A.; MA, PhD Michigan State
Van Fleet, F. M., BA, MA McMaster; PhD Colorado

ADMISSION REQUIREMENTS:

M.A. Degree:

A student must have obtained an average of at least second class honors (B standing) in the final two years of his undergraduate work combined, to be admitted to the Faculty of Graduate Studies.

Ph.D. Degree:

An M.A. degree in psychology is currently required for admission as a Ph.D. candidate in the Department. The Department strongly prefers to admit students at the M.A. level, initially.

DEADLINE DATE FOR APPLICATIONS:

Applications should be received by **January 15** of the year in which admission to the Faculty of Graduate Studies is sought. Late applications can rarely be considered. Admission is normally effective in the Fall Term only.

RESEARCH AREAS AND SPECIALITIES:

The graduate program provides advanced training in general psychology with specialization in clinical and experimental psychopathology, cognition and verbal processes, developmental, educational, experimental social, learning and motivation, measurement, occupational psychology and counselling, personality, physiological and comparative, sensation and perception. The nature of the clinical, and of the counselling, program is such that students require more than the minimum number of courses set by the Department. In addition, clinical students serve three summers in an agency such as a hospital or clinic.

Facilities for experimental research in the new Social Science Complex include animal laboratories, rooms specially designed for research with human subjects in perception, psychophysiology, learning, developmental, personality and experimental social psychology and in addition, a preschool for observation and research into child development, educational curricula, materials and teaching methods. Standard equipment is available, and additional special equipment necessary for a student's research may be purchased. Facilities to aid in running experiments include a PDP-8 and two PDP-12 computers complete with analog converter, oscilloscope, floating point processor, etc. An engineering shop, an audio-visual unit, a work shop, and electronic consultants are available. Data processing equipment includes programmable and standard calculators. The department also has easy access to the Social Science Computing Laboratory which provides service on the University's large DEC System 10 computer installation and, via remote batch terminals, on the University CDC Cyber 73/14 system. The former operates in both a time-sharing and batch mode, while the latter operates as a batch processor. The Social Science Computing Laboratory provides time-shared instructional service on its own PDP-11/45. The laboratory staff includes student assistants, programmers, and systems analysts who are available for consultation.

In addition to the Department of Psychology in the new University Hospital on campus, potential field settings (and sources of subjects) for research include, in addition to industry and schools, three mental hospitals, psychiatric wards in two general hospitals, an Alcoholism and Drug Addiction Research Foundation, a Child Guidance Clinic, a Children's Psychiatric Research Institute, and a Crippled Children's Treatment Centre. Four mobile laboratories are available for off-campus research.

DEGREE REQUIREMENTS:

M.A. DEGREE:

Candidates are normally required to take three graduate courses, and to submit a thesis based on an empirical or theoretical investigation of a problem within some area of psychology.

The minimum residence requirement is one academic year of full-time study by a candidate with a Canadian Honors degree or its equivalent. Students do not normally complete thesis requirements for the degree in the Spring but may have to finish before Fall if becoming Ph.D. students. An M.A. of quality must be completed for continuation in the Ph.D. program, if not required for admission.

GRADUATE

PH.D. DEGREE:

The emphasis is on the training of scientists, with practitioners being trained on the scientist-practitioner model. The program typically includes graduate seminars and tutorials, a comprehensive examination in one area of specialization, and a dissertation based on a research project. Individual programs of study are encouraged. The minimum residence requirement is three academic years of full-time study after an Honors level Bachelor's or two after a Master's degree but minimum residence is usually insufficient.

PART-TIME STUDIES:

Students who wish to undertake graduate work on a part-time basis will be admitted only at the discretion of the staff in the area concerned.

COURSES:

500. Learning and Motivation. Introduction to S-R and S-S theories of learning; classical conditioning; operant conditioning; discrimination learning; punishment; stimulus generalization; problem solving; partial reinforcement; frustration theory; sequential theory; memory processes; and motivational models. /S. Kendall, W. Roberts
Full course; two terms.

501. Advanced Learning. This weekly seminar, attended on a regular basis by several faculty members, reviews current research topics in learning at an advanced level. All students in Learning are expected to attend and participate. Second or Third Year students may wish to take the course for credit. /H. Murray
Full course; two terms.

512b. Visual Psychophysiology. This seminar course on the Psychophysiology of Vision illustrates current issues and basic concepts of sensory physiology. Emphasis is on basic receptor process, neural coding (of color, form, binocular vision, etc.), control of eye movements, "polysensory" systems, and the development of vision. Format: Weekly assignments of about 5 articles as bases for discussion led by instructor. No exams; grades based on doing assignments and contributing to discussions. /J. Boles
Half course; one term.

513b. Graduate Seminar in Perception. This seminar examines current literature on attentional deficits and reading disabilities. /W. Siegel
Half course; one term.

522. Physiological and Comparative Psychology. Selected topics in Physiological and Comparative Psychology, most are covered in depth, although in a few cases only contemporary issues and developments are discussed. Topics likely to be covered 1973-74 include: 1) Sensory systems, 2) cortical function, with emphasis on studies in man, 3) CNS function in learning and memory, 4) CNS function in natural behavior, 5) research presentations by faculty and students. /D. Baran, G. Mogenson C. Vanderwolf
Full course; two terms.

530. Advanced Developmental Psychology. Seminar course focusing on developmental changes in infancy and early childhood, gives the student a rounded picture of important aspects of development. Major topics include perinatal development language and cognitive development, social learning, peer relations, and perception. /M. Simner, V. Smeriglio, J. Hamacher, D. Pederson
Full course; two terms.

533a. Developmental Psychology (Language Acquisition). An examination of major theories and current research in the development of a first language. Discussion is directed primarily towards the following questions: 1) What kinds of capacities do young children have for learning language? 2) What is the role of the parent in children's language develop-

ment? 3) What is the relationship between language and general cognitive development? /J. Hamacher
Half course; one term.

533b. Issues in the Development of Visual Perception. The seminar issues focus on the development of form and color perception, spatial organization, size and shape constancy, reading skills, and perceptual dysfunction in the visual modality. Coverage of individual topics is geared to student presentation and class discussion. /M. Simner
Half course; one term.

536. Early Childhood Education. Enrolment limited: by permission of instructor.
Conduct of Course: informal, including independent study, tutorials (or seminars) and practicums. Students are associated with the laboratory preschool, attend special staff conferences and do practice teaching.
Content: Nursery school theory, practice and research. A critical examination of some contemporary approaches to preschool education. /M. Wright
Full course; two terms.

540a. Research Design. A course in statistics, with emphasis on a consideration of theory and assumptions underlying simple statistics, correlation, factor analysis and analysis of variance. Experience with the computer is encouraged. /R. Gardner
Full course; two terms.

540b. Research Design. An introduction to the logic and statistics of experimental design. The course is computer oriented and emphasizes practical aspects of data analysis. /I. Spence
Full course; two terms.

543. Mathematics for Psychologists. For those who wish to make up any perceived deficit in their mathematical backgrounds. The actual content varies according to the interests of those enrolled. Possible topics include selections from probability, statistics, vector and matrix algebra, numerical analysis, computer programming, and differential and integral calculus. /L. Chamberlain
Full course; two terms.

560. Experimental Social Psychology. A broad introduction to the literature, concepts, issues and methodological techniques in social psychology. Specific substantive areas include attitudes, beliefs, and values, social interaction, person perception, social influence processes, and group dynamics. The second term covers major empirical procedures, including observation, attitude measurement, field surveys, and experimentation employed in social psychology, their features as well as the applicability in terms of methods and designs. /R. Norman, R. Sorrentino
Full course; two terms.

565. Special Topics in Social Psychology. This course covers group dynamics, attitude measurement and attitude change. Group dynamics topics considered include social interaction and communication in groups, the basis of group influence, group cohesiveness, group norms and conformity processes, group structure and leadership. Attitude measurement encompasses standard attitude measurement theory and techniques with special emphasis on Likert, Thurstone, Guttman and Semantic Differential methods. Research relevant to the major contemporary theories of attitude change are considered in the final section. /R. Gardner, R. Norman, R. Sorrentino
Seminar, Full course; two terms.

570. Verbal Learning and Memory. Evaluation of contemporary theory and research in verbal learning and memory. Stimulus and response parameters; coding and mediating processes; structure and organization; deficits and pathology; development and individual differences. /A. Paivio
Full course; two terms.

580a. Assessment of Personality and Intellect. Emphasis on theoretical and research problems in the assessment of personality, intellect, vocational interests, and psychopathology. Topics include personality scale construction, factor analysis, response styles, faking, and the assessment of invalidity, clinical judgments and inference, actuarial characterization of a person and computer-based interpretation, differential diagnosis and other recurrent themes. Tests reviewed include the MMPI, the Personality Research Form, the Jackson Personality Inventory, the DPI, and the Jackson Vocational Interest Survey. Opportunities provided for individual projects. /D. Jackson
Half course; one term.

581a. Personality Theory and Research. A research-oriented analysis of representative personality theories; a consideration of methods and findings in various areas of personality research; an analysis of the issues involved in the empirical investigation of personality. /S. Pepper
Half course; one term.

582b. Assessment of Personality and Intellect (Advanced). Advanced topics in areas described in Psychology 580a. /D. Jackson, W. Reitz
Half course; one term.

583. Laboratory and Personality Assessment. Administration, scoring interpretation and clinical use of major intellectual and personality assessment devices. /W. Reitz
Half course; two terms.

600. Education. Introduction to educational psychology; application of psychological principles in education; educational research; educational measurement and individual differences; role of psychologists in educational settings; teaching and learning; teachers and learners; models of the classroom and school environment; consideration of special topics such as innovation, creativity, programmed learning, cultural differences, the college setting, and others depending upon the interests of those in the course. /S. Frisch
Full course; two terms.

610a. Laboratory in Adult Behavior Modification. Supervised experience in application of behavior change procedures with adults. /D. Evans
Half course; one term.

611b. Laboratory in Child Behavior Modification. Supervised experience in application of behavior change procedures with children. /B. Bucher
Half course; one term.

612b. Laboratory in Community Psychology. Supervised experience in application of behavioral principles to social units. Emphasis on consulting process with community caretakers. /J. Boles
Half course; one term.

622b. Mental Retardation. Critical evaluation of psychological conceptions of mental retardation, including definition, etiology, assessment and treatment. /H. Lobb
Half course; one term.

624b. Psychotherapy Research. A review of major theoretical and methodological issues in the field of psycholtherapy research. Important examples of existing psychotherapy research are critically examined. The problem of adequate experimental control and the development of suitable outcome criteria receive special attention. /P. Carlson
Half course; one term.

625a. Behavior Modification. Learning foundations of behavior modification; with analysis of these modern Therapeutic techniques and the associated conceptualizations of abnormal behavior. /B. Bucher, S. Kendall
Half course; one term.

627a. Psychopathology. Research and theory in understanding psychopathological states and their treatment. /D. Evans
Half course; one term.

627b. Psychopathology. Quantitative methods in psychopathology; assessment techniques for investigating clinical issues. /J. Neufeld
Half course; one term.

628a. Community Psychology. Acquisition, maintenance and change of community behavior. Design and evaluation of community services relevant to disorded behavior. /W. Reitz
Half course; one term.

630. Counselling Theories and Practice. First term: The major theoretical approaches to counselling as they relate to each other and to the students' current approach to counselling. Primary sources are used and students prepare written reports on each approach from these sources. Taped examples of each approach are discussed. A final paper on the students' own theoretical approach to counselling is also written.
Second term: Prepracticum-a performance-based approach to counsellor preparation. Students are systematically introduced to the various aspects of the counselling process. Included are the skills associated with the different components of the counselling process, i.e., establishing a helping relationship, information gathering, assessment, problem-solving, goal-setting, case management, termination, and evaluation. Demonstrated mastery of the counselling skills is a prerequisite for enrollment in Psychology 631. /K. Murphy, G. Stone
Full course; two terms.

631. Interviewing Techniques in Counselling. To learn the basic interviewing skills necessary for effective counselling, students participate in seminars combined with actual counselling experience in a service setting. Individual cases are presented in seminar and students are closely supervised by the group of counselling faculty members responsible for the course. Ten to twelve hours per week of actual student time is required plus the completion of relevant readings on interviewing. /K. Murphy, T. Siess, G. Stone, M. Uhlemann
Full course; two terms.

632a. Theories of Career Development. A study of the variables used in the description and explanation of occupational behavior: systems of job classification; correlates of job performance and satisfaction. A critical survey of major theories of career development and work adjustment, with special attention to their implications for counselling. /T. Siess
Half course; one term.

633b. Group Counselling. Introduction to theory and practice of basic group counselling approaches. History and development of group work, and recent directions in the area. Critical evaluation of group research. /M. Uhlemann
Half course; one term.

634. Advanced Practicum. The course is designed to provide an advanced practicum. Students participate in group seminars focussing upon models of counsellor training and supervision combined with actual counselling and supervision experience in an applied setting. Students are closely supervised by the group of counselling faculty members responsible for the course. Ten to twelve hours per week of student time is required plus the completion of relevant readings on counsellor training. /G. Stone
Full course; two terms.

640. Current Topics. A survey course covering a number of current topics of interest in psychology. Various members of staff participate. /I. Spence
Full course; two terms.

641. Introduction to Clinical Problems. An introduction to the kinds of problems faced by the clinical psychologist in his research and his practice. This course is designed to give the student concrete examples of the scientist-professional model of

the clinical psychologist and to stimulate and facilitate the student's research activity. /P. Carlson
Half course; two terms.

681. Humanistic Psychology: Theories and Techniques. A seminar-laboratory course combining experiences directed toward self-awareness with a study of humanistic frames of reference for the apprehension of the person; the implications of these perspectives for the philosophy and methodologies of science, for the development of therapeutic and other procedures oriented toward growth-autonomy and for value theory and social action; empirical studies bearing on states of consciousness and the evaluation of encounter and other growth movement practices. /G. Turner
Full course; two terms.

590. M.A. Thesis.

690. Ph.D. Thesis.

Sociology

SOCIAL SCIENCE CENTRE, Room 5306

Chairman: J. H. Kunkel
Professors:
Balakrishnan, T. R., BA, MA Madras; PhD Michigan
Klapp, O. E., AB, AM, PhD Chicago
Kunkel, J. H., BA Pomona; MA, PhD Michigan
Singer, B. D., BA Wayne State; MA, PhD Pennsylvania
Associate Professors:
Basavarajappa, K. G., BSc Mysore; MSc Karnatak; PhD Australian National
Ebanks, G. E., BA London; MA, PhD Cornell
George, P. M., BA Earlham; MA Boston; PhD North Carolina
Rinehart, J. W., BA, MA Michigan State; PhD Ohio State
Turner, R. J., BA Sacramento State; PhD Syracuse
Assistant Professors:
Archibald, P. W., BA Mount Allison; MA British Colombia; PhD Michigan
Boydell, C. L., BA Rutgers; MA, PhD Massachusetts
Clark, S. D., BA Carleton; MA Toronto; PhD Harvard
Grindstaff, C. F., BA Wayne State; MA, PhD Massachusetts
Henshel, R. L., BA Texas; PhD Cornell
Hunter-Harvey, S., BA Carroll College; MA, PhD Hawaii
Jarvis, G. K., BA Brigham Young; PhD Michigan
Marin, I. C., BS CUNY; MA, MS, PhD Michigan
Nobbe, C. E., BA, MA, PhD Washington
Silverman, R. A., BA Toronto; MA, PhD Pennsylvania
Stelling, J. G., BA Michigan; PhD Chicago
Teevan, J. J., BA SUNY; MA, PhD Indiana
Veevers, J. E., BA, MA Alberta; PhD Toronto
Westhues, K., BA Conception College; MA, PhD Vanderbilt
Whitehead, P. C., AB Providence College; MA, PhD Massachusetts
Williams, J. I., BA Nebraska Wesleyan; MA New Hampshire; PhD Florida State
Zuzanek, J., PhD Charles U., Prague

PROGRAM OF STUDIES

The Department offers work leading to the MA degree. Population Studies, Social Organization and Social Psychology constitute the three main areas of concentration. Within these areas, special attention is given to demography and urbanization, medical sociology, collective behaviour and communications and deviant behaviour.

To be awarded the MA degree, a candidate must satisfy the Department of competence in Sociological Theory, Research Methods and Statistics. Students who do not have adequate training in these areas will be required to make up these deficiencies. The minimal requirement for the MA degree is a program of six graduate half courses (or their equivalents) plus the MA Rsearch Paper. These six half courses are exclusive of courses in Theory, Methods and Statistics noted above.

A Ph.D. program in Sociology with specialization in Social Demography and Medical Sociology, and later in Collective Behaviour-Communications, is presently being evaluated. Upon successful appraisal this program will be initiated in September, 1974 and individuals interested in these areas are requested to write to the Chairman of the Department for further information.

ADMISSION REQUIREMENTS

1. Graduation in Honors Sociology from the University of Western Ontario or from another accredited university with first or second class standing.
2. Graduation from honors programs other than Sociology from an accredited university with at least a B average (second class standing). Those admitted into the program from undergraduate fields other than Sociology will be required to make up deficiencies in Sociology courses. Graduates with high standings in any field are encouraged to apply.
3. Students with general degrees apply directly to the Registrar. Such students may be considered for admission as Special (Undergraduate) Students. After a full year of course work these students may then apply for admission into the MA Program.

Students are requested to submit results from the Graduate Record Examination. Students for whom English is not their native tongue should submit evidence of proficiency in spoken and written English.

Financial assistance for those admitted into the MA Program is available from the Department. Early applications will be given priority. The application deadline for admission to the Fall Term is June 30th. For further information and application blanks, please write to the following:

Admissions Officer
Department of Sociology
Social Science Centre
University of Western Ontario
London, Ontario
N6A 3K7

PERIOD OF STUDY

1. Graduates from Honors Programs in Sociology are admitted directly into the MA Program and are normally expected to complete the Master's Program after 3 terms in residence (September to August).

2. Graduates from Honors Programs other than Sociology are admitted into the MA Program and are expected to complete the Master's Program after 5 terms in residence. The first two terms are spent taking courses equivalent to the Fourth year of our Honors Program.
3. Graduates from general degree programs are normally expected to complete the Master's Program after 5 terms in residence (2 academic years, September to May and the intervening summer). These graduates are admitted as Special (Undergraduate) Students for two terms. Upon successful completion of these two terms they may apply for admission into the MA Program. If admitted, the remaining three terms are spent satisfying the requirements of the MA Program. Acceptance as a Special (Undergraduate) Student is no guarantee of acceptance into the MA Program.

MA PROGRAM (6 half courses or equivalent, plus MA Research Paper)

One full or two half courses chosen from the candidate's major area of concentration*

Electives (4 half courses or equivalent)

Research Paper (1 credit, full year program of research) in the candidate's major area of concentration*

*Population Studies (P), Social Organization (O), and Social Psychology (SP) constitute the three areas of concentration.

COURSES

Note: All 500 level courses except 516, 522, and 589 are one term half courses (1/2 credit)..

501a or b. Sampling and Multivariate Analysis. Sampling methods and theory are discussed and biases calculated. Modern developments in multivariate analysis in statistics are studied and applied to data.
Prerequisite: Sociology 400 or equivalent
Half course; one term.

503a or b. Methodology in Empirical Sociology. Selected problems in Research Methodology, Measurement and Scaling problems, Game Theory, Stochastic Processes and Cybernetics.
Half course; one term.

505a or b. Sociological Theory. Selected problems in theory and theory construction.
Half course; one term.

510a, 511a. Selected Topics in Sociology. (O, P, SP) Individual reading courses arranged between professor and student.
Half course; one term.

512b, 513b. Selected Topics in Sociology. (O, P, SP) Individual reading courses arranged between professor and student.
Half course; one term.

514, 515. Selected Topics in Sociology. (O, P, SP) Individual reading courses arranged between professor and student.
Half course; one term (Summer).

516. Selected Topics in Sociology. (O, P, SP) Individual reading courses arranged between professor and student.
Full course; two terms.

522. Development Aspects in Industrializing Nations. (O) (Offered jointly with the Departments of Geography and Political Science). H. A. Hossé (Geography/ Political Science), R. G. Cecil (Geography), and Staff of participating Departments. The social, economic, political, and spatial structure and interrelated development problems in selected countries or regions; area emphasis subject to student interest.
Full course; two terms.

524a or b. Social Epidemiology. (O) (Offered jointly with the Department of Epidemiology and Preventive Medicine). An examination of social epidemiological methods, patterns of acute and chronic morbidity, and the effects of social and psychological factors on health behaviour.
Half course; one term.

532a or b. Techniques of Demographic Analysis (P). Procedures in the measurement of fertility, mortality, natural increase and migration. Evaluation of sources of demographic data including census and vital registration systems.
Half course; one term.

535a or b. Community (O). A systematic analysis of the ecological and social dimensions of communal life in both folk and urban-metropolitan settings.
Half course; one term.

536a or b. Social Organization (O). A study of contemporary theories of social organization and their applications to analyses of existing organizations.
Half course; one term.

537a or b. Deviant Behaviour (O). A study of basic theories of deviant behaviour with emphasis on methods for determining the occurrence and distribution of norm violating behaviour and on social and psychological correlates of deviant behaviour.
Half course; one term.

538a or b. Sociology of Crime and Delinquency (O). An examination of some basic approaches to the study of crime and delinquency in Canada and an analysis and critique of contemporary research in this area.
Half course; one term.

539a or b. Social Movements and Revolutions (SP). An examination of conditions which produce social movements and revolutions, processes of development, leadership, and processes of affiliation and disaffiliation. Relevant sociological and social psychological theories will be examined.
Half course; one term.

540a or b. Social Psychology (SP). An analysis of the contributions of culture and social interaction to the development of personality. Socialization, attitude change, and motivation will be emphasized.
Half course; one term.

541a or b. Mathematical Social Psychology (SP). Mathematical models of small groups behaviour. Mathematical models are applied to group structures as well as processes.
Half course; one term.

542a or b. Communication (SP). An analysis of the nature, diffusion, and control of information within social systems and sub-systems.
Half course; one term.

543a or b. Collective Behaviour (SP). Research problems and theories of collective expression of unrest, including outbursts, mass contagions, rumors, popular heroes and scapegoats, fads, and movements.
Half course; one term.

544a or b. Theories of Social Psychology (SP). Critical analysis of the major current theories in social psychology.
Half course; one term.

545a or b. Community Aspects of Mental Health (O). (Offered jointly with the Department of Epidemiology and Preventive Medicine) A study of the incidence and prevalence of mental disorders, their interrelationship with socio-cultural factors and emotional disorders, and an evaluation of selected mental health programs and services.
Half course; one term.

546a or b. Health Care Organization (O). (Offered jointly with the Department of Epidemiology and Preventive Medicine) An analysis of the distribution of health resources, with special consideration given to the effectiveness of health care delivery,

public health policy, the health professions, and medical economics.
Half course; one term.

547a or b. Social Stratification (O). An examination of the forms and functions of inequality and ranking systems in society. Consideration is given to contemporary problems of social class and mobility.
Half course; one term.

548a or b. Social Change (O). Examination of theories of socio-cultural, economic, demographic and ecological change and their relevance to planning in developing nations.
Half course; one term.

549a or b. Social Change and Modernization in Latin America (O). Critical analysis of socio-economic development in Latin America. Focussing on the determinants and consequences of social change and modernization.
Half course; one term.

550a or b. Race and Minorities Relations (O). An evaluation of relations among ethnic, racial and religious groups focussing on inter-group hostility and conflict and the role of these groups in the larger community. Prejudice and discrimination are analyzed for their social psychological, political and economic causes and effects. Social and political movements to resolve inter-group conflicts are examined.
Half course; one term.

551a or b-560a or b. Selected Social Institutions (O). The examination of selected social institutions in terms of the problems of stability and change in society. Specific institutional areas include law, military, education, religion, family, science, industry, and polity.
Half course; one term.

561a or b. Sociology of Marriage and the Family (O). An analysis of the contemporary family in the context of other institutions, including reviews of theoretical frameworks and evaluations of empirical data, with special emphasis on problems of describing and predicting changes in family structure.
Half course; one term.

570a or b. Special Topics in Demography (P). Intensive study of specific issues in demographic analysis.
Half course; one term.

571a or b. Population Problems and Issues in Latin America (P). Focussing attention on the rapid population growth in Latin America, its components, its social, political and economic implications and what is being done and could be done to alleviate the situation.
Half course; one term.

580a or b. Population and Economic Development (P). The interdependence between population characteristics, natural resources, and economic organization under varying conditions of natural development.
Half course; one term.

583a or b. International Urbanization (P). Demographic, social and economic analysis of urban communities in developing nations. Comparisons are made with similar phenomena in the western world.
Half course; one term.

588a or b. Computer Applications in Social Research (P). Electronic data processing and computer programming as relevant to social and demographic data and research.
Half course; one term.

589. MA Research Paper.
Full course; two terms.

Spanish and Italian

UNIVERSITY COLLEGE, Room 309

Chairman: W. Flint
Professors:
Flint, W., BA Harvard; MA, PhD North Carolina
Marti, A., ECI Madrid; BSc Jochi, Tokyo; Lic., Dr en Fil. y Letras Barcelona
Shervill, R. N., BA UWO; MA, PhD North Carolina. Executive Assistant to the President
Smieja, F. L., BA National, Ireland; MA, PhD London
Associate Professors:
Asensio, J., PhD, STB Ordo de Mercede; Lic., Dr en Fil. y Letras Madrid
Burghardt, W., BA, MA Toronto
Newman, J. C., BA McGill, MA Radcliffe, Dr en Fil y Letras Madrid
Assistant Professors:
López Pacheco, J., Lic en Fil y Letras Madrid
Munn, B. W., MA Cantab; PhD British Columbia

The Department specializes in the literature of the Spanish Golden Age, although all fields are represented.

The Department offers courses leading to the Master of Arts degree in Spanish. Students are required to complete four courses or, if they prefer, three courses and a thesis. Candidates holding an Honors degree in Spanish Language and Literature should normally be able to complete their program in one year. Students who hold Teaching Assistantships are limited to three courses during the Fall-Winter Session. One course will be offered during May and June.

COURSES

543. Old Spanish. A critical examination of major literary works of the medieval period and a detailed study of medieval Spanish phonology and morphology.
Full course; two terms.

548. The Origins of Spanish American Literature. An examination of the early texts, from the Popol Vuh to the Comentarios Reales of the Inca Garcilaso.
Full course; two terms.

550. Spanish Mystic Writers. An analysis of the literary works of representative Spanish mystic and ascetic writers in relation with the thought of other mystic authors.
Full course; two terms.

552. Lope de Vega. A critical seminar dealing with the drama, poetry, prose and dramatic theory of Lope de Vega.
Full course; two terms.

553. Calderon de la Barca and his Contemporaries. A critical analysis of selected plays of Calderon and his dramatic school.
Full course; two terms.

554. Cervantes. An analysis of Cervantes's works, with special emphasis on Don Quixote.
Full course; two terms.

555. Tirso de Molina. A critical analysis of his principal plays and selected prose.
Full course; two terms.

556. Golden Age Poetry. A study of selected poets of the 16th and 17th centuries.
Full course; two terms.

557. The Picaresque Novel. A survey of the major works of the genre.
Full course; two terms.

560. Galdos and the Nineteenth-Century Novel. A study of literary and social trends of the last half of the nineteenth century.
Full course; one term. Summer.

570. The Generation of 1898. A study of the "Spirit of 1898" with special emphasis on the novel and essay. *Unamuno, Baroja, Azorin* and Valle Inclan will be studied.
Full course; two terms.

572. Spanish Drama of the Nineteenth and Twentieth Centuries. A study of dramatic trends in one or both centuries.
Full course; two terms.

575. Aspects of Modern Spanish American Prose. Study of a selected trend in twentieth century Spanish American fiction. Analysis of significant works.
Full course; two terms.

576. Aspects of Modern Spanish American Poetry. Study of a selected trend in modern Spanish American poetry.
Full term; two terms.

580. *Modern Spanish* Poetry. Study of a selected trend in twentieth century Spanish poetry.
Full course; two terms.

582. Modern Spanish Novel. A study of tradition and innovation in the Spanish novel from Baroja to the present time.
Full course; two terms.

590. MA Thesis.

The Department does not offer all the courses listed above in any one academic year. Each spring a list is issued indicating which of the courses will be offered for the following year..

Surgery

UNIVERSITY HOSPITAL, Room 80F12

Chairman: A. D. McLachlin
Professors:
Carroll, S. E., BA, MD UWO
Duff, J. H., MD UWO; FRCSC
McLachlin, A. D., MD, MSc UWO; MS Toronto; DPhil Oxon
Associate Professor:
McCredie, J. A., MB, MCh Belfast
Clinical Professors:
Coles, J. C. G., BA, MD, MSc UWO
Johnston, D. W. B., BA, MD UWO
Kennedy, J. C., MD UWO
McAninch, L. N., MD UWO
McFarlane, R. M., MD, MSc UWO

Graduates in Medicine who have served a year of rotating or straight surgical internship in an approved hospital may apply for further training in Surgery in a plan utilizing the facilities of Victoria, St. Joseph's, University and Westminster Hospitals.

This training meets the requirement for Fellowship in the Royal College of Surgeons of Canada and candidates beginning the course are expected to proceed to this degree.

Research may be carried out during the period in training in *general surgery or one* of the surgical specialties and may lead to qualification for the degree of Master of Clinical Science (MC1Sc).

Therapeutic Radiology

ONTARIO CANCER TREATMENT AND RESEARCH FOUNDATION, LONDON CLINIC, VICTORIA HOSPITAL

Chairman: T. A. Watson

Professors:

Inch, W. R., BSc Queen's; PhD UWO

Warwick, O. H., BA Mt. Allison; MA Oxon; MDCM McGill; LLD (Honorary) Mt. Allison; FACP; FRCP (C); FRCP (London)

Clinical Professor:

Watson, T. A., MB, ChB New Zealand; MD Saskatchewan

Associate Professors:

Haegy, F. C., MD, MSc, PhD UWO

MacDonald, J. C. F., BA, MA British Columbia; PhD Toronto

Clinical Associate Professor:

Thomson, D. H., MB, ChB Glasgow

Assistant Professors:

Dawson, D., BASc, MA, PhD Toronto

Sutherland, R. M., BSc Acadia; PhD Rochester

Clinical Assistant Professors:

Bannerjee, P., MB Calcutta

Fetterly, J. C. M., MDCM Queen's

Honorary Lecturer:

McCredie, J. A., MB, MCh Belfast

The Department of Therapeutic Radiology is located in the London Clinic of the Ontario Cancer Treatment and Research Foundation, Victoria Hospital. Facilities are available for radiation therapy, nuclear medicine, radiation physics, radiobiology and chemotherapy of malignant disease. A close association with other clinical departments is maintained by joint consultative clinics. The department offers graduates in medicine who have served one year of rotating internship a full course of training leading to Fellowship or Certification by the Royal College of Physicians and Surgeons of Canada. Clinical or basic research may be carried out and submitted as partial fulfilment for the degree Master of Clinical Science. With the approval of the College this may be used to satisfy the requirement for training in basic science.

Graduates in medicine or the basic sciences may carry on research in the Division of Nuclear Medicine, Radiation Physics or Radiobiology which may be used in partial fulfilment for the degrees. Master of Science or Doctor of Philosophy. These degrees are granted in the basic department in which the supervisor of the student holds a joint appointment, at present Biochemistry, Biophysics or Physics. Research interests in the Department currently include factors influencing the sensitivity of solid tumours to ionizing radiation, the role of the cancer cell membrane in the development of distant metastases, dosimetry of high energy radiation sources and the application of new isotopes to clinical diagnosis.

A suitable stipend during the period of residency or graduate training may be obtained through the Ontario Cancer Treatment and Research Foundation.

COURSES

510a. Principles of Radiobiology.
Half course; one term.

511b. Selected Topics in Nuclear Medicine.
Prerequisite: residency training in Therapeutic or Diagnostic Radiology, admission to such a training program or equivalent
Half course; one term.

512. Applied Radiotherapy.
Prerequisite: MD degree
Full course; two terms.

514. Tutorial — Current Topics in Radiotherapy.
Prerequisite: residency training in Therapeutic or Diagnostic Radiology, admission to such a training program or equivalent.
Full course; two terms.

590. Master of Clinical Science Thesis.

610. Physics of Radiology.
Prerequisite: Physics 20 or equivalent
Full course; two terms.
All courses may not necessarily be offered each year.
Further information on residency, graduate training and courses may be obtained from the Chairman of the Department.

Zoology

BIOLOGICAL AND GEOLOGICAL SCIENCES BUILDING, Room 344

Chairman: M. Locke
Professors:
Battle, Helen I., BA, MA UWO; PhD Toronto (Emeritus)
Bourns, T. K. R., BA, MA British Columbia; PhD Rutgers
Judd, W. W., BA McMaster; MA UWO; PhD Toronto
Keenleyside, M. H. A., BA, MA British Columbia; PhD Groningen
Locke, M., MA, PhD Cantab
Scott, D. M., BSc, PhD McGill
Honorary Professor:
Stinson, R. H., BA McMaster; PhD Toronto
Associate Professors:
George, J. A., BSA Saskatchewan; MSA Toronto; PhD UWO
McMillan, D. B., BSc, MSc UWO; PhD Toronto
Misra, R. K., MSc, PhD Nagpur; PhD Edinburgh
Ogilvie, D. M., BSc New Brunswick; PhD UWO
Purko, J., BA, MSc, PhD UWO
Steele, J. E., BSc Dalhousie; MSc UWO; PhD Saskatchewan
Assistant Professors:
Atkinson, B. G., BA Ohio; PhD Connecticut
Eggleston, A. C., BA Washington; PhD California
Holsworth, W. N., BSc, MSc British Columbia; PhD Western Australia
Kidder, G. M., BA Hiram College; PhD Yale
Millar, J. S., BSc, MSc British Columbia; PhD Alberta
Owen, M. D., BSc Wales; PhD Monash
Planck, R. J., BS, PhD California
Roth, R. R., MSc Cluj; PhD Alberta
Shivers, R. R., AB, MA, PhD Kansas
Tam, W. H., BSc, PhD Hong Kong
Wiebe, J. P., BSc, PhD British Columbia
Visiting Assistant Professors:
Caveney, S., BSc Witwatersrand; DPhil Oxford
Hay, D. E., BSc, MSc British Columbia
Honorary Lecturers (Part Time)
Bond, E. J., BSA Toronto; MSc UWO; PhD London
Brown, B. E., BSc, MSc UWO; PhD Illinois

Chefurka, W., BSc Manitoba; MA Montana State; PhD Harvard
Colhoun, E. H., BSA Toronto; PhD Cantab; FRES
Harris, C. R., BA, MA British Columbia; PhD Wisconsin
McLeod, D. G. R., BSc Manitoba; MSc, PhD Wisconsin
Nagai, T., MEng, MSc, DSc Tokyo
Vardanis, A., BSc Leeds; MSc, PhD McGill

RESEARCH INTERESTS AND FACILITIES OF THE DEPARTMENT

The department has faculty with active research programs in: -

Cell and Developmental Biology -Cell Biology, Biochemistry of development: organelle development, embryogenesis, growth and differentiation. Histology, electron microscopy and ultrastructure. Insect development. Cell communication.

Comparative Physiology, Neurobiology and Ethology -Reproductive Biology and Endocrinology, Physiology of adaptation. Fish and bird behaviour. Physiology of rhythms. Sensory physiology and the physiology of venoms. Insect Physiology.

Applied Biology -Population biology, genetics and dynamics. Insect control, Physiological ecology, Parasitology and Entomology.

The facilities include a photoperiod laboratory and marine biology facilities at the Huntsman Marine Laboratory, St. Andrews, New Brunswick.

The Research laboratories are equipped for cell fractionation, ultracentrifugation, tissue culture and electron microscopy: electrophysiology: gas chromatography, atomic absorption spectrophotometry, gas analysis, chromatography and electrophoresis: gamma irradiation: computing: there is a hot lab for tracer studies with scintillation counting and autoradiography.

REQUIREMENTS FOR ADMISSION

The Department offers programs leading to the degree of MSc or PhD. For admission as MSc candidates, students should have or expect to receive an Honors degree or the equivalent. For admission to the PhD program a student should have an MSc or high standing in an Honors BSc degree.

Details on the regulations for graduate studies in Zoology may be obtained on application to the Chairman of the Department.

COURSES

All students should consult the instructor in charge of the course before registering. The courses are open to undergraduates who have the appropriate background with the instructor's permission.

522b. Advanced Histology. Comparative aspects of the structure and development of vertebrate organ systems at the microscopic level. D. B. McMillan.
Half course; one term.

526a. Advanced Insect Physiology. The principles of insect physiology. Aspects of metabolism, biochemistry, pharmacology. E. J. Bond, B. E. Brown, W. Chefurka, E. H. Colhoun, J. A. George, M. Locke, M. D. Owen, J. E. Steele.
Half course; one term.

527a. Neurophysiology. Aspects of vertebrate and invertebrate neurobiology and sensory physiology. A. Eggleston, M. D. Owen.
Half course; one term.

528a. Endocrinology. Comparative aspects of hormonal integration. Mechanism of hormone action. J. Wiebe, J. E. Steele.
Half course; one term.

532b. Immunity to Parasites. Natural and acquired resistance to animal parasites, medical and veterinary implications, serological and immunological methods, in vitro culture. T. K. R. Bourns.
Half course; one term.

534a. Advanced Population Biology. D. E. Hay and Staff
Half course; one term.

535b. Physiological Ecology. Mechanisms of adaptation to different environments. Environmental control of physiological processes. Rhythmic phenomena. J. Millar and Staff
Half course; one term.

536b. Advanced Behaviour. Animal social systems. Communication. Bioperiodism. Cybernetic systems. M. H. A. Keenleyside, R. J. Planck, A. Eggleston.
Half course; one term.

538a. Advanced Developmental Biology. Mechanisms and role of cell communication and interaction during development. G. Kidder, J. Purko.
Not given in 1973-74.
Half course; one term.

540a. Developmental Genetics. Molecular biology of development. Regulation of genomic function. Replication, transcription and translation of information during development. B. Atkinson.
Half course; one term.

541b. Evolution. Concepts of species. Polymorphism, selection and gene flow. Theories of speciation. Fitness-set analysis. D. Scott
Not given in 1973-74
Half course; one term.

542a. Cell Biology. Molecules to biological structures. Ultrastructure and life history of cells and organelles. Cell and tissue specialization. Transport. Transporting epithelia. Contractility and motility. M. Locke, S. Caveney
Half course; one term.

543b. Advanced Cell Biology. Cell function. Metabolic function of subcellular organelles. Comparative Biochemistry. G. Kidder, B. Atkinson
Not given in 1973-74
Half course; one term.

544b. Advanced Biometry. Advanced statistical methods. R. K. Misra.
Half course; one term.

546b. Population Genetics. A lecture course dealing with large and small random and non-random populations, linkage, path analysis, inbreeding, generation matrix, mutation selection, subdivision and migration, inheritance of quantitative characters, and the implication of these considerations upon the process of evolution. R. K. Misra.
Not given in 1973-74
Half course; one term.

553b. Political Biology. The biological consequences of human activities for the biotic world and particularly man and his institutions. Direct physical and chemical effects upon metabolism, development, adaptation, genes, and population structure. Indirect effects through climatic change, population density, social conditions and changed patterns of survival. Predictions and mechanisms for influencing the future. M. Locke, Staff.
Half course; one term.

554a. Advanced Techniques. A practical course in advanced techniques including histology, cell fractionation, photomicrography and the preparation of illustrations. D. B. McMillan, M. Locke, R. R. Shivers, B. Atkinson, T. Kenny and A. K. Sykes.
Half course; one term.

555b. Advanced Microscopy. Phase, ultraviolet, interference, polarizing, fluorescence and Nomarski microscopy. Electron microscopy, interpretation and presentation of data. D. B. McMillan, M. Locke, R. R. Shivers, B. Atkinson, T. Kenny and A. K. Sykes.
Half course; one term.

560a. Current Topics in Experimental Biology. Seminar course. Staff.
Half course; one term.

561b. Current Topics in Experimental Biology. Seminar course. Staff.
Half course; one term.

562a. Vertabrate Physiology. Seminar course on current topics in vertebrate physiology, with emphasis on endocrinology. Staff.
Half course; one term.

563b. Insect Physiology. Seminar course on current topics in insect physiology. Staff.
Half course; one term.

564a. Cell Biology. Seminar course on current topics in cell biology, with emphasis on developmental biochemistry. Staff.
Half course; one term.

565b. Cell Biology. Seminar course on current topics in cell biology, with emphasis on ultrastructure. Staff.
Half course; one term.

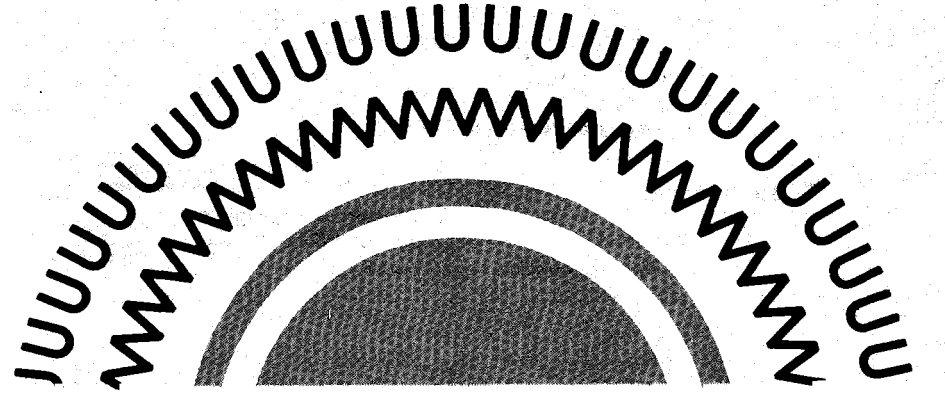
566a. Ecology. Seminar course on current topics in ecology. Staff.
Half course; one term.

567b. Behavior. Seminar course on current topics in behavior. Staff.
Half course; one term.

590. MSc Thesis.

690. PhD Thesis.

School of Library and Information Science



Dean
W. J. Cameron, BA, MA Victoria, N.Z.; PhD, Reading
Assistant Dean
Elaine Svenonius, AB Barnard; MA, Pennsylvania, MA, PhD Chicago
Assistant to the Dean
Carmen L. Sprovieri, BA, MA, Gonzaga; BLS, British Columbia; MLS, UWO
Administrative Officer
Betty McCamus, BA, Toronto; MLS, UWO
Librarian
Joan Gentleman, BA, MLS, UWO
Office Locations
Dean Room 101A; phone 3545
Assistant Dean Room 102; phone 3545
Assistant to the Dean Room 100A; phone 3542
Administrative Officer Room 100B; phone 3542
Librarian Room 136B; phone 3542

School of Library and Information Science

HISTORY OF THE SCHOOL OF LIBRARY AND INFORMATION SCIENCE

The School of Library and Information Science began studies in September 1967. In October 1968 the School was visited for accreditation purposes by a Committee of the American Library Association. The Committee on Accreditation of the American Library Association, which is the accrediting agency for both Canada and the United States, accepted in January 1969 the visiting Committee's report and accredited the School's MLS program. In the 1973-74 academic year a PhD program in the field of Bibliographic Control of Information was introduced.

ADMISSION

The School operates on a trimester system and students may be accepted in September, January or May. Candidates for admission into the Master of Library Science program must have, from a recognized University, an honors Bachelor's degree or equivalent with at least a B standing over the last 10 courses.

Candidates who have a three-year or four-year general Bachelor's degree may raise their degree to the equivalent of an honors degree by undertaking a year (two terms) of undergraduate studies as a Special Student. (Application forms for this category may be obtained from the Office of the Registrar).

Candidates who hold an Honor's degree or equivalent and who wish to transfer at the end of one year from other accredited graduate library schools with a two-year MLS or who hold its equivalent may complete their MLS after two terms.

Proficiency in English is required of non-English speaking students who are required to show evidence of proficiency by satisfactory achievement in the University of Cambridge Certificate of Proficiency in English, or the Test of English as a Foreign Language administered by the US Educational Testing Service.

REGISTRATION PROCEDURE

Application forms may be obtained from the School of Library and Information Science. They should be returned for initial processing to the School, along with the required transcripts and letters of recommendation. From the Office of the Registrar students will receive Permits to Register and a registration package that will give details as to the last date of registration, fees to be paid etc.

Course selection will take place at the School and all course enrolment cards must be signed by the Dean or designate.

If an applicant is not approved for admission to the Faculty of Graduate Studies, he will receive notification from the School of Library and Information Science.

PERIOD OF STUDY

Dependent upon the conditions laid down upon admission to the Faculty of Graduate Studies, a student may complete his studies for the MLS in two or three consecutive terms. It is possible to earn the MLS in summer terms or in summer sessions plus a final term. The program may also be taken part time.

LANGUAGE REQUIREMENTS

Because of the importance of languages in the field of Library and Information Science, a reading knowledge of at least one language other than English is expected. The second language must be useful in study and research in the School's field of knowledge.

COURSE REQUIREMENTS

Required courses are: 511, 512, 513, 520, 530, 551, 552, 553, *and* 580. Other courses may be required in a particular program by decision of the School's Council.

For two-term students, 552, 553, and 580 are required, and others may be required in individual cases.

Every elective is not necessarily offered in any one term.

For more information, refer to the Calendar of the School of Library and Information Science.

School of Library and Information Science, The University of Western Ontario, London N6A 3K7

Library Science

PROFESSORS EMERITI: Colvin, Reitman PROFESSORS: Cameron, Hotimsky, *Lee, Prodrick, White* ASSOCIATE PROFESSORS: Dolan, Fyfe, Jamieson, Neill, Pendrill, Rogers, Sudar ASSISTANT PROFESSORS: Rayward, Schulte-Albert, Svenonius LECTURERS: Janes, McCamus, Schutte, Sprovieri, Woodward

Courses

501. *Old World* Intellectual and Cultural Foundations.
Seminar, Half Course.

502. New World Intellectual and Cultural Foundations.
Seminar, Half Course.

503. *Bookcollecting and* Librarianship.
Seminar, Half Course.

504. Intellectual and Cultural Foundations of Classification.
Seminar, Half Course.

505. *Bibliography and* Librarianship.
Seminar, Half Course.

507. Systems Analysis and Libraries.
Seminar, Half Course.

508. *Guided Reading.*
Seminar, Half Course.

511. Professional Theory and Methodology: Humanities.
Seminar and Lab, Half Course.

512. Professional Theory and Methodology: *Social Sciences.*
Seminar and Lab, Half Course.

513. Professional Theory and Methodology: Science and Technology.
Seminar and Lab, Half Course.

514. Special Topics in the Humanities.
Seminar, Half Course.

515. Special Topics in the Social Sciences.
Seminar, Half Course.

516. Special Topics in Science and Technology.
Seminar, Half Course.

517. Information in Languages other than English.
Seminar, Half Course.

519. Problems in the Organization of Information.
Seminar, Half Course.

520. Administrative Theory and Practice.
Seminar, Half Course.

521. General Principles of Administration.
Seminar, Half Course.

522. Library Planning.
Seminar, Half Course.

524. Administrative Theory and *Practice: Schools.*
Seminar, Half Course.

525. Administrative Theory and Practice: Services to Children and Young Adults.
Seminar, Half Course.

527. Administrative Theory and Practice: Community Services; Local, Regional, National.
Seminar, Half Course.

528. Administrative Theory and Practice: Higher Education.
Seminar, Half Course.

529. Administrative Theory and Practice: Special Libraries.
Seminar, Half Course.

530. Research Methods.
Seminar, Half Course.

531. Research Principles and Practice in the Humanities.
Seminar, Half Course.

532. Special Research Topics in the Humanities.
Seminar, Half Course.

534. Research Principles and Practice in the Social Sciences.
Seminar, Half Course.

536. Special Research Seminar.
Seminar, Half Course.

537. Research Principles and Practice in Science and Technology.
Seminar, Half Course.

538. Guided Research I.
Seminar, Half Course.

539. Guided Research II.
Seminar, Half Course.

540. Special Topics in Librarianship.
Seminar, Half Course.

541. Comparative Librarianship.
Seminar, Half Course.

542. Periodical Literature.
Seminar, Half Course.

543. Historical Development of Children's Literature.
Seminar, Half Course.

544. Canadiana.
Seminar, Half Course.

545. Slavic Libraries and Librarianship.
Seminar, Half Course.

547. History of Science.
Seminar, Half Course.

551. Language, Logic and Mathematics.
Seminar, Half Course.

552. Systems and Computer—Fundamentals.
Seminar, Half Course.

553. Systems and Computer Applications.
Seminar, Half Course.

556. Introduction to Information, Communication, and Coding Theory.
Seminar, Half Course.

557. Mathematical Models in Library and Information Science.
Seminar, Half Course.

558. Special Topics in the Computer Control of Information.
Seminar, Half Course.

559. Audiovisual Theory and Practice.
Lab and Seminar, Half Course.

561. Art Libraries and Information.
Seminar, Half Course.

562. Business Libraries and Information.
Seminar, Half Course.

566. Law Libraries and Information.
Seminar, Half Course.

567. Medical Libraries and Information.
Seminar, Half Course.

569. Music Libraries and Information.
Seminar, Half Course.

571. Archives Theory and Practice.
Seminar, Half Course.

580. Master's Seminar.
Seminar, Half Course.

The Ph.D. Program

Candidates for the Ph.D. in Library and Information Science must hold an M.L.S. degree from an accredited school or its equivalent. Those with a Master's degree or Ph.D. degree in another field will be deemed to have the equivalent of an M.L.S. degree if they also hold a B.L.S. from an accredited school or if they have completed at least five approved half-courses in Library and/or Information Science. These five courses may be taken concurrently with, but in addition to, their Ph.D. course work. Applicants who do not have a Master's degree will be required to complete the M.L.S. program before being admitted to the Ph.D. program.

COURSE REQUIREMENTS

The total course requirement for an individual candidate will be determined by the candidate's Advisory Committee, with approval by the Dean of the School, but will not normally exceed 10 half-courses. All candidates are required to take courses 681, 682, 683, and 684. No more than four courses may be attempted in any one term.

THESIS

A thesis showing evidence of scholarly research and originality is the major requirement, and must be a contribution to knowledge within the area of Bibliographical Control of Information. Applicants who wish to undertake research work outside that area will be referred to a Ph.D. program in another School.

LANGUAGE REQUIREMENTS

A reading knowledge of at least one language other than English is required.

PERIOD OF STUDY

The minimum period of study for candidates who already hold an M.L.S. degree or its equivalent will be six terms (i.e., two full academic years).

CANDIDACY EXAMINATIONS

After the formal thesis proposal has been approved, a qualifying examination designed to test the candidate's ability to pursue research work in his or her area will be required. The oral examination will be more general in nature and be a maximum of two hours in length.

Courses

611. Systematic and Universal Bibliography.
Seminar, Half Course.

612. Indexing.
Seminar, Half Course.

613. Classification.
Seminar, Half Course.

614. Modelling and Simulation of Control Systems.
Seminar, Half Course.

621. Education for Library and Information Science.
Seminar, Half Course.

622. Comparative Librarianship.
Seminar, Half Course.

681. Pro-doctoral Seminar.
Seminar, Half Course.

682. Research Methods I.
Seminar, Half Course.

683. Research Methods II.
Seminar, Half Course.

684. Doctoral Seminar.
Seminar, Half Course.

690. Thesis.

The University Library System

The University of Western Ontario Library System consists of a general library, housed in The D. B. Weldon Library, and seven Divisional/Professional libraries. Over two million items of monographic, periodical, various kinds of microform, and other library materials, make up the collection which is available to all members of the university community.

THE D. B. WELDON LIBRARY - Opened in June, 1972, The D. B. Weldon Library houses the general collections which were in the Lawson Memorial Building and the College Reading Rooms. With 2,119 seats located on six levels, the new building accommodates twice the number of users as the former library and the Reading Rooms, and makes possible improved service to users. Entrances are located at the end of the tunnel from Somerville House and on the North face of the building, opposite the University Community Centre.

The Ground Level of the building holds the periodicals collection—both bound and current. The General Library subscribes at present to approximately 2,800 newspapers and periodicals, with 11,000 titles received in the University Library System as a whole. Bound periodicals are arranged by Library of Congress classification number and are located in Room B of the Ground Level. Newspapers and current, unbound, periodicals are arranged alphabetically by title and are shelved in Room A along with the Periodicals Catalogue, and the periodical index services. Assistance for users is provided at an Information Desk in this room.

On the First Floor the Reference, Interlibrary Loan, and Circulation Departments, and the Spencer Room for the Heavy Demand Collection are located. The public catalogue and national bibliographies, such as those of the British Museum, the Library of Congress, and the Bibliotheque Nationale, together with publishing trade bibliographies, are also located on this floor. Assistance in using the Author/Title and Subject card catalogues, and the national bibliographies, is offered at the Catalogue Assistance Desk facing the Catalogue.

On the Mezzanine overlooking the first floor are located the administrative offices for the Library System and the Order/Receiving Unit of the Processing Division.

The Second Floor is devoted to Special Collections. These include Rare Books, Regional History and County Records, Art exhibition catalogues, and Government Publications. Microforms and microform readers are also located on this floor. It should be noted that Government Publications holdings are not listed in the main Card Catalogue. Access to the holdings is through computer printouts in the Government Publications section.

Floors 3, 4 and 5 hold the general collection for Arts and Social Sciences which is arranged by the Library of Congress classification system:

Third Floor: A-D—General Works, Philosophy, Psychology, Religion and History.

Fourth Floor: E-N—History, Geography, Anthropology, Physical Education, Economics, Sociology, Political Science and Art.

Fifth Floor: P-Z—Languages and Literature, Agriculture, Technology, Military and Naval Sciences, and Bibliography and Library Science. Much of this latter class ("Z") is in the Reference Collection on the First Floor.

The bookstacks are open to all library users—undergraduate and graduate students, faculty and staff. Materials which circulate may only be charged out by individuals holding a University identification card (student, faculty, or staff). For further details, the Lending Code for the General Library is available at the circulation desk on the First Floor.

Coin-operated photocopiers for public use are located on all floors. There is also an over-the-counter service where extensive copying service is provided by Library staff. Copies can be made from all types of microforms at this service point—microfilm, microfiche, microprint and microcard—as well as from print materials.

An Information Desk providing general directional information is located at the First Floor entrance. Reference librarians located on the First Floor, and subject and form specialists servicing the collections on each floor, are sources of more specialized assistance. Look for the four-colour Libraries badge when you need assistance, or head for the nearest orange desk with the question mark on it.

Divisional/Professional Libraries

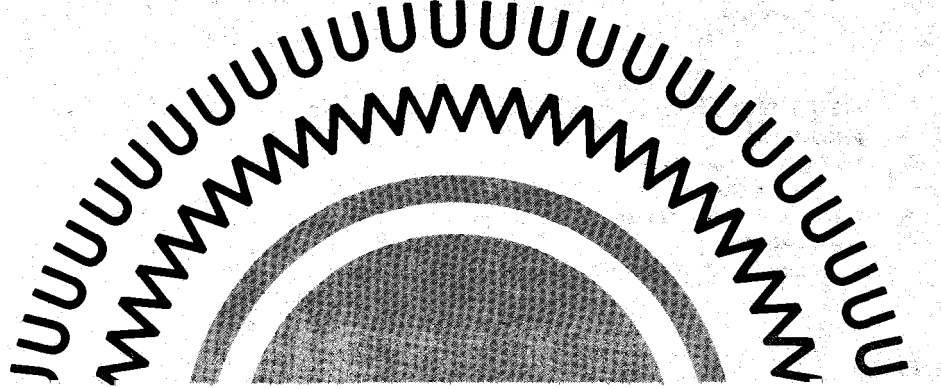
In addition to The D. B. Weldon Library, there are seven libraries in the University Library System which offer specialized materials and reference service to students and faculty working in particular subject fields. Each has its own card catalogue. Their holdings are also listed in the main catalogue, with the exception of the Health Sciences Centre Library, for which there is a separate card catalogue beside the main catalogue, and the Law Library.

A list of these Divisional/Professional Libraries, with their locations, follows:

1) **BUSINESS LIBRARY**, Richard Ivey School of Business Administration, Room 129.
2) **EDUCATION LIBRARY**, Althouse College of Education, Room 303.
3) **ENGINEERING LIBRARY**, Alexander Charles Spencer Faculty of Engineering Science Building, Room 1001.
4) **HEALTH SCIENCES CENTRE LIBRARY**, Medical Sciences Building, Room 139.
5) **LAW LIBRARY**, Josephine Spencer Niblett Faculty of Law Building, 2nd floor.
6) **MUSIC LIBRARY**, Talbot College, Room 234.
7) **NATURAL SCIENCES LIBRARY**, Natural Sciences Centre, Room 106.

Libraries in the affiliated colleges are located in Brescia College, Huron College and King's College. The School of Library and Information Science has its own library.

Althouse College of Education



ALTHOUSE COLLEGE OF EDUCATION

1137 Western Rd.
London N6G 1G7
Phone 679-2367

ADMINISTRATIVE STAFF (1973-1974)

DEAN OF THE COLLEGE:
Stabler, E., BA Queen's; MA McGill; EdD Harvard
ASSISTANT TO THE DEAN:
Casaubon, T. J., BA Laval
ACTING ASSOCIATE REGISTRAR:
Hartsell, G. L., BA UWO
ASSISTANT REGISTRARS:
Galpin, D. E., BA UWO
Harland, R.
PRACTICE TEACHING:
DIRECTOR:
Bass, R. W., BA UWO
ASSISTANT DIRECTOR:
Stevenson, N. H., BA, MEd Toronto
LIBRARIAN:
Holman, Anna L. (Mrs.), BA Carleton, BLS McGill
CO-ORDINATOR OF GRADUATE STUDIES:
Nicholson, N. J., BA, MSc Western, PhD Ottawa, FRGS
NURSE:
Ryckman, Elizabeth E. (Mrs.), Reg. N.
DIRECTOR OF TEACHING AIDS CENTRE:
Heddington, C. M.
DIRECTOR OF COMPUTER SERVICES CENTRE:
Lott, A. E.

LONDON TEACHER'S COLLEGE

1201 Western Rd.
London N6A 4B7
Phone 679-6023

ADMINISTRATIVE STAFF (1973-1974)

PRINCIPAL:
Harris, D. F., BA UWO
VICE-PRINCIPAL:
Elford, J. G., BA McMaster, MEd Toronto
LIBRARIAN:
Newman, D., BA UWO, BLS Toronto

THE NEW FACULTY OF EDUCATION

On September 1, 1973, the Honourable Thomas Wells, Minister of Education and the Board of Governors of The University of Western Ontario signed an Agreement under which London Teacher's College became an integral part of the university. The Agreement stipulated that the university would establish a Faculty of Education in which Althouse College of Education and London Teacher's College would be integrated.

The new Faculty will offer a full program of elementary and secondary teacher education using the resources of the two colleges, both of which are located on the university campus. The one-year post-graduate program will lead to certification to teach in the elementary and secondary schools of Ontario. Students in the Faculty will be full students of The University of Western Ontario and will have all the rights and responsibilities that this implies.

Communications regarding admission to the new program should be addressed to:

The Acting Associate Registrar
Althouse College of Education
The University of Western Ontario
1137 Western Road
London Ontario
N6G 1G7

MEMBERS OF THE PROPOSED FACULTY OF EDUCATION

Allison, G. F., BA Queen's; MA, MEd Toronto - Professional Practice and Administration Andresino, M. J., AB Canisius College; MA Columbia Teacher's College; MA Ohio State - Psychology Atkinson, G. V., BA Western - Art Bain, R. W., BA McMaster - Science Baldwin, Margaret M., BA, MA Western - French Bartlett, Rosemary J., BA, BPHE Queen's - Physical Education Beatty, H. W., BPHE Toronto - Vocational Bennett, G. C., BA Carleton; ARCT Toronto - Music Bergering, A. J., BA, MA Western - Psychology Bergey, B. Gertrude, BA Western; BEd Toronto - Primary Education Boate, G. A., BA Queen's; BEd Toronto - English Boyd, J. A., BA Toronto - French and Spanish Brendon, A., BA McMaster - Science Burke, D. R., BA, MA New Mexico, Albuquerque; PhD Michigan State - Philosophy Campbell, D. R., BA Western - Mathematics Clark, R. J., BA McMaster; MA Western - History Clute, F. J., BA Western - Guidance Crawford, J. A., BA Western - Sociology Crealock, Carol (Mrs.), MA Western; PhD Toronto - Psychology Crisp, E. V., BSc Sir George Williams - Educational Media Cunningham, D. N., BA Queen's; MSc Cornell - Science Dow, Marguerite R., BA, BEd, MA Toronto; FIBA - English Dunn, C., BA Western; BEd Toronto - Mathematics Eaman, J. A., BA Queen's; BPaed Toronto - Social Studies Emerson, G. J., BA Western; MDd Toronto - Philosophy Fairs, M. Peg (Mrs.), BA Western - Physical Education Fisher, Myrtle (Mrs.), BEd Saskatchewan; MEd Alberta - Early Childhood Education Gidney, R. D., BA McMaster; BEd Toronto; MA McMaster; MPhil London - History of Education Glover, M. H. Eleanor, BA Queen's; BEd Toronto; ADCM Dominion College of Music - Music Gordon, Elsie R. M., BA Western; BLSc Columbia - School Librarianship Gray, D. M., BA, MA Queen's - History Gutteridge, D. G., BA Western - English Hall, E. J., - Vocational Hallberg,

EDUCATION

E. T., BA Idaho; MA, EdD Arizona State - Guidance Hamilton, W. B., BA, BEd, MA Acadia; PhD Western - History of Education Harland, R., - Vocational Harper, F. B., MA Glasgow; PhD California - Psychology Harris, A. W., BA Western - Mathematics Hay, G. C., BA, BEd, MEd Toronto - Professional Practice and Administration Hassard, J. H., BA Western; MEd Ottawa - Guidance Hey, M. H., - Vocational Houston, Barbara E., BA, MA Western - Philosophy Howard, V. A., BA Maine; PhD Indiana - Philosophy Hulley, G. G., BA Western - Psychology Inch, R. S., BA Mt. Allison - Geography Kaluza, H. J., BA McMaster - Business Education Kenney, K. W., BA Western; MEd Toronto - Mathematics Kieser, W. E., BA Leeds and London - French and German Koutsouvilis, A. P., BA, MAT Michigan State; PhD London - Philosophy Lambert, G. R., BA, MA Toronto - Classics Langman, R. C., BA, MA Toronto - Geography Lawr, D. A., BA, MA Western; PhD Toronto - History of Education Laws, W. B., BA Windsor - Teaching Methods Lawson, G. B., BA Queen's; BEd Toronto - Mathematics Leslie, C. Elizabeth, BA Western; MEd Toronto - Primary Education Linden, P. J., BA, MA Western - English Logan, A. D., BFA, AOCA, OIP Toronto - Art Long, H. B., BA Western; MEd Toronto - Social Studies McColl, J. S., BA Western; MEd Toronto - Teaching Methods McKeon, P. J., BA Western - Educational Media McLeish, E. A., BA Western; MEd Toronto - Professional Practice and Administration McMurray, J. G., BA, MA Western; PhD Toronto - Psychology McPeck, J. E., BA Vermont; MA, PhD Western - Philosophy Menear, D. W., BA, BEd Toronto; MEd Alberta; FCCT - Professional Practice and Administration Milburn, G., BA Durham; BEd Toronto; MA Durham - History Moro, R. E., - Vocational Ogletree, J. F., BSc Western - Science O'Leary, P. T., AB Boston; MA Toronto - Philosophy O'Sullivan, J. C., BA Trinity College, Dublin - English Paterson, W. I., BPHE Toronto - Physical Education Park, P., BA Western; MEd Toronto - Science Peacock, H. A., MA New Brunswick; MA London; MEd Toronto - Philosophy Porte, M. E., BA Western - Psychology Porterfield, Grace, BHSc Guelph - Home Economics Procunier, E. R., BA Western; MA Wueen's - English Purdy, J. D., MA New Brunswick; PhD Toronto - History of Education Radcliffe, D. J., BA Cambridge; MA, PhD Wisconsin - History of Education Ray, D. W., BA, MEd Alberta; PhD London - History of Education Sanders, J. T., AB Harvard; MA, PhD Ohio State - Psychology Savage, Jean F. (Mrs.), RN Toronto Western; BA Western - Sociology Scaldwell, W. A., BA Western; MEd, EdD Toronto - Psychology Schmidt, P. K., BA Western; BEd, MEd Toronto - Guidance Slemon, A. G., BA Manitoba; MA Western; PhD Toronto - Psychology Smallbridge, J. E., BA, MA Toronto - English Smith, R. S., BA Western; MEd Toronto - Mathematics Sorrill, P. W., BA Western; MEd Toronto - Social Studies Stevenson, H. A., BA, DipEd, MA Western - History of Education Thomson, J. N., BA Western; BEd Toronto - Art Topp, R. H., BA Western - Teaching Methods Walsh, J. E., BA Western; BEd Toronto - Computer Studies Webber, H. D., BSc, MSc Western - Science West, N. W., BA, BEd, BPHE Toronto, MRSH - Physical Education Westgate, D. G., BA Western - Business Education White, J. H., BA, MusG.Paed Western; MM Eastman; ARCT Toronto - Music Wigston, Francis A., BA Western - Physical Education Wright, J. S., BA Toronto - Science Young, R. A., BA Loyola; BEd Montreal; MEd McGill - Guidance

MINIMUM REQUIREMENTS FOR ADMISSION

INTERIM HIGH SCHOOL ASSISTANT'S CERTIFICATE COURSE, TYPE A

(a) An acceptable honors degree with an average of 66% or B standing whichever is the higher in a program that meets the requirements as set forth by the Ministry of Education. Specifics with respect Althouse to particular subjects are available from Mr. G. L. Hartsell, Acting Associate Registrar, College of Education.

(b) Canadian Citizenship or Landed Immigrant Status

INTERIM HIGH SCHOOL ASSISTANT'S CERTIFICATE COURSE, TYPE B

(a) An acceptable university degree containing at least five undergraduate courses (B average) to support the first teaching option and two undergraduate courses to support the second teaching option.

(b) Canadian Citizenship or Landed Immigrant Status

ELEMENTARY SCHOOL TEACHER'S CERTIFICATE, STANDARD FOUR

(a) An acceptable university degree containing at least five courses in the Social Sciences or five courses directly related to a specific area of the elementary school curriculum.

(b) Canadian Citizenship or Landed Immigrant Status.

VOCATIONAL TEACHING CERTIFICATES

Two years of acceptable wage earning experience, subsequent to graduation, is required of graduates from approved four-year degree programs in Architecture, Engineering, and Nursing.

SPECIFIC REQUIREMENTS

(a) No undergraduate courses are required to elect School Librarianship and Theatre Arts options.

(b) To elect the Elementary Education option one should have at least five courses in the Social Sciences or five courses directly related to a specific area of the elementary school curriculum.

(c) Physical Education courses or related courses must be taken to support this option. In the case of related courses there should also be evidence of athletic participation by the applicant.

(d) To elect the Guidance option one must have at least five courses in the Social Sciences (B average) of which three must be Psychology, and successfully pass a personal interview with a member of the Guidance Department.

(e) Notwithstanding the necessity to elect two options, a candidate may elect Business & Commerce as his option and have a double timetable in that field.

(f) Students choosing one or more curriculum and instruction options from among the offerings of the Science Department, must consult the Althouse calendar very carefully concerning restrictions placed on the choice of these options.

CERTIFICATION

GENERAL INFORMATION CONCERNING CERTIFICATES VALID IN SECONDARY SCHOOLS IN ONTARIO

NOTE: Any information with respect to certification in Ontario set forth in this calendar is subject to alteration by the Ministry of Education that may supersede any regulation described below.

FOR ACADEMIC AND GENERAL SUBJECTS

(a) The higher Certificate is the Interim High School Assistant's Certificate Type A. This certificate may be obtained by completing the professional course of training for his certificate at a College of Education either through

(i) the regular winter session at the colleges or

(ii) the regular winter session leading to the Interim Type B

Certificate plus attendance in an additional summer course (6 weeks) in a Type A Seminar after having met the academic qualifications as set forth by the Ministry of Education.

(b) The basic Certificate is the Interim High School Assistant's Certificate Type A This certificate may be obtained by completing the professional course of training at a College of Education during the regular winter session.

This certificate qualifies the holder for five years as an assistant teacher. It may become a Permanent High School Assistant's Certificate upon the completion of two years successful teaching experience in a Secondary School in Ontario.

CERTIFICATES VALID IN ELEMENTARY SCHOOLS IN ONTARIO

1. The basic certificate for candidates who hold a degree of Bachelor of Arts or its equivalent, is an *Interim Elementary Teacher's Certificate Standard 4.*

   The Interim Certificate is valid for a period of five years and may be converted to a *Permanent Elementary Teacher's Certificate Standard 4* upon completion of two successful years of teaching in the elementary schools of Ontario.

2. A course leading to a certificate as a *Teacher of French to English-speaking Pupils* is offered to applicants who satisfy the admission requirements to this course; that is, fluency and accuracy in the speaking of French.

3. A course leading to an *Elementary Certificate in Vocal Music, Type B,* is offered to applicants who meet the admission requirements;

   (a) hold standing in Grade 13 instrumental or vocal music and Grade 3 theory: or, standing in the Grade 13 examination in Music;

   (b) pass an examination in sight-singing and ear tests:

   (c) pass an examination in written musical theory for those who do not hold standing in Grade 2 theory.

Advanced certificates in Vocal Music may be obtained by attendance at summer courses after receiving this basic certificate.

4. A course in Special Education is offered to candidates possessing extraordinary qualifications, both academic and practical.

Note: Success in the basic program leading to an Interim Elementary Teacher's Certificate Standard 4 is a prerequisite to obtaining either the certificate in Vocal Music or the certificate in Oral French.

FEES (as of 1973-1974 structure)

Fees for the winter session are due and payable in full on registration day. If necessary, fees may be divided into two instalments payable on the first day of each term. The extra charge for this division of fee is $5.00. The $50.00 deposit required as outlined in the application brochure will be deducted from the first instalment. This deposit will not be refunded if you do not register at Althouse College in September 1974.

WINTER SESSION

Full-Time Students $650.00

This amount includes a Student Activity Fee of $60.00 and Supplies and Materials Fee of $10.00

If paid in two instalments

Registration Day $360.00

First day of second term (includes a $5.00 deferred payment charge) $295.00

Official student tax certificates may be obtained in February from the Cashier, Office of the Comptroller, Stevenson-Lawson Building.

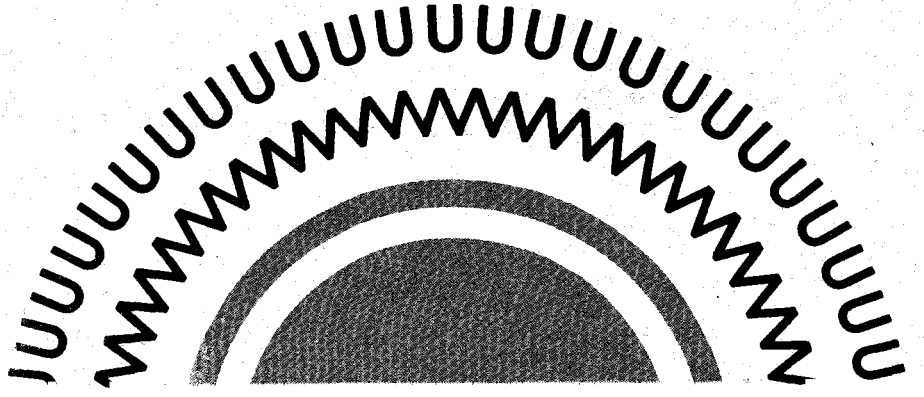
Summer Session

All five week courses $105.50

All six week courses $125.50

NOTE: The Board of Governors reserves the right to amend fees after the printing of this calendar.

Brescia College



Principal And Dean:
Sister Arleene Walker, BA UWO; MA Catholic University of America
Registrar:
Mrs. E. M. Arnold
Business Administrator:
Mr. N. Crack
Librarian:
Sister Pierina Caverzan, BA UWO; MALS Rosary College
Dean of Students:
Sister Ruth Marie Curry, BA UWO; MEd Toronto
Alumnae Advisor:
Sister Margaret Hanley, BA UWO; MA Detroit

Brescia College

Address for Correspondence:
1285 Western Road, London N6G 1H2
Telephone: (519) 432-8353

BRESCIA COLLEGE TEACHING STAFF

Adams, S., BA Minnesota; MA Toronto — *English.*
Angelov, A. D., BA UWO — *Geography.*
Brett, Joyce, BSc, MSc Alberta — *Home Economics.*
Byard, Catherine E. (Mrs.), BSc Mount Allison — *Home Economics.*
Cavanaugh, P. E., (Reverend), BA UWO; MA Toronto; PhD Notre Dame — *Philosophy.*
Chaudhary, Krishna (Mrs.), BA, MA Bihar; MA Windsor — *Sociology.*
Chen, Shirley (Mrs.), BA Taiwan Chung Shen; MS, PhD Nebraska — *Home Economics.*
Chevalier, Lucille (Sister), BA Ottawa — *French.*
DiStefano, Lynne (Mrs.), BA Russell Sage; MA Boston; MA, PhD Pennsylvania — *Home Economics.*
Feldsman, Teresa (Sister), BA UWO — *German.*
Fric, L, BA, MA Manitoba; PhD Toronto — *Economics.*
Giovannetti, Patricia, BSc St. FX; MS Minnesota; PhD Manitoba — *Home Economics.*
Guinan, St. Michael (Sister), BA UWO; MA Catholic U. of America; PhD Laval; LLD UWO — *Philosophy.*
Henry, J. B. (Reverend), BA UWO; BT St. Peter's; MA Notre Dame; LTh Gregorianum — *Philosophy.*
Howe, Margaret (Mrs.), BA Acadia; MA Toronto — *Psychology.*
Hunter, R. B., (Reverend), BA UWO; STBS — *Religious Studies.*
Kuntz, Dolores (Sister), BA UWO; MA Detroit; Dip. Psych; PhD Queen's — *Psychology.*
Lancaster, Olive (Mrs.), BA, MA UWO — *English.*
Leishman, Patricia (Mrs.), BA New Rochelle; MA — *Spanish.*
McKenzie, Mary Louise (Sister), BA, MA UWO — *English.*
Meloche, Eva (Sister), BA Ottawa; MA Montreal; Dip. Sup. d'Etudes francaises, Grenoble — *French.*
Mercer, Nina (Mrs.), BA Nebraska; MS Cornell; RP Dt — *Home Economics.*
Murphy, R. T. A., (The Very Reverend), OP, STD Angelicum; SSD Biblical Commission; STM Dominican Order — *Religious Studies.*
Murray, Nancy (Mrs.), BSc Mount Allison, RP Dt — *Home Economics.*
Normandeau, Helen (Sister), BA UWO; MSc Wisconsin — *Home Economics.*
Paul, J., BA, MA, PhD Toronto — *Psychology.*
Quenneville, Marie-Anne (Sister), BA, MA Ottawa — *Religious Studies.*
Rickman, Lillian (Mrs.), BS Chicago; RP Dt — *Home Economics.*
Ryan, Frances (Sister), BA, MA UWO; PhD York — *Sociology.*
Ryan, M. T., (Reverend), BA UWO; MA, PhD Notre Dame — *Philosophy.*
Sather, Jane M., BSc Saskatchewan; MSc Guelph — *Home Economics.*
Sharp, Carola (Sister), BEd Fordham; MA U of New Brunswick — *German.*
Sharp, Corona (Sister), BA UWO; MA PhD Notre Dame — *English.*
Shirley, R., BA UWO — *History.*
Shivers, Janice L. (Mrs.), BSc Kansas — *Home Economics.*
Skidmore, Patricia (Mrs.), BSEd, MA Kent State; PhD Alberta — *History.*
Strube, Sin Phing Moo (Mrs.), BA, MA U of Singapore; PhD U of Michigan — *Mathematics.*
Walker, Arleene (Sister), BA UWO; MA Catholic U of America — *Sociology.*
Zoll, A. R., BA Michigan; MA New Mexico; PhD Michigan — *English.*

BRESCIA

BRESCIA COLLEGE IS -

A residential women's college under Catholic auspices affiliated with the University of Western Ontario that has given over half a century of service to the communities of London, of Canada and of the world. Students, faculty and board members are representative of all faiths and creeds.

BRESCIA COLLEGE OFFERS -

A beautiful campus with space for quiet reflection and a comfortable residence. Brescia students share in all University activities; academic, social, athletic and cultural. Certain courses are taken at the University or at the other affiliated Colleges. Some classes in the College are co-educational. As a predominantly women's college it offers to its students unique opportunities in leadership and self-government.

BRESCIA COLLEGE STRIVES -

For better education through personal contacts, professional excellence, academic counselling, small classes and seminars.

ENTRANCE SCHOLARSHIPS AND AWARDS

A number of Entrance Scholarships valued from $100 to full tuition are awarded to deserving students from Ontario Grade XIII.

INTER-YEAR SCHOLARSHIPS

The Brescia College Alumnae offer several scholarships for students with the highest average (at least 80%) among upperclassmen. Brescia College makes two awards to second year Home Economics students for the highest average (at least 80%) in each of the General Program and the Food and Nutrition Program respectively.

AWARDS TO THE GRADUATING CLASS

The Brescia College Advisory Board each year awards a Gold Medal to the Graduate with the highest average (at least 80%). Brescia College presents the Home Economics Award to the graduating student with the highest average (at least 80%) in Home Economics.

GOVERNMENT LOANS AND GRANTS

All students residing in Ontario may apply for a Student Loan and Grant if they are in need of assistance.

Application forms may be obtained from the Dean of Students or the Registrar at Brescia. Completed forms, in duplicate, should be sent to the Student Awards Officer at The University of Western Ontario.

LIBRARY

Facilities include a collection of about 30,000 well chosen volumes to which additions are being continually made, as well as an attractive and comfortable reading room and carrels for quiet study.

RESIDENCE

Brescia College offers residence to 174 women students registered at the College. Facilities include double rooms for First Year students, single rooms for students who have completed First Year, coin-operated laundry equipment, a cafeteria providing three meals a day for seven days a week, lounges with and without T.V., and a chapel where daily services are held for those wishing to attend.

Since accommodation is limited, application for residence should be made as soon as possible on the form provided by the Registrar. Each application should be accompanied by a deposit of $50.00 which is credited on account, and is refundable if the College is informed of withdrawal by August 15th.

Students should bring their own sheets, pillow cases, towels, and blankets.

FEES

(All fees subject to change from year to year)

TUITION fee is the same as at the Constituent University. For the academic year 1974-75. full time Tuition (includes incidental fees) $655.50

Preliminary Year Tuition $705.50

Brescia College Student Council Fee $16.00

Residence* $1150.00

*Fees for the academic session do NOT include Christmas vacation period. Students may take up residence twenty-four hours prior to registration and must vacate their rooms within twenty-four hours following the last date of the final examinations.

PROGRAMS AVAILABLE INCLUDE

PRELIMINARY YEAR - a co-educational Preliminary Year Program for students from Ontario Grade XII or the equivalent.

BACHELOR OF ARTS - three year programs (from Ontario Grade XIII or equivalent) in Arts, Social Sciences and Secretarial Science.

HOME ECONOMICS - a scientifically-based three year degree program preparing students for the traditional fields of teaching and dietetics, as well as for other newer occupations.

HONORS BACHELOR OF ARTS - four year Honors programs in English, French, History and Philosophy or any combination of programs containing one of these subjects.

All degrees are conferred by The University of Western Ontario.

PRELIMINARY YEAR

The Preliminary Year will consist of the following program:

FOR ADMISSION TO MOST FIRST YEAR GENERAL PROGRAMS

English 010

Four other courses to be chosen from: Geography 010; History 014; Mathematics 010; Religious Studies 010; a second language (001, 002, or 010*)

(languages available are: French 002 or 010; German 001, 002 or 010; Italian 002; Latin 002 or 010; Russian 002, Spanish 002).

* A language at the 001 level is a beginner's course; at the 002 level is a more intensive beginners course; and at the 010 level it presupposes Grade 12 or its equivalent.

DEPARTMENT OF HOME ECONOMICS

ASSOCIATE PROFESSOR AND CHAIRMAN: Giovannetti
ASSISTANT PROFESSORS: Chen, DiStefano, Mercer, Rickman, Sather
LECTURERS: Brett, Byard, Murray, Normandeau, Shivers (on leave)

REQUIREMENTS FOR ADMISSION

A full year of successful study at the Grade 13 level with Chemistry and Biology required and English and Mathematics strongly recommended. Students without grade XIII Chemistry and Biology will be considered upon the recommendation of the Department Chairman.

This program is offered jointly by the University and Brescia College. All Home Economics courses are given at Brescia College, the Natural Sciences are given at the University, and the Humanities and Social Sciences are given at both the University and Brescia College.

CAREER OPPORTUNITIES

The Home Economics Program is concerned with family and community needs. The graduate from this program should have sufficient knowledge, communicative competency and the necessary confidence to play a specific role in helping people manage their lives effectively, by advising them with regard to food, clothing, shelter and human relationships. This is done through regular channels of employment.

Graduates from the three-year Teaching and related fields Program are admissible to a College of Education in Ontario for training towards a Type B Teaching Certificate and teaching at the elementary or secondary school level in Ontario. The three-year Food and Nutrition Program leads to a Nutrition and Administration (Concentration B) Canadian Dietetic Association approved dietetic internship and qualification as an administrator of normal or modified diets in schools, hospitals, industry, commercial establishments and the Armed Forces; she (he) may also obtain a position as a nutritionist, interpreting the principles of nutrition for the promotion of public health.

The graduate of the program may also find a satisfying career as a home economist in either the rural or urban community by communicating ideas, principles, techniques and the latest research findings through verbal, written and audio-visual communication, or in business and government by developing, testing and promoting consumer products or utilities.

A fourth or qualifying year is being offered in order to give students a broader background in Home Economics and related fields. Its aim is to provide specialized training so that the graduate may become a specialist as a Home Economist in community extension work, in business and in teaching. It also serves as preparation for graduate studies in Canada and elsewhere. More specifically, however, this fourth year has been designed to meet requirements for training for a Type A Teaching Certificate in Ontario and for entrance into specialized dietetic internships.

Students should be aware that a 70% average in Home Economics courses is desirable for a Type B Teaching Certificate and is a requirement for a Type A Teaching Certificate.

An overall average of 70% is recommended for students in the Food and Nutrition Program to assure acceptance into a Canadian Dietetic Association approved dietetic internship.

FIRST YEAR:

Biology 020 or 021.

Chemistry 020 or 023

Sociology 020

OR

Psychology 020

Orientation to Home Economics (First Term one hour No Credit)

Home Economics 023a

One Of The Following:

Home Economics 020b, 024b, 025b

One Arts option at the 020 level

At the end of the first year, the student must choose between the General Program and the Food and Nutrition Program. Students wishing to specialize in textiles, clothing and design or prepare for teaching and related fields should register in the general program.

SECOND YEAR:

Plant Sciences 137

Organic Chemistry 203

Physiology 130

GENERAL PROGRAM -

Home Economics 020a

Home Economics 130b

Two of the following:

Home Economics 131, 132, 134

FOOD AND NUTRITION PROGRAM -

Home Economics 131

Home Economics 132

A senior option in Psychology (preferably 241 - Developmental Psychology) or Sociology (preferably 139 - The Family).

THIRD YEAR

I. GENERAL PROGRAM: (teaching and related fields):

A senior option in Psychology (preferably 241 - Developmental Psychology) or Sociology (preferably 139 - The Family)

Home Economics 131, 132 or 134 if not taken previously

Home Economics 145b

Home Economics 155a

At least **TWO** of the following half courses (all of which may not be offered every year):

Home Economics 025b, 140a, 141a, 142a, 143a, 144a, 146b, 147a, 150b, 151b, 153b, 154b, 156b, 157a, 160a, 161b

A senior option from Arts, Social Science or Home Economics

II. TEXTILES, CLOTHING AND DESIGN PROGRAM: (A fourth year of study is required for this area of specialization):

Home Economics 145b

Home Economics 155a

At least **FOUR** of the following half courses to be selected according to the area of emphasis (if not taken previously).

Home Economics 024b, 025b, 140a, 143a, 144a, 146b, 147a, 150b, 153b, 154b, 156b, 157a, 160a

TWO full courses (or the equivalent in half courses) to be selected in consultation with the Department.

III. FOOD AND NUTRITION PROGRAM:

(Concentration A, B or C is the terminology used by the Canadian Dietetic Association to describe their approved dietetic internships. The following programs have been approved by the Canadian Dietetic Association as meeting their requirements for admission to

(1) Concentration A, an internship with specialization in Nutrition and qualification as a Therapeutic Dietitian or Community Nutritionist. To complete the requirements for this internship, a fourth year of study is required.

(2) Concentration B, a generalized internship with a nutrition and food science administration emphasis and qualification as a Dietitian or Public Health Nutritionist. The requirements for this internship can be completed in three years.

(3) Concentration C, an internship with specialization in Food Service Administration and qualification as an Administrative Dietitian. To complete the requirements for this internship, a fourth year of study is required.

NUTRITION (Concentration A):

Biochemistry 136

OR

Biology 301* (Biochemistry 406)

Home Economics 141a

Home Economics 142a

Home Economics 149a

Home Economics 151b

Home Economics 155b

ONE and ONE-HALF options in consultation with the Department.

NUTRITION AND FOOD SERVICE ADMINISTRATION (Concentration B):

Biochemistry 136

OR

Biology 301* (Biochemistry 406)

Home Economics 141a

Home Economics 142a

Home Economics 148a

Home Economics 149a

Home Economics 151b

Home Economics 155b

Home Economics 158b

Home Economics 159b

* Recommended only for the student attaining at least 70% in Chemistry 203 and wishing to study further in Biochemistry.

FOOD SERVICE ADMINISTRATION (Concentration C):

Computer Science 022a

Economics 020

Home Economics 148a

Home Economics 149a

Home Economics 158b

Home Economics 159b

ONE and ONE-HALF options in consultation with the Department.

FOURTH YEAR (or qualifying year):

This year of study (available in consultation with the Department) is necessary for

1) Type A Teaching Certificate
2) Specialization in Textiles, Clothing and Design
3) Specialization in Food Service Administration **OR** Nutrition concentrations

COURSES

020a and 020b. Introductory Clothing. Application of basic clothing construction and fitting principles.
Antirequisite: Both courses may not be taken for credit.
Half course, 3 lecture/laboratory hours, (offered both terms).

023a. Basic Design. Introduction to the elements and principles of design. Through illustrated lectures, group discussion, and individual studio exercises, the student will explore the elements and principles of design. Emphasis will be placed upon theoretical understanding.
Field trips, Half course, 3 lecture/studio hourse (First Term).

024b. Advanced Design. Continued study of the elements and principles of design. Through extended studio projects, selected on an individual basis, the student will explore the elements and principles of design in depth. Emphasis will be placed upon creative project solutions.
Field trips.
Prerequisite: Home Economics 023a.
Half course (Second Term); 3 lecture/studio hours.

025b. Housing Design.. An investigation of historic and contemporary house design. Particular stress will be placed upon technological, sociological, functional, economic and aesthetic aspects of contemporary housing.
Half course (Second Term); 3 lecture hours.

130a and 130b. Advanced Clothing. Construction techniques applied to specific design and fabric problems.
Antirequisite: Both courses may not be taken for credit.
Prerequisite: Home Economics 020a or 020b.
Half course (offered both terms); 3 lecture/laboratory hours.

131. Fundamentals of Human Nutrition. A study of the chemical, physical and functional properties of the nutrients with special emphasis on metabolism and other factors affecting human dietary requirements.
Corequisites: Chemistry 133a or 203 and Physiology 130
3 lecture hours, 1 laboratory/tutorial hour.

132. Principles of Food Science. A study of the physical structure, chemical composition and nutritive value of foods with emphasis on the effect of the physical and chemical environment on a finished product. An experimental approach will demonstrate the principles and methods of food preparation.
Corequisite: Chemistry 133a or 203.
3 lecture hours, 3 laboratory hours.

134. Introductory Textile Science. A study of fibre properties, and generic fibre classes, with emphasis on the relationship between properties and end use performance. Laboratory study of yarn and fabric structure, fibre and fabric properties.
Corequisite: Chemistry 133a or 203
3 lecture hours, 2 laboratory hours, full course.

140a. Tailoring. An in-depth study of professional tailoring methods used in custom-tailored garments.
Prerequisite: Home Economics 130a or 130b.
Half course, first term; 3 lecture, laboratory hours.

141a. Nutrition for Human Growth and Development. A study of 1) cellular and physical human growth, 2) motor and mental development during infancy, early childhood, adolescence and pregnancy, and 3) adjustments made at birth, with emphasis on the consequences of nutrition on these processes.
Prerequisites: Home Economics 131 and Physiology 130.
Corequisite: Biochemistry 136 or by permission.
Half course, first term; 3 lecture hours.

142a. Advanced Food Science. A study of 1) the sensory and objective methods in evaluating food quality, 2) selected processing methods and their effect on the nutritive value and acceptability of a product, 3) food additives and enzymes used in the food industry. An independent, practical investigation into a specific problem will introduce the student to food research.
Prerequisite: Home Economics 132.
Half course, first term; 2 lecture hours, 3 laboratory hours.

143a. Textile Design. Direct application of the principles of design as they relate to fabric printing. This practical study will be developed through the techniques of batik and tie-dye and will be supplemented by slide and lecture presentation based on the historical development of textile design.
Prerequisite: Home Economics 023a.
Half course, first term; 3 lecture/studio hours.

144a. Advanced Textile Science. A study of the modification of fibres, yarns, and fabrics by the application of colour (dyeing and printing) and by the application of finishing processes and techniques, both mechanical and chemical. A survey of recent advances in textile science.
Prerequisite: Home Economics 134.
Half course, first term; 2 lecture hours, 3 laboratory hours.

145b. Consumer Economics. A study of the role of the consumer in society. Specific aspects of family finance, consumer problems, and sources of consumer information will be considered.
Half course, second term; 3 lecture hours.

146b. History of Costume. A historical study of clothing from ancient to modern times with emphasis on the relationship of culture, society and the arts to change in styles of dress; the contribution of cultures to contemporary apparel and the recent changes in fashion in Canada.
Half course, second term; 2 lecture hours.

147a. Furniture Design. Study of the major historic furniture styles with stress on their innovative aspects as well as their influence upon contemporary furniture styles. Modern furniture styles will be considered in particular depth with attention directed to design, function, technical achievement, and social implication.
Prerequisite: Home Economics 023a or by permission.
Half course, first term; 3 lecture hours.

148a. Food Production Management. The application of scientific principles to the procurement, production and service of institutional food. Work organization, menu-planning, recipe development and food trends are studied. Field trips (1230-1630 hours Wednesday, and field work during Fall Term or Conference Week) are required. Limited to Food and Nutrition majors.
Prerequisite: Home Economics 132
Half course (First Term); 3 lecture hours, 4 laboratory/field trip hours.

149a. Principles of Management. A study of management by consideration of the evolution of managerial theory and the influence of the behavioural sciences. To initiate development of managerial skill, emphasis is placed on objectives, policies, authority relationships and methods of work improvement. Case studies are used to develop skill in decision-making.
Half course (First Term); 3 lecture hours.

150b. Flat Pattern Design. A study of pattern-making techniques leading to the development of the students' original garment designs from a sloper.
Prerequisite: Home Economics 130a or 130b.
half course, second term; 4 lecture/laboratory hours.

151b. Nutrition and Human Disease. A study of the metabolic and physiological changes in specific disease conditions and the principles underlying dietary modification in the nutritional therapy of these conditions. Through use of diet manuals and food composition tables, the student will gain experience in modifying diets.
Prerequisites: Home Economics 131 and Physiology 130.
Corequisite: Biochemistry 136 or Biology 301.
half course, second term; 3 lecture hours, 1 laboratory hour.

153b. Textile Design. Direct application of the principles of design as they relate to fabric printing. This practical study will be developed through the technique of screenprint and blockprint and will be supplemented by slide and lecture presentation based on the historical development of textile design.
Prerequisite: Home Economics 023a.
half course, second term; 3 lecture/studio hours.

154b. Consumer Textiles. A consideration of the functional qualities of textile materials for home and institutional use, and for apparel. Factors determining quality, durability, strength, appearance, care, colourfastness, flammability, comfort, handle, dimensional stability, cost and other properties which determine selection and end use performance. Field trips. Laboratory investigation of fabric performance.
Prerequisite: Home Economics 134 or by permission.
half course, second term; 2 lecture hours, 3 laboratory hours.

155a and 155b. Communications. A survey of the principles and techniques involved in verbal and non-verbal communication, with emphasis on leading a discussion group, conducting an interview, constructing and using audio-visual materials as well as preparing and presenting information or demonstrations.
half course, offered both terms; 1 lecture hour, 3 lecture/laboratory hours.

156b. Costume Design. Appreciation of good design in clothing; development of techniques and study of media used in fashion illustration, leading to the development of original design sketches. The latter will relate to the fashion figure and will be directed towards visual communication in the field of fashion illustration.
Prerequisites: Home Economics 020, 023a and 130.
(Not offered 1974-75)
half course, second term; 3 lecture/studio hours.

157a. *Interior Design.* Study of historic and contemporary domestic interiors. Particular stress will be placed upon the functional planning of contemporary interiors and the relationship of the interiors to their structures and landscape environments. Students will have the opportunity to meet with interior designers and explore specific interior design problems.
Prerequisite: Home Economics 023a or by permission.
(Not offered 1974-75)
half course, first term; 3 hours.

158b. Equipment Selection and Food Facility Layout. A study of the principles of selection and maintenance of large and small equipment for institutional use, and the determination of area and space relationships in the planning of physical facilities.
Prerequisite: Home Economics 148a.
Half course (Second Term); 3 lecture hours.

159b. Managerial Control. A study of the nature and purpose of staffing, motivation, grievance procedures and collective bargaining. Methods of cost control of a food service by a study of basic accounting principles, internal records, financial statements, budgets and the computer as a management tool.
Prerequisite: Home Economics 149a.
Half course (Second Term); 3 lecture hours.

160a. Behavioral Aspects of Clothing. A study of the relationship of clothing to society and the individual.
Prerequisite: Psychology 020 or Sociology 020 or by permission.
half course, first term; 3 lecture hours.

161b. Community and World Nutrition. Consideration of the factors influencing nutrition locally, nationally and internationally and the solution of nutritional problems. Emphasis is placed on the methodology of nutritional surveys and education.
Prerequisite: Home Economics 131.
half course, second term; 3 lecture hours.

171a. Nutrition and Metabolic Processes. A study of the fate of nutrients at the cellular level, with emphasis on nutrient transport, localization of metabolic processes and cellular metabolic control mechanisms. Nutritional and metabolic aspects of carbohydrates, lipids, proteins, vitamins, minerals, water or energy will be discussed as interest and time allow.
Prerequisites: Home Economics 131, Physiology 130, Biochemistry 136 or by permission.
(Not offered 1974-75)
half course, first term; 3 lecture hours.

180a. Selected Topics in Clothing.
Prerequisites: Home Economics 130a or 130b; and either 146b and 160a or 140a and 150b; or by permission.
Half course (First Term); 3 hours.

181a. Selected Topics in Nutrition.
Prerequisites: At least two of Home Economics 141a, 151b, 161b, 171a; or by permission.
Half course (First Term); 3 hours.

182a. Selected Topics in Food.
Prerequisite: Home Economics 142a or by permission.
half course, first term; 3 hours.

183a. Selected Topics in Textile Design.
Prerequisite: Home Economics 143a or by permission.
half course, first term; 3 hours.

184a. Selected Topics in Textiles.
Prerequisite: Home Economics 144a or by permission.
Half course (First Term); 3 hours.

185b. Selected Topics in Clothing.
Prerequisites: Home Economics 130a or 130b; and either 146b and 160a or 140a and 150b; or by permission.
Half course (Second Term); 3 hours.

186b. Selected Topics in Nutrition.
Prerequisites: At least two of Home Economics 141a, 151b, 161b, or 171a; or by permission.
Half course (Second Term); 3 hours.

187b. Selected Topics in Food.
Prerequisite: Home Economics 142a or by permission.
half course, second term; 3 hours.

188b. Selected Topics in Textile Design.
Prerequisite: Home Economics 143a or by permission.
half course, second term; 3 hours.

189b. Selected Topics in Textiles.
Prerequisite: Home Economics 144a or by permission.
Half course (Second Term); 3 hours.

190a. Seminar in Clothing.
Prerequisites: Home Economics 130a or 130b; 146b, 160a or by permission.
Half course (First Term); 2 hours.

191a. Seminar in Nutrition.
Prerequisites: At least two of Home Economics 141a, 151b, 161b, 171a or by permission.
Half course (First Term); 2 hours.

192a. Seminar in Food.
Prerequisite: Home Economics 142a or by permission.
half course, first term; 2 hours.

193a. Seminar in Textile Design.
Prerequisite: Home Economics 143a or by permission.
half course, first term; 2 hours.

194a. Seminar in Textiles.
Prerequisites: Home Economics 144a and 154b or by permission.
half course, first term; 2 hours.

195b. Seminar in Clothing.
Prerequisites: Home Economics 130a or 130b, 146b, 160a or by permission.
Half course (Second Term); 2 hours.

196b. Seminar in Nutrition.
Prerequisites: At least two of Home Economics 141a, 151b, 161b, 171a or by permission.
Half course (Second Term); 2 hours.

197b. Seminar in Food.
Prerequisite: Home Economics 142a or by permission.
Half course (Second Term); 2 hours.

198b. Seminar in Textile Design.
Prerequisite: Home Economics 143a or by permission.
half course, second term; 2 hours.

199b. Seminar in Textiles.
Prerequisites: Home Economics 144a and 154b or by permission.
half course, second term; 2 hours.

DEPARTMENT OF SECRETARIAL SCIENCE

REQUIREMENTS FOR ADMISSION

Grade XIII standing in English and five other credits (with a minimum average of 60%).

EFFECTIVE MAY 1, 1975

Prerequisite of an introductory course in Typewriting will be required for admission to the Secretarial Science Program. An introductory course is one consisting of a knowledge of the keyboard, elementary practice in the business letter and tabulation and a straight copy speed of approximately 20-30 words per minute. Written proof in the form of a certificate, Letter of Standing, Secondary School transcript or proof of equivalent proficiency will be required.

The Secretarial Science Program is offered jointly by The University and Brescia College. All Secretarial Science courses are given at the Constituent University and the Humanities and Social Science options are available at both the University and Brescia College.

Graduates are employed as executive secretaries in business, industry, government service and educational institutions. The Ministry of Education of Ontario accepts a degree in this program as the academic qualification for entry into a college of education. Upon successful completion of a one-year program at a college of education the student receives the High School Assistant's Certificate, Type B, for teaching in the Secondary Schools of Ontario.

FIRST YEAR

Secretarial Science 025

Business 020

English 020, 024 or 026

Two Options

SECOND YEAR

Secretarial Science 135

Secretarial Science 137

Economics 020

A Senior English

Two Options

THIRD YEAR

Secretarial Science 130

Secretarial Science 145

Secretarial Science 147

A Senior English

Two Senior Options

COURSES

Course descriptions are here provided only for those courses taught at Brescia College. If some of these are not offered in a given year at Brescia, they are usually offered at the Constituent University and, in some instances, at the other Affiliated Colleges also. Other courses in Arts and Social Science are available for Brescia College students at the University or the other Affiliates. All laboratory courses in the Natural Sciences are taught entirely in the Faculty of Science.

It should be noted that students registered at Brescia College will normally take two courses within the college each year unless granted special permission by the Dean.

ECONOMICS

LECTURER: Fric

020. Introduction to Economics. National income, unemployment and inflation; distribution of income; balance of payments and the exchange rate; the competitive firm, profit maximization and monopoly; supply and demand with applications to the minimum wage, agricultural programs and neut control; the government's role in regulating business, stabilizing the economy and transferring income to the poor.

3 hours, full course.

ENGLISH

PROFESSOR: Sharp

ASSOCIATE PROFESSOR: McKenzie

ASSISTANT PROFESSOR: Zoll

LECTURERS: Adams, Lancaster

010. Literature and Composition.
Antirequisite: Grade XIII English.
Prerequisite: Grade XII English.
3 hours.

020. General Literature and Composition. An introduction to the romance, ironic (or satiric), tragic and comic modes of literature.
Prerequisite: Grade XIII English.
3 hours.

024. Forms of Fiction. An introduction to the study of a) a selection of fiction ranging from the Greek epic to the modern novel, including both short and longer forms; b) a variety of fictional modes and narrative techniques.
Prerequisite: Grade XIII English.
3 hours.

026. Forms of Drama. An introduction to the study of a) the main principles of dramatic art; b) selected aspects of dramatic and theatrical history; c) the major dramatic genres.
Prerequisite: Grade XIII English.
(Not offered 1974-75).
3 hours.

130. Comparative Literature. A course of reading in English or in English translations of some of the great books of Western civilization from Homer to Joyce with particular emphasis on the growth of epic, drama, and fiction.
Prerequisite: Grade XIII English
3 hours.

131. Contemporary Literature. An introduction to the poetry and prose of the contemporary scene.
Prerequisite: Grade XIII English.
(not offered 1974-75).
3 hours.

200. The Novel.
Prerequisite: a 020-level English.
3 hours.

230. Literature of the Sixteenth Century, Excluding Drama.
Prerequisite: a 020-level English.
(not offered 1974-75).
3 hours.

231. Literature of the Seventeenth Century, Excluding Drama.
Prerequisite: a 020-level English.
3 hours.

232. Shakespeare.
Prerequisite: a 020-level English.
3 hours.

260. Literature of the Victorian Period (1832-1900).
Prerequisite: a 020-level English.
(not offered 1974-75).
3 hours.

270. Modern Literature (1890-1945).
Prerequisite: a 020-level English.
3 hours.

271. Modern Drama.
Prerequisite: a 020-level English.
(not offered 1974-75).
3 hours.

FRENCH

ASSISTANT PROFESSOR: Meloche

INSTRUCTOR: Chevalier

002. Intensive French. Grammar, composition, oral practice. This course is designed for students beginning French, or having a limited knowledge of French.
Antirequisite: Grade XII or XIII French.
5 hours, tutorials, lab.

010. Intermediate French. Grammar review, composition, translation, oral practice. (One hour per week in the language laboratory may be required).
Prerequisite: Grade 12 French or French 002 or by permission of the Department.
3 or 4 hours, tutorials.

020. French Language and Literature. This is the basic freshmen course in French, providing training in language and literary studies.
Prerequisite: French 010, Grade 13 French, or by permission of the department.
4 hours lectures, tutorials, lab.

021. A study of the French language based on cultural (non-literary) written material, translation exercises and basic grammar problems.
Prerequisite: Grade 13 French or the equivalent.
4 hours, tutorials, labs.

131. Language. Grammar, composition, translation, oral practice. (One hour per week in the language laboratory may be required).
Antirequisite: French 271.
Prerequisite: French 020 or 021.
3 or 4 hours lectures, tutorials.

232. French Civilization. A study of modern France, her historical background and political, economic, social and cultural development.
Antirequisite: French 132 (formerly 32).
Prerequisite: French 020 or 021.
3 hours lectures, tutorials.

271. Language. Grammar, composition, oral practice, phonetics, history of the French language. (One hour per week in the language laboratory may be required). This course is required for concentration in French.
Antirequisite: French 131 (formerly 31).
Prerequisite: French 020 or 021.
3 or 4 hours lectures, tutorials.

290. Introduction to French Literature. A study in depth of some major French texts with training in the skills of literary analysis. This course is required for concentration in French.
Prerequisite: French 020 or 021.
3 hours lectures, tutorials.

GEOGRAPHY

INSTRUCTOR: Angelov

010. Geography of Canada.
Antirequisite: Grade 13 Geography.
3 hours.

GERMAN

ASSISTANT PROFESSOR: Sharp

LECTURER: Feldsman

001. Introductory German. Study of the sounds and structure of the language. Intensive oral and written practice. Readings in prose and poetry.
Antirequisites: Grade 13 German, German 002, 005
3 hours.

002. Intensive German for Beginners. A more intensive course than German 001. Designed for students who begin German at the University and who contemplate making German their subject of concentration or desire to enter the German honors courses.
Antirequisites: Grade 13 German, German 001, 005.
3 lecture hours, 2 laboratory hours.

010. Intermediate German. Further study of the structure and idiom of the language. Readings in modern prose and poetry. Oral and written practice.
Antirequisites: Grade 13 German or German 002.
Prerequisite: German 001 or by permission of the Department.
3 hours.

020. German Language and Literature. Survey of German literature, conducted largely in German, with further work on the language.
Antirequisite: German 022
(not offered 1974-75).
Prerequisite: Grade 13 German or German 002 or 010 or by permission of the Department.

3 hours, (plus optional laboratory hours).

022. German Conversation and Contemporary Readings. A course designed to increase proficiency in the use and comprehension of spoken and written German. Systematic oral practice and discussion of contemporary texts. Conducted in German. This course is a first year alternative to German 020.
Prerequisite: Same as German 020.
3 hours, (plus optional laboratory hours).

136. Modern German Fiction in Translation. This course is designed to introduce the English-speaking student to German writers of the late nineteenth and twentieth centuries who have influenced contemporary literature and thought (e.g. Mann, Kafka, Hesse, Grass). This course will be given in English and may not count towards a German concentration.
3 hours.

HISTORY

ASSISTANT PROFESSOR: Skidmore

INSTRUCTOR: Shirley

014. History of Canada and the United States.
Antirequisite: Grade 13 History
3 hours.

020. Modern Europe 1715 to the Present. Analysis of the evolutionary and revolutionary development of Modern Europe, with intensive treatment of the great landmarks in the formation of Western society and culture.
Antirequisite: All other History Courses 020-099
3 hours.

132. England to 1688. An introduction to English history from the Anglo-Saxons.
3 hours.

147. Women in History. North Atlantic Society since 1800. A survey of the ideas about women, and their activities, with emphasis on changes in concepts and practices and the effects on societies.
3 hours.

MATHEMATICS

LECTURER: Strube

010. Calculus with Analytic Geometry. Topics in algebra, trigonometry and analytic geometry followed by an introduction to differential and integral calculus.
Antirequisites: Two credits in grade XIII mathematics including a credit in calculus.
Prerequisite: Grade 12 Mathematics
3 lectures, 1 tutorial hour.

PHILOSOPHY

PROFESSORS: Guinan, Ryan

ASSOCIATE PROFESSOR: Cavanaugh (on leave)

LECTURER: Henry

020. Introduction to Philosophy. This course deals with fundamental problems in Philosophy, especially in Natural Philosophy, Moral Philosophy, and Metaphysics, and the solutions offered by great thinkers in these respective fields.
3 hours.

135. Aesthetics: Conceptual Problems Relating to the Production and Appreciation of the Fine Arts. Specimen topics include the nature of the work of art and of artistic expression, artistic criticism, fiction, metaphor, appreciation and the logic of value judgements.
Antirequisite: Philosophy 255 (formerly 355)
(not offered 1974-75).
2 hours.

138. Phenomenology and Existential Philosophy. A course designed to acquaint the student with the fundamentals of the existentialist movement. Among philosophers considered will be: Kierkegaard, Nietzsche, Husserl, Marcel, Heidegger, Sartre, Merleau-Ponty.
Antirequisite: Philosophy 238 (formerly 338)
2 hours.

142. Ethics. Critical discussion of moral issues and theories.
Antirequisite: Philosophy 262 (formerly 362)
2 hours.

PSYCHOLOGY

PROFESSORS: Kuntz, Paul

ASSISTANT PROFESSOR: Howe

020. Introduction to Psychology. An introductory survey of the methods and findings of modern scientific psychology. The following topics will be covered: history and methodology, biological psychology, sensation and perception, learning and motivation, verbal and cognitive processes, developmental psychology, social psychology, individual differences (intelligence and personality), and clinical psychology.
Although there is no laboratory requirement, voluntary participation in approved research projects will be encouraged.
3 hours.

141. The Exceptional Child. A comprehensive study of the etiology, identification, training and/or treatment of the exceptional child. Special emphasis will be given to the gifted, creative, mentally retarded, physically disabled, neurologically impaired and emotionally and socially disturbed. Assignments will include outside readings, essays and visits to community facilities.
Cannot be taken for credit if Psychology 39 has been successfully completed.
Antirequisite: Psychology 242.
Prerequisite: Psychology 020.
3 hours.

146. Community Applications of Psychology. Emphasis is given to the methods of behavior change, and to problems in the design of work or study environments encountered by psychologists working in educational, industrial, or hospital settings. Cannot be taken for credit if Psychology 81, 82a, 83b, 264, 76, 261a, 262a, 263b, or 446 has been successfully completed.
Prerequisite: Psychology 020 or permission of instructor.
3 hours.

172. Social Psychology. An introduction to the theories, methods, findings, and problems encountered in the study of man as a social being. Emphasis will be placed on field research. Substantive areas to be covered include the following: socialization; social factors in perceptual-cognitive processes; attitudes, prejudice and propaganda; social influence; group dynamics; leadership; intergroup relations.
Antirequisites: Psychology 170 (formerly 64), 271, 272a, 373b.
Prerequisite: Psychology 020 or permission of instructor.
3 hours.
(not offered 1974-75).

241. Developmental Psychology: Basic Principles. A general survey of theory and research in developmental psychology including learning, cognition, perception, personality, and social development in infancy and early childhood. (Formerly Psychology 236).
Antirequisite: Psychology 140 (formerly 56).
Prerequisite: Psychology 020.
2 lecture, 2 seminar, 4 hours total.

253. Theories of Personality. A critical analysis of representative personality theories.

Antirequisites: Psychology 251 or 150 (formerly 71).
Prerequisite: Psychology 020.
(2 lecture), (2 hours to be assigned by the instructor), 4 hours.

Antirequisites: Psychology 170 (formerly 64), 271, 272a, 373b.
Prerequisite: Psychology 020 or permission of instructor.
3 hours.
(not offered 1974-75).

RELIGIOUS STUDIES

PROFESSOR: Murphy

LECTURERS: Hunter, Quenneville

010. Religious Studies. An introduction to Old Testament Theology through the men and messages of the Old Testament.
3 hours.

025. Religious Studies. Foundations of the Religious Response. An examination of the development of the religious phenomenon from primitive man up to the major world religious experiences.
2 hours.

135. Comparative Christian Religions. A study of the theological issues at stake in the division of Christendom; approaches to Christian unity; Ecumenism.
2 hours.

137. Contemporary Theology. A study of the principles of Christian Theology. A systematic consideration of basics, with special attention to present-day controversial and divisive theological issues.
2 hours.

147. The Personal Dimensions of Religious Experience. An examination of the interpretations of religious experience in a variety of ways, to find the methods of examining it, defining it, analyzing it, and evaluating it; in short, a study of the depth dimension of religious experience that is possible for man today with a major emphasis on the psychological dimension as presented by writers of the twentieth century.
Prerequisite: permission of instructor.
2 hours.

SOCIOLOGY

PROFESSOR: Walker

ASSOCIATE PROFESSOR: Ryan

LECTURER: Chaudhary

020. Introduction to Sociology. An examination of the major theoretical perspectives in the field of Sociology, methods of empirical investigation of social phenomena, socialization, group structure, principles of social organization, community structure, population and social change.
3 hours.

139. The Family. Sociological, psychological, and other research perspectives on family structure and functioning.
Prerequisite: Sociology 020 or permission of the Department.
3 hours.

140. Social Problems. Study of theories of deviant behavior and of social disorganization, with particular attention to certain specific problems of the contemporary period.
Prerequisite: Sociology 020 or permission of the Department.
3 hours.

143. Minority Groups. The analysis of racial, ethnic, political and religious minority groups in terms of their relationship to each other and to society at large. Pluralism, assimilation, competition, conflict, prejudice and discrimination are among the concepts to be studied.
Prerequisite: Sociology 020 or by permission of the instructor.
3 hours.

SPANISH

INSTRUCTOR: Leishman

002. Intensive Spanish for Beginners. Introduction to understanding, speaking, reading and writing Spanish, with emphasis on oral fluency. students need have no previous knowledge of Spanish, and the course leads directly to Spanish 020 or 021.
Antirequisite: Grade 13 Spanish.
5 hours.

021. Advanced Spanish. Readings in twentieth century Spanish literature with grammar review and oral practice. (One hour per week in the language laboratory is required).
Spanish 021 offers less extensive readings than Spanish 020 and covers the grammar in 36 classes plus 18 laboratory hours.
Antirequisite: Spanish 020
Prerequisite: Spanish 002, Grade 13 Spanish or permission of the Department.
4 hours.

Huron College



Principal:
The Venerable J. Grant Morden, BA Toronto; LTh. DD Wycliffe; STM. Union Theological Seminary; DTh General Theological Seminary, New York
Dean:
Frederick W. Burd, BA, MA Toronto
Acting Librarian:
Judith Green, BA Queen's, BLS Toronto, MLS Western.
Registrar:
J. Catharine Ridley
Departmental Chairman:
Department of English:
Edward D. McVey, BA, MA Queen's, PhD Princeton
Department of French:
George A. Black, BA, MA Toronto, PhD Western Ontario
Department of Hebrew:
Geoffrey H. Parke-Taylor, BA, MA Toronto, LTh, BD, DD Wycliffe
Department of History:
Gary L. Owens, BA, MA Nebraska, PhD Wisconsin
Department of Philosophy:
Reese Miller, BA Cornell, BPhil Oxon, MA Michigan
Department of Psychology:
Moira S. Sansom, BA Mount Allison, BA New Brunswick, BLS Toronto, PhD London
Department of Religious Studies:
J. Grant Morden, BA Toronto, LTh, BD, DD Wycliffe, STM Union Theological Seminary, DTh General Theological Seminary, N.Y.

Huron College

Telephone Number - 519-438-7224

Members of the Faculty of Huron College

Allen, F. H., MA, BD Oxon.
Black, G. A., BA, MA Toronto; PhD Western Ontario.
Blocker, J. S., BA Florida; MA, PhD Wisconsin.
Brunet, A., LèsL Paris.
Burd, F. W., BA, MA Toronto.
Chambers, Elizabeth, BA British Columbia, MA Saskatchewan.
Cole, M. R., BA, MA, PhD Western Ontario.
Dalrymple, S. D., BSc Queen's Belfast; MSc, PhD Alberta.
Dickson, V. A., BA New Brunswick, MA Western Ontario.
Douma, Felix, BA Western Ontario, MA Toronto, Drs Amsterdam.
Harris, T., BA Toronto; LTh Wycliffe; MA Columbia; BD Union Theological Seminary.
Irvine, D. F., BA Western Ontario; BTh Huron, MA Waterloo.
Johnson, E. C., BA Mills College; MA Indiana; PhD Oregon.
Kay, H., BA Dalhousie; LTh King's, BD Trinity; MA Temple.
Keske, W. G., BA Buffalo, LèsL Marseilles.
McVey, E. D., BA, MA Queen's; PhD Princeton.
Leighton, D., BA, MA McMaster, Dip of Ed Althouse.
Metford, D. A., BA, MA British Columbia; D. de l'u de Paris.
Miller, R., BA Cornell; B.Phil. Oxon; MA Michigan.
Miller, V., BA, MA, B.Litt. Oxon.
Morden, J. G., BA Toronto; L.Th, BD, DD Wycliffe; STM Union Theological Seminary; DTh General Theological Seminary, N.Y..
Owens, G. L., BA, MA Nebraska; PhD Wisconsin.
Parke-Taylor, G. H., BA, MA British Columbia; PhD Washington.
Poisson, R., BA, MA British Columbia; PhD Washington.
Revell, M. E., BA Toronto; MA, B.Litt. Oxon.
Rone, Y., BA Clark, MHL Jewish Theological Seminary of America.
Roper, H., BA Dalhousie; BA, MA Cantab.
Rousom, B. E., BA Western Ontario; MA Toronto; BD Emmanuel.
Sansom, M. S., BA Mount Allison; BA New Brunswick; BLS Toronto; PhD London.
Schachter, J. P., BA City College of New York; MA City University of New York; PhD Syracuse.
Smet, E. F. M., BA, MA, PhD Western Ontario.
Speer, R. S., BA Yale; MA University of Pennsylvania.
Stein, L., BA, MA Temple.
Thomas, N. W., BA Mount Allison; MA Toronto; PhD Western Ontario.
Tucker, J. A., BA, BMus McGill; MA Toronto.
Van der Wel, C. M., BA London; MA Western Ontario.
Williamson, D. R., BA Liverpool; MA, PhD Western Ontario.
Willing, A., BA Northwestern College; MA Minnesota.

Huron College is an undergraduate, co-educational, residential liberal arts college affiliated with the University of Western Ontario, and situated immediately adjacent to the main University campus. With approximately five hundred students, half of whom live in residence, the College's relatively small size fosters a sense of community, ensures that classes are generally small, and makes

possible close working relationships between students and faculty. The College's academic affiliation with the University of Western Ontario means that its students obtain a University of Western Ontario degree through Huron College, and that all the academic and social resources of the University are fully open to them. Thus they not only take courses taught within the College but also can select courses within their program from those taught at the University itself; they can participate in extra-curricular activities within both the College and the University.

The aim of Huron College is to provide its own distinctive pattern of education for the student who seeks relevant basic preparation to meet a world of increasing change. In a society characterized by shifting values, technological innovation and an explosion of factual knowledge, the mere accumulation of knowledge is an increasingly uncertain and inadequate guide. Rather, the necessary qualities to be cultivated in a truly relevant education are intellectual curiosity and discrimination, independence of thought, and an awareness of the values implicit in our cultural heritage. Thus a broad liberal education uses the deep exploration of selected bodies of knowledge in a way designed to train the person to seek out fundamental and relevant questions and to evaluate the answers he attains, to learn to look beneath the surface for inner coherence or hidden inconsistency, to subject his thinking to the scrutiny of his fellows, and to seek in the world of thought and action those enduring values that underlie the best of man's creative endeavour.

In accordance with its aim, the College concentrates in its teaching on the disciplines of English, History, Philosophy and French, offering both honours and general programs. The teaching of the social sciences is strengthened by a major emphasis on Psychology and the offering of core courses in Economics. Courses in Religious Studies and Hebrew are open to students of the University as well as the College. In general, the nature of the courses and programs offered within the College, coupled with the overlapping interests of its faculty, makes it possible for the student to become better aware of the relationships between the various courses he studies. Most importantly, Huron's own extensive library, whose resources are freely available to all its students, plays a central part in the academic life of the College.

By choosing from the College's own areas of concentration, and by supplementing his program with courses in a wide range of disciplines taught at the University, the student can achieve a basic liberal education which will give him a highly relevant background for going on to specific training in teaching, law, business, the social service professions, government service and other careers, and for progressing in personal growth and development.

PROGRAMS

The General Program in Arts and Social Science, all Honours Programs which include English, French, History or Philosophy, and the first two years of Honours Business Administration are offered by Huron College.

Through its Department of Religious Studies, Huron College offers courses open to all students of the University.

COURSES

The courses listed are those taught within the College. Other courses in a student's program, including those in the Natural Sciences, may be selected from

those taught at the Constituent University or the other Affiliated Colleges. A student registered at Huron College will normally take at least two courses within the College each year unless granted special permission by the Dean.

DEPARTMENT OF ECONOMICS

ASSISTANT PROFESSOR: Williamson; LECTURER: Dickson

020. Introduction to Economics. The nature of economics, economic organization, national income, money and banking, economic fluctuations, public finance and fiscal policy, price determination, international trade, and Canadian economic problems.
Antirequisite: Economics 021.
3 lectures, 1 optional tutorial hour.

130. Intermediate Microeconomic Theory. A survey of microeconomic theory including theories of the firm, consumer behaviour, market organization, distribution and welfare.
Prerequisite: Economics 020 or 021.
Antirequisite: Economics 230 (if both Economics 130 and 133 have been taken).
3 hours.

131. International Trade and Finance. A discussion of the principles of international economics and their application to contemporary problems in the international economy.
Antirequisite: Economics 351
Prerequisite: Economics 020 or 021.
3 hours.

133. Money and Income. A course in intermediate macroeconomic theory and policy. Topics will include national accounts, income determination, banking theory and practice, monetary theory, stabilization policies in closed and open economies.
Antirequisite: Economics 230 (if both Economics 130 and 133 have been taken).
Prerequisite: Economics 020 or 021.
3 hours.

DEPARTMENT OF ENGLISH:

Chairman: E. D. McVey, BA, MA Queen's; PhD Princeton PROFESSOR: Poisson; ASSOCIATE PROFESSOR: McVey; ASSISTANT PROFESSORS: Johnson, Revell; LECTURERS: Douma, Speer, Tucker.

020. General Literature and Composition. An introduction to modes, to genres, and to the writing of expository prose.
Prerequisite: Grade XIII English.
3 hours.

024. Forms Of Fiction. An introduction to the study of (1) a selection of fiction ranging from the Greek epic to the modern novel, including both short and longer forms; (2) a variety of fictional modes and narrative techniques.
Prerequisite: Grade XIII English.
3 hours.

130. Comparative Literature. A course of reading in English or in English translations of some of the great books of Western civilization from Homer to Joyce, with particular emphasis on the growth of epic, drama and fiction.
Prerequisite: Grade XIII English.
3 hours.

131. Contemporary Literature. An examination of the human condition and the role of art in today's world. The course includes work in all genres: two plays, eight works of fiction, one film, six prose works,

three poets, and an anthology of poetry. By "contemporary" is meant primarily writing since 1950.
Prerequisite: Grade XIII English.
3 hours.

HONOURS COURSES

The following courses are available to any student regardless of program who has at least a C standing in English 020, or English 024 or English 026, or permission of the Department.

200. The Novel. An historical survey of the novel as a genre from Cervantes to the present. Thirteen masterpieces will be studied in detail.
Prerequisite: A 020-level English course
3 hours.

201. Criticism. A survey of the major critics, as well as problems in terminology and practical criticism.
Prerequisite: A 020-level English course.
3 hours.

220. Old English Language and Literature with *special emphasis on* Beowulf.
Prerequisite: A 020-level English course.
3 hours.

221. Chaucer and his age.
Prerequisite: A 020-level English course.
3 hours.

230. Literature Of The 16th Century Excluding Drama. This course is intended to be conducted as a seminar. It is essentially an honours course and is concerned to read widely in the 16th Century. It will cover translations from the Latin of Erasmus and More and selected readings from the early Humanists who wrote in English. Approximately a third of the course is devoted to Spenser. The course provides a background for an understanding of the world which produced Spenser, Shakespeare and Milton.
Prerequisite: A 020-level English course.
3 hours.

231. Literature Of The 17th Century. The first term of this course deals with the poetry and prose of John Donne, Ben Jonson, and those writers influenced by Donne and Jonson. The second term focuses on John Milton (Paradise Lost, Paradise Regained, and Areopagitica).
Prerequisite: A 020-level English course.
3 hours.

232. Shakespeare. This course is devoted essentially to the text of Shakespeare's plays of which 14 are appointed to be read. Although the course is an honours course, it is recommended to the pass student with an interest in Shakespeare and especially to the student who intends to enter teaching.
Prerequisite: A 020-level English course.
3 hours.

233. Medieval To Jacobean Drama (1300-1642). A study of the non-Shakespearian drama between the rise of the miracle-play cycles and the order of Parliament in 1642 that "publike Stage-plays shall cease and be forborne". The course emphasizes the development of English drama and consequently considers the influences of writers upon one another and stage history. The course provides a useful background for the study of Shakespeare or of non-dramatic Renaissance literature.
Prerequisite: A 020-level English course.
3 hours.

241. Literature of the 18th Century (1727-1790). A study of the poetry and prose of the 18th Century with particular emphasis on Pope, Fielding, Richardson, Gray, Johnson, Goldsmith, and Sterne.

Prerequisite: A 020-level English course.
3 hours.

250. The Romantic Revival (1798-1832). The primary matter of this course is the work of six great poets: Blake, Wordsworth, Coleridge, Byron, Shelley, and Keats. Secondary matter consists of three works of prose and fiction. Emphasis will be placed on the historical context of Romanticism.
Prerequisite: A 020-level English course.
3 hours.

260. Literature Of The Victorian Period (1832-1900). The course is intended to give a broad cross-section of the 19th century literary events, examining the work of major writers in three genres. The course moves toward a re-assessment of the Victorian mind and its dilemma.
Prerequisite: A 020-level English course.
3 hours.

270. Modern Literature (1890-1945). This course examines the major poets and novelists of the modern era. Prosody and style will be emphasized as the main critical concern of the course. But individual works will also be considered as they reflect modern problems, with the intention of discovering those habits of mind peculiar to the early 20th century.
Prerequisite: A 020-level English course.
3 hours.

271. Modern Drama.
Prerequisite: A 020-level English course.
3 hours.

283. Literature of the United States from 1885.
Prerequisite: A 020-level English course.
3 hours.

401. Special Problems.
3 hours lecture, full course.
(Not offered in 1974-75).

490. Thesis. Individual instruction on the selection of a topic, the research for, and the writing of, a thesis. The thesis course is excellent for a student interested in some particular literary question or problem, for it enables him to pursue this interest in depth. The student and his instructor will arrange to meet a minimum of 25 hours to discuss the student's progress. The final thesis is to be approximately 50 pages long. English 490 is restricted to fourth year honours English students. Those interested must confer with the Chairman of the Huron College Department of English.

DEPARTMENT OF FRENCH

Chairman: - G. A. Black, BA, MA Toronto, PhD Western Ontario
ASSOCIATE PROFESSORS: Black, Metford: ASSISTANT PROFESSOR: Miller; LECTURERS: Brunet, Keske, Van der Wel.

020. French Language And Literature. This is the basic Freshman course in French, providing training in Language and Literary studies and an introduction to French institutions. In the initial stages, English will be used; thereafter the course will be given in French.
Prerequisite: French 010, Grade 13 French or permission.
4 hours per week, tutorials and language laboratory.

HONOURS COURSES

232. French Civilization. A study of modern France, her historical background and political, economic, social and cultural development.
3 hours.
Antirequisite: French 132 (Formerly 32)
Prerequisite: French 020 or by permission of the Department.

271. Language. Grammar, composition, oral practice, phonetics, introduction to Linguistics. (One hour per week in the language laboratory may be required). This course is required for concentration in French.
Antirequisite: French 131 (Formerly 31)
Prerequisite: French 020 or by permission of the Department.
3 or 4 hours.

290. Introduction To French Literature. A study in depth of texts from the 19th and 20th centuries designed to provide intensive training in the skills of literary analysis. This course is required for concentration in French.
Prerequisite: French 020 or by permission of the Department.
3 hours.

338. French-Canadian Literature.
Antirequisite: French 138 (Formerly 38)
Prerequisite: French 290.
3 Hours Lecture.

360. 20th Century French Literature.
Prerequisite: French 290.
3 hours lecture.

370. 19th Century French Literature.
Prerequisite: French 290.
3 hours lecture.

380. Literature Of The 18th Century.
Prerequisite: French 290.
3 hours.

381. Advanced Language. Grammar, composition, translation and oral practice. (One hour a week in the language laboratory may be required). This course is recommended for concentration in French.
Antirequisite: French 141 (Formerly 41).
Prerequisite: French 271.
3 or 4 hours.

390. 17th Century French Literature.
Prerequisite: French 290.
3 hours lecture.

420. 16th Century French Literature. Selected authors and texts.
Prerequisite: French 338, or 396 or 360 or 370 or 380 or 390.
3 hours.

DEPARTMENT OF HEBREW

Chairman: - G. H. Parke-Taylor, BA, MA Toronto; LTh, BD, DD Wycliffe
PROFESSOR: Parke-Taylor; LECTURER; Kay

These courses are given in Huron College on behalf of the Faculty of Arts of the Constituent University, and Huron College.

002. Grammar. Text of Genesis 1-3; 22; Jonah.
5 hours, Language Laboratory - Israeli Hebrew.

020. Introduction To Hebrew Narrative And Poetry. Text of II Samuel 9-20; I Kings 1-2. Selected Psalms.
Prerequisite: Hebrew 002 (Formerly 1-10)
3 hours.

130. Hebrew Prophetic Literature. Selections from Amos, Isaiah of Jeru-

salem, Jeremiah, and Deutero-Isaiah. Introduction to Gunkel's **Formgeschichte** and **Gattungskritik.**
(Offered in alternate years - not offered 1973-74).
Prerequisite: Hebrew 020.
2 hours.

140. Hebrew Text Of The Psalms. Principles and forms of Hebrew poetry. Studies of representative Psalms. Gunkel's **Gattungen** and Mowinckel's cultic **Psalmenstudien.**
Prerequisite: Hebrew 020.
2 hours.
(Offered in alternate years - offered 1975-6).

DEPARTMENT OF HISTORY

Chairman: G. L. Owens, BA, MA Nebraska; PhD Wisconsin.
ASSISTANT PROFESSORS: Blocker, Owens, Roper. LECTURER: Leighton.

020. Modern Europe 1715 to the Present. Analysis of the evolutionary and revolutionary development of Modern Europe, with intensive treatment of the great landmarks in the formation of Western society and culture.
Antirequisite: All other History courses (020-099).
3 hours.

022. Studies In American History. Intensive study of specific incidents in U.S. history aimed at learning the critical use of historical sources. Topics vary but may include such as: the Salem witchcraft controversy; the Brook Farm community; the Sacco-Vanzetti trial; the People's party national convention of 1896.
Antirequisite: All other History courses (020-099).
3 hours.

025. Canada. A survey from the beginning of the French Régime to the present.
Antirequisite: All other History courses 020-099 and History 231.
3 hours.
(Limited enrollment).

132. England to 1688. A study of politics and society in England from the accession of James I to the deposition of James II. Special emphasis will be placed upon the origins of the Civil War and the search for political settlement after the 1640's.
3 hours.

Honours Courses

232. Canada. From the beginning of the French Régime to Confederation.
Antirequisite: May not take History 231 in same year.
3 hours.

233. Canada. From Confederation to the Present.
Antirequisite: History 231 in same year, History 141 (Formerly 41).
3 hours.

234. The United States, Colonial Period To The Present. Emphasis first term upon the emergence of the American nation, the equalitarian impulse, national expansion and sectional conflict; second term, upon the great transformations of the modern era; the growth of industrialism, big government, a pluralistic society, and international predominance.
Antirequisite: History 134 (Formerly 34).
3 hours.

236. Europe And England In The 16th And 17th Centuries.
3 hours.

235. England, 1715-1914. A study of English history in the 18th and 19th centuries, stressing as a central theme the development of the modern state. The course will be based

mainly on the writings of the following contemporary authors: Locke, Bolingbroke, Burke, Adam Smith, Paine, Bentham, James Mill, Engels, Robert Owen, Newman, and the Fabian Essaysists.
Antirequisite: History 135 (Formerly 35).
3 hours.

432. England, 1399-1642. A political, social and constitutional study of England from the 15th century to the mid-17th century.
3 hours.

434. The United States, 1841-1901. The Prelude To Modern America. Emphasis on economic, social and constitutional developments against the general background of the period.
Prerequisite: History 134 or 234, or permission of the instructor.
3 hours.

MATHEMATICS

LECTURER: Smet

020. Introductory Calculus And Algebra. An introduction to calculus; a study of logic, set theory, probability theory, and the algebra of vectors and matrices.
Antirequisites: Mathematics 021, 024, 027; Applied Mathematics 020, 022.
Prerequisites: Mathematics 010; or two credits in Grade 13 Mathematics including a credit in Calculus.
3 hours.

DEPARTMENT OF PHILOSOPHY

Chairman: R. P. Miller, BA Cornell, BPhil Oxon., MA Michigan
ASSISTANT PROFESSORS: Miller, Schacter LECTURERS: Willing, Irvine

020. Introduction to Philosophy. A course based on the theme of "reasoning" which begins with a study of some basic tools of reason, moves into the philosophical foundations of experimental reasoning, and concludes with a discussion of the possibility of reasoning in moral matters. The course is specifically directed at training the student in the techniques of rational thought.
3 hours.

130. The Philosophical Foundations of Western thought. A survey of the history of philosophy, this course begins with the reading of several Platonic dialogues, proceeds to classic works out of the seventeenth and eighteenth centuries, and concludes with some readings representative of the twentieth century.
3 hours.
(Offered according to demand).

131. Introduction to Logic. This course concerns the two main modes of reasoning: deductive and inductive logic. The first half will be devoted to modern truth-functional logic and the foundations of symbolization, logical translation, and validity. The second half will cover the foundations of probability and induction.
Antirequisite: Philosophy 251.
2 hours.

132. Philosophy of Literature. A course applying the tools of philosophical analysis to selected significant works of fiction. Broken up into

three parts, the course will cover: (1) Man in relation to the cosmos: Stendahl, Kafka, Camus; (2) Man in relation to the State: Dostoievsky, Koestler, Malraux; (3) Man in relation to others: Celine, Kosinsky, Golding.
2 hours.
(Offered alternately with Philosophy 138 - not offered 1975-6).

136. Ancient Philosophy. This introductory survey is designed to (a) acquaint the student with some of the major philosophical problems to which the Ancients addressed themselves, and (b) to develop an appreciation of some of the key classical writings on these problems. Pre-Socratics, Socrates, Plato, Aristotle and post-Aristotelian philosophers will be studied.
Antirequisite: Philosophy 256.
2 hours.

137. Social and Political Philosophy. An introduction to some main topics in social/political philosophy - e.g. political authority and obligation, law and morality, punishment. Readings are drawn from classical and contemporary sources with a view to developing both an appreciation of historical perspective and familiarty with current political thought.
Antirequisite: Philosophy 237 (Formerly 337).
2 hours.

138. Existentialism. This course deals with the writings of four selected representatives of the Existentialist movement, Kierkegaard, Nietzsche, Sartre, and Camus. The course stresses the thematic continuity not only between the above philosophers, but also with other writers belonging to the same tradition.
Antirequisite: Philosophy 238 (Formerly 338).
2 hours.
(Offered alternately with Philosophy 132. Offered 1975-6).

142. Ethics. A critical study of the fundamental issues of morality, with reference to classic and contemporary writers. The aim of the course is to provide an understanding of the nature of ethical systems and theories and the extent to which ethics can be rationally justified and evaluated.
Antirequisite: Philosophy 262 (Formerly 362).
2 hours.

143. Philosophy of Religion. Students of Philosophy 020 who found themselves interested in the confrontation between reason and religion should take Philosophy 143, a basic course in the application of reason to important religious questions: e.g. Does God exist? Is there life after death? Are religious claims verifiable? Emphasis will be placed on the methods of contemporary philosophical analysts in the examination of these problems.
Antirequisite: Philosophy 253 (Formerly 353).
2 hours.

144. Philosophy of Psychology. This course will be devoted to an examination of the fundamental principles of scientific method and the application of these principles in psychology. Several major figures in psychology, Freud and Pavlov for example, will be studied from this point of view. Designed for psychology majors.
Antirequisite: Psychology 198 (Formerly 98).
Prerequisite: Psychology 022 or permission of the instructor.
2 hours.

147. Early Modern Philosophy. This course covers the philosophy of the 17th and 18th centuries, and concentrates on the issues between Rationalism and Empiricism. The division between these two views is probably the most important and certainly the most pervasive issue in intellectual history. Authors studied include Descartes, Spinoza, Locke, and Hume.
Antirequisite: Philosophy 257.
2 hours.

149. Philosophy and Literature. The aim of this course is to provide

students with an understanding of certain philosophical themes which are important, not only in their own right, but also for their influence on literature. Each term philosophy will receive particular emphasis; literature will then be examined in the light of philosophy.
3 hours.

251. Introduction to Logic. An introduction to symbolic logic and metalogic. Topics will include the propositional calculus, quantification, the nature of deductive systems, probability, and inductive logic. Time will also be spent on questions of the justification, usefulness, and applicability of deductive and inductive reasoning.
Antirequisite: Philosophy 131 (Formerly 31).
2 hours.

254. Theory of Knowledge. The purpose of this course is two-fold. First, the course is designed to acquaint the student with several important concepts and issues in epistemology. Such topics as the analytic-synthetic distinction, the problem of perception, synthetic a priori truth, induction and probability, and systems of knowledge will be covered.
2 hours.

256. Ancient Philosophy. This course is designed to acquaint the student with some of the major philosophical problems to which the Ancients addressed themselves, and to develop an appreciation of some of the key classical writings on these problems. Pre-Socratics, Socrates, Plato, Aristotle and post-Aristotelian philosophers will be studied. This course will involve an intensive study of some of the metaphysical and epistemological problems discussed by the Ancients. Emphasis will be on Plato and Aristotle.
Antirequisite: Philosophy 136 (Formerly 36).
2 hours.

257. Early Modern Philosophy. This course covers the philosophy of the 17th and 18th centuries, and concentrates on the issues between Rationalism and Empiricism. The division between these two views is probably the most important and certainly the most pervasive issue in intellectual history. Authors studied include Descartes, Spinoza, Locke, and Hume.
Antirequisite: Philosophy 147 (Formerly 47).
2 hours.

262. Ethics. In addition to the critical examination of major ethical theories, attention will be paid to important meta-ethical issues such as free will, cultural relativism, and egoism. The aim of the course is to provide an understanding of various ethical theories and of the extent to which they can be compared and evaluated.
Antirequisite: Philosophy 142 (Formerly 42).
2 hours.

474a. Problems of Philosophy. Phenomenology and Meta-politics. This course will concern itself not with social-political theories per se, but rather with the concept of a political theory in general. The approach will be continental and phenomenological rather than Anglo-American and analytical. The course will be broken in three parts, (1) readings of Hellenic history, phenomenology, and Marxism, (2) Hannah Arendt's **The Human Condition**, and (3) the application of the conceptual vocabulary developed by Arendt to selected political writers of recent times.
2 hours, Half course.

480a/481b. Mediaeval Philosophy. This course is devoted to the investigation of some of the major philosophical issues current between 350 A.D. and 1500 A.D. Among the issues to be discussed are the problem of universals, future contingency, the existence and nature of God, and various topics in the philosophy of mind and the philosophy of logic. Readings will include selections from Augustine, Boethius, Anselm, Abe-

lard, Aquinas, Duns Scotus, and Ockham.

Prerequisite for 481b is 480a.
2 hours, Half courses.

POLITICS

LECTURER: Chambers

020. Introduction to Political Science. A study of the principal concepts, ideas and analytical methods of modern political science, with emphasis on the political systems of Canada, the United States and Britain.
3 hours.

DEPARTMENT OF PSYCHOLOGY

CHAIRMAN: M. S. Sansom, BA Mount Allison, BA New Brunswick, BLS Toronto, PhD London
PROFESSOR: Burd ASSOCIATE PROFESSOR: Sansom ASSISTANT PROFESSOR: Cole LECTURERS: Dalrymple, Harris, Stein, Thomas

Students in the fifteen-course general program wishing to graduate with an approved area of concentration in Psychology at Huron College must receive the permission of the Huron College Department of Psychology and earn credit in at least four honours Psychology courses or their equivalent in half courses. The student must include Psychology 283a (half-course); two of Psychology 208, 265, 275; one and one-half other senior honours courses in Psychology. A minimum mark of 60% is required for credit in each of the courses counting towards an area of concentration.

Students who have taken Psychology 020 or its equivalent are eligible for Huron College courses requiring Psychology 022 as a prerequisite if they have taken, or are concurrently taking, Psychology 281 (University).

Students who have completed the courses for an approved area of concentration at Huron College may transfer to the fourth year of the University Honours Psychology Program provided they meet the academic standards set by the University Department. These are Credit in Grade 13 Mathematics (any two of Calculus, Algebra, and/or Functions and Relations), or Mathematics 010, or Applied Mathematics 022, or an equivalent Mathematics course; at least a 70% average in all Honours Psychology courses taken in a given year, and a 70% average in all principal courses with a grade no lower than 60% in any principal course.

022. Method in General Psychology. An introduction to scientific method applied to psychological questions. Emphasis is placed on the development of skills in first-hand observations, experimentation, and the treatment of data, leading into the design of original studies and the critical analysis of work reported in the professional literature. Supporting content areas, which are an integral part of the course, include: learning, motivation, perception, physiological processes, developmental processes, psychological measurement applied to intelligence and personality.
Antirequisite: Psychology 020
2 lecture hours, one laboratory hour.

HURON

Psychology 022 is normally a prerequisite for all other senior courses in Psychology offered at Huron College..

The following courses, Psychology 150 and 198, are general courses. They are meant as optional courses for students whose major interests lie in disciplines other than Psychology. They may be taken by students with an area of concentration in Psychology but they cannot be counted towards the area of concentration.

150. Human Adjustment. Theories of adjustment and conflict, research findings, and applications. Discussion of variables that affect the behavioural adaptation of humans to their environment. Milder forms of adjustive problems emphasized in terms of their acquisition, maintenance and change.

Antirequisites: Current: Psychology 251 or 351 Prior to 1971: Psychology 48, 79, 252, 448.

3 hours.

Offered in alternate years - offered 1975-6.

198. Methods and Theory in Psychology. The historical origins of psychological theories, concepts, and methods, a survey of the growth and sources of psychological thinking. Emphasis will be given to a philosophically oriented examination of the structure and methodology of the social sciences in general and psychology in particular.

Antirequisite: Philosophy 144 (Formerly 44)

Prerequisite: Psychology 022 or permission of the instructor.

2 hours.

This course is taught as an interdisciplinary course with the Department of Philosophy at Huron College. Students may receive credit for either Psychology 198, or Philosophy 144 but not both.

HONOURS COURSES

The following courses are offered by Huron College. For the additional honours courses offered by the University, please see the Department of Psychology section in the Faculty of Social Science.

204b. Human Learning. Behaviour Modification. This is a course in the modification of human behaviour in the home, school and institution. Emphasis is on methodology and a sound knowledge of operant techniques is mandatory. Topical readings will be discussed in seminars and practical experience will be offered when practical. systematic desensitization, and token economies, and related practical, theoretical, and ethical issues.

Prerequisite: Psychology 201a.

2 lecture hours, 2 seminar hours.

Psychology 204b cannot be taken for credit if Psychology 54b has been successfully completed.

208. Method and Theory in Learning and Motivation. This is a course in learning and motivation with an emphasis on methodology and technology. The course concentrates on operant conditioning during the first term and verbal learning with humans during the second. Students are required to present seminars and write formal laboratory reports as well as tests.

Antirequisites: Psychology 201a, 203b.

Prerequisite: Psychology 022.

2 lecture hours, 2 laboratory hours.

Psychology 208 cannot be taken for credit if Psychology 32, 35, 51a, 53b, 95, 201a, 203b, or 235 has been successfully completed.

241. Developmental Psychology: Basic Principles. A general examination of theory and research in developmental psychology from the prena-

tal period to early adolescence. The course considers child growth in terms of learning, perception, cognition, emotional and social development, and attempts to integrate these in relation to personality theory. Students will be responsible for a summary examination, a major research paper and at least one seminar.
Prerequisite: Psychology 022 or 020.
2 lecture hours, 2 hours to be assigned by the instructor.
Psychology 241 cannot be taken for credit if Psychology 36, 56, or 236 has been successfully completed.

253. Theories of Personality. An examination of the systematic problems of personality theory. A major part of the first term consists of intensive study of the historical development of Freudian psychoanalysis based on a detailed examination of fifteen major works and essays. The second term is devoted to extended class seminars on nine other representative personality theorists.
Antirequisites: Psychology 150 (Formerly 71), 251, 254b.
Prerequisite: Psychology 022 or Psychology 020 (University).
2 lecture hours, 2 hours to be assigned by the instructor. Offered in alternate years with Psychology 254b. Not offered 1975-6.
Psychology 253 cannot be taken for credit if Psychology 31, 94, 77b, 78a, 331 or 450 has been successfully completed.

254b. Psychoanalysis and Psychology. A detailed examination and evaluation of Freudian psychoanalytic theory with especial attention to its relation to child development and its influence in general psychology.
Antirequisite: Psychology 253.
Prerequisites: Psychology 022 or Psychology 020 (University), or permission of the instructor.
4 hours.
Psychology 254b cannot be taken for credit if Psychology 31 or 94 has been successfully completed.

265. The Individual in Education and Work. The uses of Psychology in the problems of individuals engaged in formal education and modern industry, with attention to the historical context of these problems. Three original research studies demonstrating competence in scientific method and familiarity with the literature are required.
Antirequisites: Psychology 151 (Formerly 81), 354.
Prerequisite: Psychology 022. Students taking the course must take Psychology 283a either before or concurrently.
2 lecture hours.
Offered in alternate years. Not offered 1975-6.
2 hours to be assigned by the instructor.
Psychology 265 cannot be taken for credit if Psychology 46, 95, 264 or 446 has been successfully completed.

275. Selected Basic Problems in Social Psychology. A research oriented course in social psychology offering concentration in the methods and content of two major areas of social psychology, small group structure and functioning, and the measurement, change, and development of social attitudes.
Antirequisites: Psychology 172 (Formerly 72), 271.
Prerequisite: Psychology 022. Students taking this course must take Psychology 283a either before or concurrently.
2 lecture hours, 2 hours to be assigned by the instructor. Offered in alternate years. To be offered 1975-6.
Psychology 275 cannot be taken for credit if Psychology 32, 49, 97 or 349 has been successfully completed.

283a. Research in Psychology. An advanced treatment of the collection, analysis and interpretation of behavioural data, reviewing and extending the topics covered in Psychology 022; problems in the design and

conduct of studies and experiments, operational definitions, experimental control and recording of behaviour; statistical treatment of data, including descriptive and inferential statistics.
Antirequisite: Psychology 281. See also Statistics page in Academic Programs and Policy section of university calendar.
Prerequisite: Psychology 022.
2 lecture hours, two laboratory hours. Half course.
Psychology 283a cannot be taken for credit if Psychology 63 or 255 has been successfully completed.

342. The Exceptional Child. This course will be an in-depth study of the exceptional child. The format will be seminar and in the seminars the area will be considered in four sections: (a) intellectual endowment (retardation and giftedness), (b) physical disability including aural and oral handicaps, (c) neurological impairment, and (d) emotional and social disturbances. Each student will be required to do a project, a major essay, and a summary examination besides giving at least one seminar. The course will consider the aetiology, diagnosis, management and education of the exceptional child.
Prerequisites: Psychology 241 or Permission of the Instructor.
2 lecture hours, 2 hours to be assigned by the instructor.

Psychology 342 cannot be taken for credit if Psychology 39, 59, or 242 has been successfully completed.

343b. Mental Retardation: Research and Theory. A detailed examination of the definition, diagnosis, classification and etiology of mental retardation. The many subtypes of mental retardation will be examined from biomedical, genetic and sociocultural viewpoints. At the level of behavioral analysis, emphasis will be placed upon recent psychological research and theory along with their implications for remedial education and treatment.

Prerequisites: Psychology 022 and 241 or the permission of the instructor. Psychology 241 and 343b may be taken concurrently.
4 hours.

355b. Psychological Tests in Applied Research. A detailed examination and evaluation of the commonly used objective and projective measures of psychological variables in educational, industrial and applied social research. Consideration of the ethical implications of such research for prediction and selection.
Prerequisites: Psychology 281 or 283a.
4 hours.

DEPARTMENT OF RELIGIOUS STUDIES

Chairman: J. G. Morden, BA, Toronto; LTh, BD, DD Wycliffe; STM Union Theological Seminary, DTh General Theological Seminary, N. Y.
PROFESSOR: Morden ASSOCIATE PROFESSOR: Allen LECTURERS: Irvine, Kay, Rousom

020. The Prophets of Israel. A study of great personalities in the Judaeo-Christian tradition, and modern religious leaders by the biographical method. An examination of their effect on social, political and religious action.
2 hours.

029. An Introduction to New Testament Greek.
2 hours.

130. An Introduction to the Living Religions of the World. A study of the history, faith, and practices of the major living religions - Hinduism, Jainism, Buddhism, Confucianism, Ta-

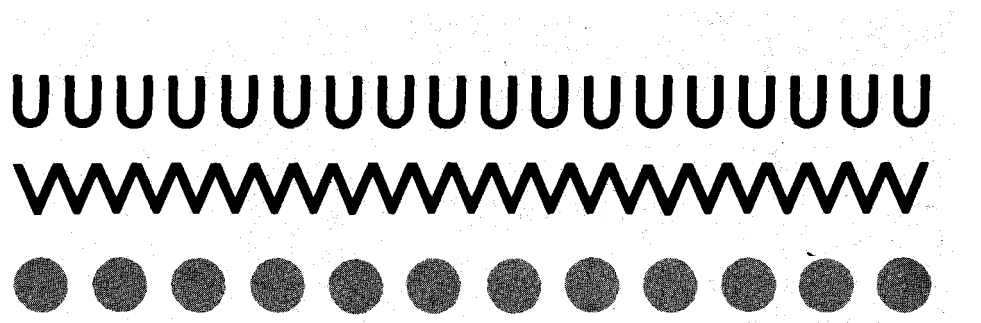
oism, Shintoism, Zoroastrianism, Judaism, Christianity, and Communism.
2 hours.

131. Religion, Society, and Morality. An approach to some contemporary social and moral issues as these relate to certain religious beliefs in the Judaeo-Christian tradition. Social and moral themes selected for discussion include justice and the "just" society, grounds for civil disobedience, equality, the institution of marriage and human sexuality.
2 hours.

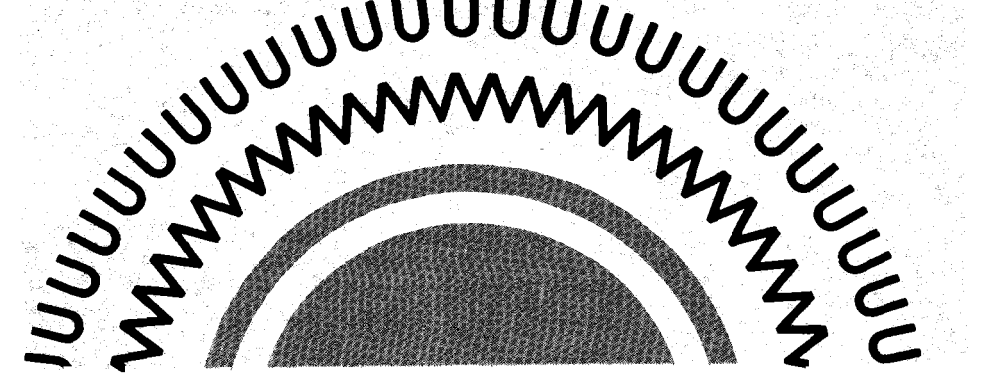
136. The Jewish Experience. The Jews, their Jewishness and their Judaism. The Biblical, mediaeval and modern period will be studied with particular reference to the relationship of the Jewish society to some of the peoples and societies among whom they have lived.
2 hours.

138. An Introduction to Biblical Process Thought. Is God fact or fiction? How is he related to this world? A lecture and discussion course designed to examine objectively the biblical world outlook, the distinctively Hebrew experience that produced it. A discussion of key biblical concepts in terms of the thought of Whitehead, Teilhard de Chardin, Bultmann, Tillich, and others.
2 hours.

139. The Principles of Christian Theology. A survey of Christian beliefs, with an emphasis on Anglican and Protestant theologians of the 20th Century. The course will include an introduction to the theological method and authorities followed by a survey of the doctrines of the Church as they appear in the ecumenical creeds.
2 hours.



King's College



Principal and Dean:
A. F. McKee, BA, MA New Zealand: DUP Paris; MSc (Ec.) London
Assistant Dean
G. J. MacWillie, BA Sir George Williams; BD Presbyterian College; MA, PhD Alberta
Registrar:
J. H. Campbell, BA St F X; BEd, MA UNB
Assistant Registrar:
C. D. Dutrizac, BA, MA UWO
Librarian:
P. D. Mitchell, BA, BLS McGill
Controller:
H. E. Leeks, R.I.A
Departmental Chairman:
Modern Languages Department:
Toop, R., BA, MA, PhD Toronto
Philosophy and Religious Studies Department:
Snyder, J. J., BA Notre Dame; MA, PhD Toronto
Psychology Department:
Havelka, J., BA, MA Masaryk; PhD Milan, MSc McGill
Social Sciences Department:
Goutor, J. R., BA Allegheny; MA, PhD Illinois
Social Welfare - Acting Director:
Smith, T., BA St. Mary's; MSSW Maritime School of Social Work and St. Mary's

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MEMBERS OF THE FACULTY OF KING'S COLLEGE

Dean

McKee, A. F., BA, MA New Zealand; DUP Paris; MSc Ec. London.

Professors

Goutor, J. R., BA Allegheny; MA, PhD Illinois — *History.*
Havelka, J., BA, MA Masaryk; PhD Milan; MSc McGill — *Psychology.*
Lenardon, D., BA, BEd Alberta; MA, PhD Toronto — *Romance Languages.*
Murphy, R. T. A., (The Very Reverend) OP, STD Angelicum; SSD Biblical Commission; STM Dominican Order — *Religious Studies.*

Associate Professors

Cavanagh, P. E. (Reverend), BA UWO; MA Toronto; PhD Notre Dame — *Philosophy.*
Crunican, P. E., (Reverend), BA UWO; MA, PhD Toronto — *History.*
Graveline, R. A., (Reverend), BA UWO; PhL, STL Laval — *Philosophy and Religious Studies.*
Mulcahy, Gloria, BA San Jose State; MS Washington State; PhD Maryland — *Psychology.*
Plum, G. E., BS Wayne State; PhD Chicago — *Social Work.*
Ryan, M., (Reverend), BA UWO; MA, PhD Notre Dame — *Philosophy and Religious Studies.*
Smith, T., BA St. Mary's; MSSW Maritime School of Social Work and St. Mary's — *Social Work.*
Snyder, J. J., BA Notre Dame; MA, PhD Toronto — *Philosophy.*
Toop, R., BA, MA, PhD Toronto — *English.*

Assistant Professors

Bahcheli, T. S., BA, MA UWO; PhD London — *Political Science.*
Brown, Trudy (Mrs.), BA Ottawa; MSW Carleton — *Social Work.*
Canzona, L., BA, BSW, MSW, DSW Toronto — *Social Work.*
Donohue, J. J., (Reverend), BA UWO; STL Gregorianum — *Religious Studies.*
De Fabry, Anne Srabian, BA Houston; MA, PhD Rice — *French.*
Denys, Jozef (Reverend), BA, BTh UWO, MA Windsor; PhD Waterloo — *Sociology.*
Fric, L., BA, MA Manitoba; PhD Toronto — *Economics.*
Hill, Mary B. R., BA McMaster; MA McGill; PhD New York; ARCT Toronto; LTCL Trinity College, London — *Sociology.*
Killan, G., BA Toronto; MA, PhD McMaster — *History.*
Koop, P. A., BComm Manitoba; MBA Toronto; PhD Southern California — *Economics.*
Lang, F., BA CUNY; MSW Syracuse — *Social Work.*
MacWillie, G. J., BA Sir George Williams; BD Presbyterian College; MA, PhD Alberta — *Psychology.*
Miner, E., BA Toronto; BAHons London; PhD Notre Dame — *English.*
Moore, M., BA McMaster; Dipl. in SW Toronto — *Social Work.*
Mueller, P., PhB, STB, STL Gregorianum; PhD Fordham — *Religious Studies.*
Orange, J. C., BA, MA, PhilM Toronto — *English.*
Paterson, G. H., BA, MA, PhilM, PhD Toronto — *English.*
Prieur, M. R. (Reverend), BA UWO; STD San Anselmo — *Religious Studies.*

Schmeiser, J. A., BA Saskatchewan; MA, MTH, STL Ottawa; Dipl. Liturg. Trier; PhD (D.Th.) Ottawa — *Religious Studies.*
Skinner, N., BA, BSc, MSc, PhD Alberta — *Psychology.*
Webb, P. L. C., BA, MA UWO; M.Litt Cambridge — *History.*

Lecturers

Brodie, G., BA San Diego; STB Gregorian; PhB Louvain — *Religous Studies.*
Henry, F., BA UWO; MA Notre Dame; STL Gregorian — *Philosophy.*
Jaco, Rose Marie (Mrs.), BA Toronto; BSW Carleton; MA UWO — *Social Work.*
Shepherd, R., BA Grinnell; MSW Tulane — *Social Work.*
McCarney, Patricia (Sister), BA Ottawa; MA Notre Dame — *Religious Studies.*
Trojcak, R., (Reverend), BA STB MA St. Mary of the Lake, Mundelein; TH M McCormick (Chicago) — *Religious Studies.*

Part-Time Faculty

Chaudhary, Krishna (Mrs.), BA, MA Bihar; BEd Patna; MA Windsor — *Sociology.*
Cudmore, G., BA Hons. UWO — *Business.*
Clark, T., BA, MA UWO — *Psychology.*
Hanna, E., DSW Smith College — *Social Work.*
Hardy, J., BA Toronto; MA UWO; — *Psychology.*
Rodensky, R. L., BA Pennsylvania; MA Rhode Island — *Psychology.*
Watson, B., BA MA UWO — *Mathematics.*
Zentner, E., MSW Rutgers — *Social Work.*

GENERAL INFORMATION

King's College is a co-educational undergraduate college of liberal arts and social sciences sponsored by the Roman Catholic Diocese of London and open to students of all beliefs.

The college is situated on Epworth Avenue at Waterloo Street, two blocks from the main entrance to the University. An inter-lecture bus service operates between the College and the main campus. This service permits a valuable integration of courses given in various parts of the University.

The principal building houses faculty, student, and administration offices; classrooms; chapel; cafeteria; lounges; and the women's residence. Three separate buildings provide residence accommodation for 200 men. The College library houses some 35,000 volumes. As members of The University of Western Ontario community, King's students have full privileges at Western's libraries. The Theology Department of St. Peter's Seminary, located within short walking distance, provides further course and library facilities available with some restrictions to King's College students. Students at King's College also share the services offered students of The University of Western Ontario: athletic facilities, teams, clubs, employment services, voluntary military training, and many others.

ACADEMIC INFORMATION

The General Program in Arts and Social Sciences and some Honors Programs are offered at King's College. The courses which make up these programs follow the same prescriptions as the courses taught at the Constituent University.

The University of Western Ontario four-year Social Welfare Program leading to a BSW degree is offered at King's College exclusively.

Upon successful completion of the first two years at King's College, students transfer into Year III of the Western School of Business Administration Program.

Degrees are granted by The University of Western Ontario.

COURSES

Besides the courses listed below, which are offered on the King's Campus, a student may take any course or courses at the Constituent University to complete his desired program. It should be noted that one tuition fee covers all courses the King's student may wish to take. A student registered at King's must take at least two courses within the College each year unless special permission is granted by the Dean.

If a course is listed by title and number only, it is also taught at the Constituent University, and its full description will be found in the pertinent section of this Calendar under the general University listings. If a course is followed by a complete description, it is taught at King's College only, has full academic credit at The University of Western Ontario, and is open to all Western students.

020. Business - Introduction to Business.

020. Economics - Introduction to Economics.

130. Economics - Intermediate Microeconomic Theory.

133. Economics - Money and Income.

136. Economics - Labour Economics.

137. Economics - Economic History of Canada.

138. Economics - Economic Development.

020. English - General Literature and Composition.

024. English - Forms of Fiction.

026. English - Forms of Drama.

130. English - Comparative Literature
(Not offered 1974-75)

131. English - Contemporary Literature.

138. English - Canadian Literature and Culture.

200. English - The Novel.

232. English - Shakespeare.

260. English - Literature of the Victorian Period.

270. English - Modern Literature (1890-1945)
(Not offered 1974-75)

271. English - Modern Drama.

281. English - Canadian Literature.

143. Speech - The Major Forms of Oval Discourse.

020. French - French Language and Literature.

232. French - French Civilization.

271. French - Language.

290. French - Introduction to French Literature.

390. French - Literature of the 17th Century.

020. History - Modern Europe, 1715 to the Present.

021. History - Totalitarianism in the 20th Century
(Not offered in 1974-75)

025. History - Survey Course in Canadian History.

026. History - The Two World Wars.

134. History - The United States, Colonial Period to the Present.

135. History - England since 1688
(Not offered in 1974-75)

160. History - Selected Problems in American History
(Not offered in 1974-75)

170. History - Selected Problems in European History, 1914 to the Present.

231. History - Canada.

232. History - Canada to 1864
(Not offered in 1974-75)

233. History - Canada since 1864.

234. History - The United States, Colonial Period to the Present.

235. History - England, 1715-1914.

236. History - Europe 1500 - 1714.

346. History - Modern France from 1715 to the Present.

444. History - The United States in the Twentieth Century
(Not offered in 1974-75)

136. Italian - Italian Literature in Translation.

020. Mathematics - Introductory Calculus and Algebra.

020. Philosophy - Introduction to Philosophy.

133. Philosophy - Thomistic Philosophy. An introduction to the philosophy of Thomas Aquinas through a study of several of his basic philosophical writings. The course will concern principally his philosophy of nature, philosophical psychology, moral philosophy, metaphysics and philosophical theology. Brief consideration will also be given to some later forms of Thomism.
Prerequisite: Philosophy 20 or permission.

138. Philosophy - Existentialism.

141. Philosophy - Aristotelian Logic. A study of Aristotelian Logic with special emphasis on the various uses of words, along with a thorough examination of the nature of definition, proposition, and the different types of argumentation, both deductive and inductive. An intensive study of fallacies in argumentation is also made. Likewise included is an evaluation of the methodology of the sciences, both nonexperimental and experimental.
Prerequisite: Philosophy 20 or permission.

142. Philosophy - Ethics.

143. Philosophy - Philosophy of Religion.

148. Philosophy - Contemporary.

020. Politics - Introduction to Political Science.

130. Politics - Canadian Government and Politics.

131. Politics - International Politics.

020. Psychology - Introduction to Psychology.

140. Psychology - Child Development.

151. Psychology - Humanistic Psychology and Its Applications.

241. Developmental Psychology: Basic Principles. Cannot be taken for credit if Psychology 36, 56 or 236 has been successfully completed.
Antirequisite: Psychology 140 (Formerly 56).
3 hour Lecture, 1 hour Tutorial.

251. Psychology - Personality Theory and Research. Cannot be taken for credit if Psychology 31, 77b, 78a, 94, 331, or 450 has been successfully completed.
Antirequisite: Psychology 150 (Formerly 71) or 253.
3 hour Lecture, 1 hour Tutorial.

351. Psychology - Abnormal Psychology. Cannot be taken for credit if Psychology 48, 71, 79, 252, 450 or 488 has been successfully completed.
Antirequisite: Psychology 150 (Formerly 71)
3 hour Lecture, 1 hour Tutorial.
Prerequisite: Psychology 251 or its equivalent.

261b. Psychology - Education Psychology.
Antirequisite: Psychology 160 (Formerly 76).
3 hour Lecture, 1 hour Tutorial.

366. Psychology - Therapeutic Counselling. Professional counselling and psychotherapy; various processes and techniques of therapeutic counselling; special relationship problems; transference, resistance; interpretation techniques and group counselling; special areas of application of psychotherapeutic counselling: marriage, family, human relations in education and in industry, counselling and problems of values.
3 hour Lecture, 1 hour Tutorial.
Prerequisite: Psychology 251 (formerly Psychology 31 or 78a, 77b) or Psychology 351 (formerly Psychology 252, 79 or 48) or permission of the instructor.

271. Psychology - Social Psychology. Cannot be taken for credit if Psychology 49, 72a, 73b or 349 has been successfully completed.
Antirequisites: 275, 170 (formerly 64), 172 (formerly 72).
3 hour Lecture, 1 hour Tutorial.

372a. Psychology - The Psychology of Prosocial and Antisocial Behaviour. Cannot be taken for credit if Psychology 73a has been successfully completed.
Antirequisites: 275, 170 (formerly 64), 172 (formerly 72).
Prerequisite: Psychology 271
3 hour Lecture, 1 hour Tutorial.

281. Psychology - Research Methods and Statistics. Cannot be taken for credit if Psychology 63 or 255 has been successfully completed.
Antirequisite: Psychology 283a
3 hour Lecture, 1 hour Tutorial.

333. Psychology - Psychology of Creativity. Origins of imaginative thinking; perceptions, emotions, memory, language and symbolic expressions in creative processes; child's intellectual functions and creative potential; psychopathology and creativity; theories of psychology of art; assessing the creative thinking; criterion and prediction studies; creativity in special fields and settings; scientific and artistic creativity.
3 hour Lecture, 1 hour Tutorial.
Prerequisite: Psychology 251 (formerly Psychology 31 or 78a, 77b) or permission of the instructor.

344a. Psychology - Developmental: Social and Emotional.
Prerequisites: Psychology 241 or permission.
3 hour Lecture, 1 hour Tutorial.

345b. Psychology - Developmental: Language and Cognition.
Prerequisite: Psychology 241 or permission.
3 hour Lecture, 1 hour Tutorial.

353. Psychology - Tests and Measurements.
Antirequisites: Psychology 37, 62, or 337
Prerequisites: Psychology 281
3 hour Lecture, 1 hour Tutorial.

378a. Psychology - Special Topics in Social Psychology: Social Behaviour and Personality.
3 hour Lecture, 1 hour Tutorial.

379b. Psychology - Special Topics in Social Psychology: The Psychology of Meaning and Values in Interpersonal Relations.
3 hour Lecture, 1 hour Tutorial.

021. Religious Studies - The Bible and Belief Today. An investigation of the problems encountered by the modern mind in accepting the Bible. The approach combines history, literary analysis, archaeology and biblical theology.

023. Religious Studies - Introduction to Religion. A study of religion examining religious experience, its expression in religious myths, doctrines, morality, religious communities and worship. An introductory survey of world religions.

132. Religious Studies - Contemporary Moral Problems. A critical examination of contemporary moral attitudes and standards. An attempt to present a Christian approach to some recent moral issues, such as sex, drugs, mass-media, money, politics, war, segregation, etc.

133. Religious Studies - Catholic Belief Today. A study of the dogmatic teachings and liturgical practices of the Catholic Church, with an examination of current developments in the light of their biblical, patristic and mediaeval backgrounds.

135. Religious Studies - Comparative Christian Religions. A study of the theological issues at stake in the division of Christendom; approaches to Christian unity; Ecumenism.

140. Religious Studies - The Theology of Marriage. A study of marriage considered from the psychological, moral, social and theological points of view.

141. Religious Studies - Man in Religious Experience and Celebration. An examination of the importance of celebration, festival, fantasy and wonder for contemporary man. A study of the relationship of Christianity and other world religions to this dimension of man's awareness and activity.
PREREQUISITE: Permission of the instructor

146. Religious Studies - Christian Social Theory. The modern and contemporary teachings of the Christian Church on social justice, wages, property, work, poverty, social reconstruction, etc. The course will examine the thought of leading theorists and its application to contemporary society.

148. Religous Studies - Systematic Moral Theology. Introduction to general moral theology; nature and task of moral theology, Biblical moral theology, historical over-view of moral theology, natural law, virtue of prudence, sin, human act.

020. Sociology - Introduction to Sociology.

137. Sociology - Sociological Survey of Religious Institutions. An analysis of the function of religion, the relationships between religion and other social institutions and organized religious bodies.
Prerequisite: Sociology 020 or permission.

139. Sociology - The Family.

140. Sociology - Social Problems.

143. Sociology - Minority Groups.

230. Sociology - Sociological Theory.

231. Sociology - Research Methods and Statistics.

SOCIAL WORK

Note: Effective Janurary 1, 1974, the name "Social Welfare" was changed to "Social Work."

Courses offered by the Social Work Department are part of an integrated liberal arts curriculum leading to a first professional degree. The program is designed to provide knowledge relevant to rational, autonomous and socially competent behavior as well as knowledge relevant to social work practice and the broad field of social welfare; it seeks to help students to become responsive to the humanistic values shared by all of the helping professions; it is oriented to developing the intellectual skills and analytic ability required to engage in fundamental social work practice and to introduce students to a variety of practice skills which are applicable to what is generally known as "social work methods." Students are therefore prepared for professional careers in Social Work. The educational aims of the curriculum go beyond the rendering of service to a concern with the social conditions of service and the societal implications of the organizational forms of service.

Requirements for Admission (1974-75)

See last year's Calendar

Requirements for Admission (beginning 1975-76)

Admission to the Social Work programme is at the end of the first year of University, after successful completion of a five course General Arts or Social Science programme including Social Work 020 and at least one other Social Science course, preferably Sociology 020 or Psychology 020. Students are eligible to register in the second year of the Social Work programme if the following standards have been met: a minimum grade of 70% in Social Work 020 and an average of 70% in other subjects. Students who have not taken Social Work 020 in the first year should complete this course during the Intersession or summer session.

Students seeking admission to the programme are interviewed by the Department and consideration is given to those judged to possess suitable academic and personal characteristics to undertake a programme of professional education for Social Work.

It is possible to enter Year III of the Social Work programme in its third year, provided at least two principal courses in Social Work have been successfully completed. However, admission to either year II or III of the Programme can be approved only after consultation with the Department.

Deadline for submission of application is February 1st of each academic year.

The curriculum is designed to give the students a degree of flexibility in his programme. It is possible to transfer into the third year of the General BA programme should the student not wish to continue in the Social Work Programme. Credit is maintained for all work done in the latter towards the requirements of the University for a General BA degree.

Enrolment in the Social Work programme is limited, Social Work students must register at King's College.

Requirements for Progression

Progression in the programme is dependent upon the student maintaining a minimum mark of 70% in principal Social Work courses, and an average of 70% in other courses throughout the second and third years of the programme.

CURRICULUM

FIRST YEAR

Five courses in a General Arts or Social Science Program, which should include Social Work 020 and at least one other Social Science course.

SECOND YEAR

Principal Courses

Two Social Work Courses from the 200 series.

Subsidiary Courses

Three options

THIRD YEAR

Principal Courses

Three Social Work Courses from the 300 series.

Subsidiary Courses

Two options

FOURTH YEAR

Principal Courses

Two Social Work from the 400 series (Considerable emphasis will be placed on Field Practice in fourth year.)

Subsidiary Courses

Three options (including two half course options in Social Work 400 series).

SOCIAL WORK

020. Introduction to Social Welfare. First Half: contemporary social issues and problems will be examined in relation to existing and proposed legislation administrative programs and organized services. Within the context of welfare planning and social services, consideration will be given to such problems as rural-urban integration and labour policy; cultural pluralism and social planning, deviant behaviours and the legal system relationships among service organizations and user groups. Second Half: an examination of present-day welfare policy and programs in North America in the light of intellectual, political and legislative antecedents in Europe and North America. Canadian policy and programs will receive special emphasis. A first required course for potential Social Work students and for other students wishing to explore the field of Social Work.

130. Contemporary Social Welfare Problems. An examination of contemporary social welfare problems such as "mental health", "juvenile delinquency", "drug addiction", "race conflict", and "homosexuality", in the light of social welfare planning, policy, legislation, and programs of service (not required for students enrolled in the Social Work Program).

220. Social Work Methods I. A survey of the ethics and values of the social work profession and their congruence and conflict with general societal values. Social work principles and concepts will be articulated in relation to the knowledge base from which they derive. Settings and sanctions for social work practice will be reviewed and basic processes of problem-solving explored.
Prerequisite: Social Work 0209

236. Human Behaviour and Social Environment. A seminar in analysing social functioning in relation to social systems.
General System Theory is employed as a framework for applying information and documents from diverse sources to the understanding of human behaviour in social systems. The objective of the course is to enable social work students to organize diverse material for the purpose of assessing problems and formulating plans for treatment or action.
Prerequisite: Social Work 020.

330. Social Work Methods II. A study of methods and techniques employed by the social work profession in identifying and formulating individual and collective problems and designing and implementing solutions to such problems. Observation of

practice in social agencies with the guidance of practitioners and an interdisciplinary team of teachers. Critical examination of observed and recorded social work practice with individuals, families, small groups and community organizations.
Prerequisites: Social Work 220, 236.

333. Canadian Social Policy Analysis. An analysis of Canadian Social Welfare programmes; existing social policies and their antecedents; service delivery systems on national and local levels. An analytic framework will be developed by which policies, legislation and programmes can be examined as to their cost, availability, effectiveness. Proposals for change will be developed using the analytic framework.
Prerequisites: 220, 236.

336. Seminar in Theories Applied to Social Work and Social Welfare. Individual and small group tutorials, seminars on special topics and approved research projects entailing the application of social science to social welfare and social work practice.
Prerequisites: 220, 236.

346. Quantitative Methods in Social Inquiry. Following course 220, students are introduced to the quantitative assessment of social work practice. Research studies and information derived from documents containing material relevant to social welfare are critically examined from the research consumer's point of view. Individual students may elect to concentrate on those studies which are most relevant to one practice modality.
(Prerequisites: 220, 236).

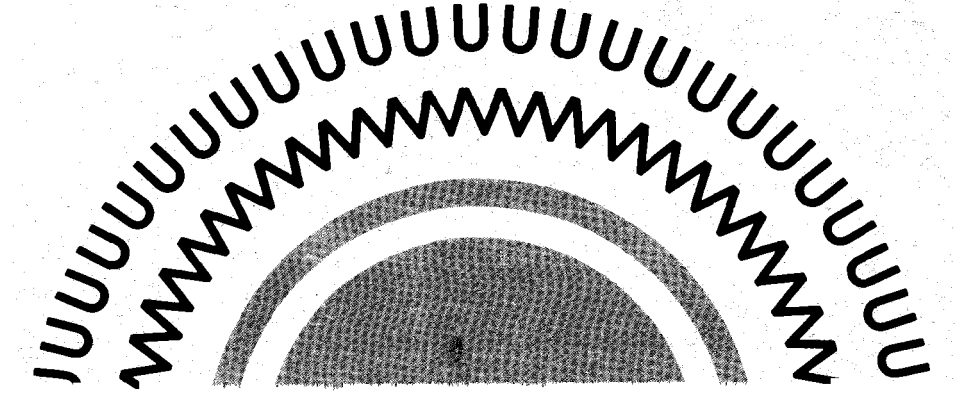
440. Practicum in Social Work Methods. Sustained rendering of social services in an affiliated social agency or other selected setting with the joint guidance of agency practitioners and department faculty. The course provides students majoring in social work with an opportunity to become acquainted, through the rendering of services, with current patterns of practice within existing social agencies.
Skills and techniques for responding to the needs of users of service are developed in twenty-four hours per week of combined preparation and practice.
Prerequisites: 330, 334, 336.
Corequisite: 444.

444. Seminar in Social Work Practice. The seminar is oriented to the further integration of the substance of the Practicum in Social Work Methods and knowledge for practice. Consideration will be given to the conditions of service and the role of the social work profession in affecting the conditions of service.
(Concurrent with 440; same prerequisites).

445a. Social Work Administration and Practice (optional). Current theory in administration and its application to Social Welfare Agencies and institutions; elements of (1) organizations and management; (2) design and operation of administrative systems; (3) social agency policy, its development and relationship to community constituencies.
Prerequisites: 330, 333, 346
half course.

447b. Comparative Work Systems (optional). An analytic comparison of Welfare Systems. An international survey and analysis of policy, legislation and programmes with emphasis on countries with highly developed or developing industrial capacity. The adaptability of non-Canadian institutions to the objectives of Canadian policy will be explored.

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Financial Aid

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IV ONTARIO STUDENT ASSISTANCE PROGRAM

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VI RESTRICTED AND UN-RESTRICTED BURSARIES

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Faculty of Dentistry
Faculty of Engineering Science
Faculty of Law
School of Library and Information Science
Faculty of Medicine
Faculty of Music

C) Faculty of Graduate Studies

VII GRANTS

VIII LOANS

I Admission Scholarships

An admission scholarship is an award made for academic excellence to a first year student.

1. All students with high academic standing are eligible.
2. Applicants to whom Scholarships are awarded must register for a full year's work in 1974-75. Admission Scholarships may not be deferred and, to retain the privilege of continuing scholarships, the winners must maintain a required degree of proficiency in each year of their academic program.
3. The Admission Scholarships listed below are not tenable in the affiliated colleges (Huron, Brescia and King's College). Students registered in affiliated colleges are eligible for the Queen Elizabeth Scholarships.
4. Applications not required unless otherwise stated.

Association of Professional Engineers Entrance Scholarship

Awarded by the Ontario Professional Engineers Foundation for Education, on the recommendation of the Faculty Council, to the Grade 13 pupil entering the Faculty of Engineering Science with the highest admission average. An award will be made only in cases where a first class honors average has been attained and where the high school course has been completed in five years.

$500

Harriet M. Giddens Scholarship

For highest ranking student from the City of London, who has not qualified for a more valuable award. The capital fund for his scholarship was bequeathed to the University by the Late Harriet H. Giddens of London.

$400 payable the first year

The London Life Actuarial Scholarship

For a student entering the Honors Mathematics Program, Actuarial Option, based on highest standing in Grade 13 credits with highest standing in Mathematics. If he withdraws from the Actuarial Option he will forfeit the award permanently. **Application required.**

$2,400 ($600 a year for a max. of four years)

Queen Elizabeth Scholarships of the City of London (2)*

For the man and woman with outstanding excellence in Grade 13, who have lived in the City of London for at least three years and who have attended secondary schools in the City of London for their three final years, or who have attended a secondary school outside of the city limits, provided that the London Board of Education or the Middlesex County Roman Catholic Separate School board paid for attendance of the pupil at such school outside of the City limits.

$1,000 each payable the first year

The Alexander Charles Spencer Scholarships (5)

Must be Residents of Canada previously enrolled in Ontario Grade 13. By application.

$1000 Each Payble The First Year.

Thomas M. Staunton Memorial Awards (3)*

These scholarships were bequeathed to the University by the late Mr. Thomas M. Staunton.

$500 value

The University Women's Club of London Entrance Scholarships

Payable in the first year to a woman candidate.

$500

* Numbers appearing in brackets refer to the number of scholarships, awards etc. available (if more than one is offered)

University of Western Ontario Scholarships

To be announced.

Sir George Williamson Young Memorial Scholarships (6)

The capital fund for this scholarship was bequeathed to the University by the late George Williamson Young of Port Stanley.

$500 (1st Year $200; 2nd Year $300)

NOTE: The University reserves the right to modify or cancel Scholarship offerings after the date of printing of this publication.

II Medals, Scholarships, Awards and Prizes

A) FACULTIES OF ARTS, SCIENCE, SOCIAL SCIENCE AND PHYSICAL EDUCATION SCHOLARSHIPS AWARDED BY THE UNIVERSITY OF WESTERN ONTARIO SHALL BE TENABLE ONLY AT THE UNIVERSITY OR ITS AFFILIATED COLLEGES, UNLESS THE PROVISIONS OF A PARTICULAR SCHOLARSHIP STATE OTHERWISE

The Helen M.B. Allison Gold Medal (c)*

Awarded to a student graduating in the Honors English Language and Literature Program. (Endowed by the Undergraduate Women's Organization.)

Gold Medal

The Alumni Gold Medal (c)

To students graduating in the following Programs: Honors Chemistry, Honors English and French, Honors Music, and the degree Program in Nursing. (These medals were endowed by the Alumni Association of the University.)

Gold Medal

The Angela Armitt Medals(2)

Awarded to a Summer School student with the highest graduating average in a fifteen course program. (Endowed by the Summer School Students' Association)

Gold Medal and $50(each)

The Earl Arscott Memorial Scholarships (4)

For students entering the final year of a three year program in any of the Faculties of Arts, Music, Science and Social Science. (These scholarships were endowed by the Frances Georgina Chadwick Estate.)

$100 each

The Helen I. Battle Scholarship

For highest ranking student in the third year of the B.Sc. in Biology Program who is registered in the fourth year of The Honors Zoology Program. (Endowed by Biology graduates and colleagues.)

$200

The J.P. Bickell Foundation Scholarship

For a student entering the second year of the Honors Geology Program, or the Chemical option of Engineering Science, if he maintains scholarship standing from year to year (The scholarship will alternate between the Faculty of Engineering Science and the Department of Geology.)

$1,500 ($500 a year for 3 years)

The Hon. Edward Blake Scholarship, No. 1

For Honors Economics, second year. Offered in 1973.

$100

Edward Blake Scholarship, No. 2

For Honors Economics, third year. Offered in 1973. The two scholarships above were endowed by the late Major Hume Cronyn, KC, MP, in memory of his uncle, the Hon. Edward Blake, sometime Premier of Ontario and, later, member of the British House of Commons.

$100

The B'Nai Brith Scholarship

For the highest ranking student in Arts or Social Sciences of the General Program, first year, who enters one of the following Programs: English, Ancient or Modern Languages and Literature, or Philosophy. (Given each year by the London Branch of the Order.)

$50

Science Borealis Limited Award

For the student registered in the 3rd year of the B.Sc. in Biology Program who ranked highest in courses offered by The Dept. of Zoology during the 2nd. year of the B.Sc. in Biology Program.

Preference will be given to a student planning to enter the teaching profession. (Endowed by the Science Borealis Ltd. Mississauga, Ont.)

Brescia College Advisory Board Gold Medal (c)

For Brescia College students awarded on the basis of the highest A average in the graduating class.

Gold Medal

* (c) Indicates that the scholarship, award, etc. is received at Convocation.

Brescia College of Arts Award (c)

To a student graduating in the Home Economics Program.

Brescia College Home Economics Prize, No. 1

For Second Year General Program

$25

Brescia College Home Economics Prize, No. 2

For Second Year Foods and Nutrition Program

$25

Bruce County Scholarships (2)

One for the man and one for the woman from Bruce County, who stands highest in any year of any regular program in the University. (These scholarships were voted by the Council of Bruce County in June, 1945.)

$100 each

The Richard and Julia Butler Scholarship

For the student registered in the 3rd. year of The Biology B.Sc. Program who ranked highest in the Biology Core Courses and one or more courses offered by The Plant Sciences Dept. taken in the 2nd. year of The Biology B.Sc. Program.

$100

Archibald A. Campbell Scholarship

An undergraduate scholarship in Canadian Literature awarded annually to the student with the highest standing in a course in Canadian Literature offered by the Department of English.

$200

The Canadian Association of Geographers (c)

To the graduating student who has demonstrated the greatest proficiency in this subject.

Book

The Chemical Institute of Canada Prize

To be awarded to the student with the highest standing in the Honors Chemistry Program of the third year.

$25 in books

The Raymond Compton Dearle Gold Medal (c)

To a student graduating in the Honors Physics Program. (Endowed by former students and friends of Dr. Dearle, MBE, FRSC, Head of the Department of Physics, 1919-1949; Research Professor of Physics, 1949-1957.)

Gold Medal

The Dillon Gold Medal (c)

To a student graduating in the Honors Applied Mathematics Program.

Gold Medal

The Gordon Dixon Memorial

Presented by the Geology Class of 1957 to a senior student who has demonstrated interest and proficiency in Pleistocere Geology.

A book

The Robert LaVerne Eagleson Gold Medal (c)

To a student graduating in the Honors History Program. (Endowed by Miss Lula Eagleson of Toronto, in memory of her brother who graduated from the University with the University Gold Medal in History in 1925.

Gold Medal

The Economics Council (Erie Region) Award

To be awarded annually to the student in the Department of Geography who has prepared the best thesis in each year.

$125

Elgin County Scholarships (4)

Two for the men and two for the women from Elgin County (excluding the City of St. Thomas), who stand highest in any year of any regular program in the University. (These scholarships were voted by the Council of Elgin County in June, 1945).

$100 each

Faculty Association Scholarships

For academic excellence tenable in the Faculties of Arts, Music, Social Science, Science, and Professional Faculties. (These Scholarships were established by The University of Western Ontario Faculty Association).

$100 each

The Howard Ferguson Award

Available to a senior student in any Faculty of the University who is considered to have attained the highest achievement during his university career in athletics, scholarship and college life.

The Harriet Beatrice Freele Scholarship

To an outstanding student entering the Third Year of an Honors Program in Modern Languages, or the Third Year of a General Program with an area of concentration in any of the following: French, German, Russian Studies, Spanish and Italian. (Endowed by the Lloyd C.A. Hodgins Estate).

$300

The Eugene and Susanna Gage Memorial Scholarship No. I

Value: $150.00 in the Spring of 1974, increasing in each year up to 1979 by $10.00; $200.00 in 1980, '81 and '82.

Eligibility: A student entering the Third Year of a B.Sc. Program with an area of concentration in Zoology, to be selected by a committee comprised as follows:

Chairman, Department of Zoology;
Assistant Chairman, Department of Zoology;
Chairman of the Undergraduate Studies Committee of the Department;
Dr. Donald B. McMillan, Associate Professor of Zoology;
Dr. John E. Steele, Associate Professor of Zoology.

This Scholarship is awarded by Mr. and Mrs. Alexander L. Gage in memory of Mr. Gage's parents.

The Scholarship may be terminated at any time between 1974 and 1982 if either of the donors (a) suffers a disability, or (b) dies, retires early or resigns.

The Eugene and Susanna Gage Memorial Scholarship No. II

Value: $150.00 in the Spring of 1974, increasing in each year up to 1979 by $10.00; $200.00 in 1980, '81 and '82.

Eligibility: A student entering the Fourth Year of a B.Sc. Program with an area of

concentration in Zoology, to be selected by a committee comprised as follows:
Chairman, Department of Zoology;
Assistant Chairman, Department of Zoology;
Chairman of the Undergraduate Studies Committee of the Department;
Dr. D.M. Scott, Professor of Zoology;
Dr. John A. George, Associate Professor of Zoology.
This Scholarship is awarded by Mr. and Mrs. Alexander L. Gage in memory of Mr. Gage's parents.
The Scholarship may be terminated at any time between 1974 and 1982 if either of the donors (a) suffers a disability, or (b) dies, retires early or resigns.
(If any of the named individuals on the Selection Committees are unavailable, ex officio members of each Committee shall act for the Committee.)

Gamma Phi Beta Alumnae Jubilee Prize

Second Year Secretarial Science (Secretarial Science 30, 37, 38, 39).
$10

General Motors of Canada Scholarships (4)

Awarded to students who have demonstrated the highest academic and leadership qualities in their final two undergraduate years in Mechanical Engineering, Business or Economics. These scholarships are renewable provided the student remains in an industrial oriented curriculum.
$1000 each

The S.F. Glass Gold Medals (2) (c)

To a graduating student in the Honors Economics Program and in the Honors Political Science Program. (Endowed by the estate of the late S.F. Glass of London).
Gold Medal

Governor General's Medal (c)

Awarded to a graduating student standing highest in the General Program.
Gold Medal

The Andrew Grant Scholarship, No. 1

For Honors Economics, second year.
$200

The Andrew Grant Scholarship, No. 2

For Honors Economics, third year.
$200

The Andrew Grant Scholarship, No. 3

For Honors Political Science, second year.
$200

The Andrew Grant Scholarship, No. 4

For Honors Political Science, third year.
$200

(The four scholarships above were bequeathed to the University by Mrs. Grant as a memorial to her husband, Mr. Andrew Grant, St. Thomas.)

Huron County Scholarships (2)

One for the man and one for the woman from Huron County, who stands highest in any year of any regular Program in the University. (These scholarships were voted by the Council of Huron County in 1949).

$100 each

The International Nickel Company Award in Journalism (c)

For the student completing the Graduate Diploma Program in Journalism with the highest average, provided the average is at least 70%. The award shall be made by the Scholarship Committee on recommendation of the Head of the Department of Journalism.

$250

The Albert O. Jeffery Scholarship, in Plant Sciences

For the highest ranking student in the 2nd. year of the Biology B.Sc. Program registering in the 3rd. year of that program and electing a majority of senior option's from among the courses offered by Plant Sciences.

$100

The Albert O. Jeffery Scholarship in Honors Plant Sciences

For the highest ranking student in the third year of the B.Sc. in Biology Program who is registered for the Honors Degree in the Dept. of Plant Sciences.

$150

The Albert O. Jeffery Scholarship, No. 3

For Honors Mathematics, third year.

$150

The Albert O. Jeffery Scholarship, No. 4

For Honors Applied Mathematics, third year.

$150

The Albert O. Jeffery Scholarship, in Zoology

For the highest ranking student in the 2nd. year of the Biology B.Sc. Program registering for 2 or more courses offered by the Dept. of Zoology in the 3rd. year of the Program.

$150

The Albert O. Jeffery Scholarship, in Honors Zoology

For the student registered in the 4th. year of the Honors Zoology Program who ranked highest in the courses offered by the Dept. of Zoology during the 3rd. year of the B.Sc. in Biology Program.

$150

(The six scholarships above were bequeathed to the University by the late Mrs. Jeffery as a memorial to her husband, Mr. Albert O. Jeffery, KC, DCL, LLD, former president of the London Life Insurance Company).

Edna Jeffery Scholarships (5)

For the highest standing in second year in each of the following Honors Programs: Modern Language and Literature, Psychology, Computer Science, Philosophy, and Physical and Health Education. (These awards were bequeathed to the University by the late Mrs. Edna Jeffery).

$100 each

Herbert K. Kalbfleisch Scholarship

To be awarded to an outstanding student whose first language is not German, entering any third or fourth year Honors Program in German. (This scholarship was endowed by former students, colleagues and friends).

$100

The Joseph J. and Annie R. Kingston Gold Medal (c)

Awarded to a graduating student in Honors Mathematics (Program 1). (Endowed by the late Dr. H.R. Kingston in memory of his parents).

Gold Medal

The Maude Holt Kingston Gold Medal (c)

Awarded to a graduating student in the Honors Astronomy Program. (Endowed by the late Dr. H.R. Kingston in memory of his wife).

Gold Medal

The Kitchener Waterloo Record and Kitchener Waterloo Press Club Award in Journalism

To be awarded in January to the student with the highest standing in the Diploma Program in Journalism at the end of the first term.

$200

Sir Wilfred Laurier Memorial Prizes (2)

Awarded annually for proficiency in French conversation, open only to Canadian-born, English speaking students, or sons or daughters of naturalized British subjects not of French parentage. (The Capital fund of these prizes was the gift of the Women's Liberal Association.

$50 and $75

The R.B. Liddy Gold Medal (c)

Awarded to a graduating student in the Honors Psychology Program. (Endowed in memory of the late Professor R.B. Liddy, Head of the Department of Psychology at this University, 1931-1954, by his children Catherine and James, both graduates of this University).

Gold Medal

The London Life Insurance Company Gold Medal (c)

Awarded to a graduating student in the Honors Mathematics Program, Actuarial Option.

Gold Medal

The John McEachern Scholarship

In memory of Dr. Thomas E. Carr, a graduate of this University, for the student with the highest standing in third year Honors English and History who enrolls in the fourth year.

$150

The J.B. McGeachy Memorial Award in Journalism

Award for merchandise or services, to be used before August 31st of the year it is awarded. Awarded annually to a student with high standing in the Diploma Program in Journalism at the end of the first term. (This scholarship has been established in perpetuity by Dr. Barbara A. McGeachy of England in memory of her brother, a distinguished Canadian journalist).

$250

The John Gordon McIntosh Scholarship, No. 1

For Honors Physics, second year.

$100

The John Gordon McIntosh Scholarship, No. 2

For Honors Physics, Third Year.
(The two scholarships above were endowed by the late Mrs. John Gordon McIntosh, of Winnipeg, in memory of her husband.)
$100

The Wilhelmina and J. Gordon McIntosh Prize, No. 4

For second year of the Honors Geography program year, tenable in the third year of Honors Geography.
$100

The Wilhelmina and J. Gordon McIntosh Prize, No. 5

For Honors Geography, third year.
$100

The Wilhelmina and J. Gordon McIntosh Public Speaking Prizes

Awards are made to students taking Speech 39 in the Department of English.
(The 3 awards above were bequeathed to the University by the late Wilhelmina Morris McIntosh, of Winnipeg and London).
Amounts Vary

The Joseph Henry Marshall Prize

For the highest standing in one of the following Canadian History courses: History 231, History 331 or History 431. Open only to Canadian-born students. Bequeathed to the University by Mrs. Amy Marshall as a memorial to her late husband, Joseph Henry Marshall, MP, to commemorate his interest in all phases of Canadian History.
$60

The Mathematics Class of 1949 Prize

For the highest standing in first year Calculus.
$25

The Midland Osler Securities Scholarship

Awarded to the student entering the second year of the Honors Journalism program, who has the highest average in five courses in the first year providing that that average is at least an "A"
$100

The K.P.R. Neville Memorial Scholarship

For a student entering second year of the Honors program in English and French, English and German, or English and History. Offered in 1971-72 and alternate years thereafter.
$100

The Benjamin Noble Scholarship

For the second year of Honors Fine Art program, tenable in the third year. (This scholarship was endowed by the late Mrs. Annie Noble in memory of her husband).
$150

The Northern Life Gold Medal (c)

Awarded to a graduating student in Honors Statistical Mathematics.
Gold Medal

The Thomas B. Richardson Gold Medal (c)

Awarded to a student graduating in the Honors Geography Program. Endowed by Leverne and Ronald Richardson in honor of their father.

Gold Medal

The Dean Russell (Limited) Award (2) (c)

For two students (preferably one woman and one man) highest in fourth year Zoology. Preference will be given to students planning to enter the teaching profession.

$100 each

The Society of Chemical Industry Merit Award

For the highest standing in the final year of Honors Chemistry provided that First Class Honors are obtained and the course has been completed in four years.

A gold key and a year's subscription to the Journal of the Society (Chemistry and Industry)

The Rhoda Ann Rim Scholarship in English Literature

Awarded on the basis of academic standing in Arts or Social Sciences of the General Program, first year, to a student who enrolls in the second year of Honors English Language and Literature.

The winner will be selected by the Scholarship Committee, on recommendation of the Department of English, from **applications to be received by the Registrar before May 1st.** The student selected must maintain first or second class honors and remain in the Honors Program in English Language and Literature. (The scholarship was established as a memorial to his mother by the late Lionel Harris Rinn, Honors English graduate of this University).

$1,000 ($500 2nd. Year, $300 3rd. Year, $200 final Year)

The W.J. Roche Scholarship

Awarded for the highest ranking student in Arts or Social Sciences of the General Program, first year, who enters one of the Social Science Programs: Honors Economics, Politics, Geography, History or Psychology. (Given in honor of the late Hon. W.J. Roche, MD, LLD, CMG, former Chancellor of the University).

$50

Sons of Italy (c)

For proficiency in the study of the Italian Language and Culture at an undergraduate level.

$100

The Charles A. Southworth Memorial in Paleontology

Awarded to an undergraduate or graduate student at the discretion of the Geology Department, provided by Mrs. Harriet G. Woolfengen, Sedona, Arizona.

Book(s)

The J.A.F. Stevenson Medal

Awarded annually to the top graduating student in Physiology.

Medal

Legation of Switzerland (c)

To students in modern languages, on recommendation of the Departments concerned.

Book prizes

W.W. Tamblyn Prize

For the highest standing in the use of language. (English Composition and Public Speaking) at the first year level. The capital fund for this prize was bequeathed to the University by the late W.W. Tamblyn of Bowmanville and by his son, the late Professor W.F. Tamblyn of London, formerly Head of the Department of English at this University.

$50

The Timken International Fund Scholarships (4)

For students entering the Second Year in the Faculty of Engineering Science, students entering the Third Year in the Faculty of Engineering Science, students entering either the Second or Third Year of Honors Mathematics and students entering the Second or Third Year of Applied Mathematics.

$250 each

The A. Dorothy Turville Gold Medal (c)

Honors French and Spanish. (Endowed by the Undergraduate Women's Organization).

Gold Medal

The Veeco Prizes (2) (c)

Awarded annually for overall program excellence in the final year of the following programs—four year Honors Program in Physics or Physics Major/Minor, three year Bachelor of Science Program in Physics. (These prizes are to be underwritten by the Vacuum Electronics Corporation—Veeco).

$50 each

University of Western Ontario Medals (c)

For all Honors Programs when no other medal is awarded.

Medals

University of Western Ontario Scholarships

For the highest standing in the second and third Year of Honors Programs when no other scholarship is awarded.

$100 each

The Frances Weir Gold Medal and Scholarship (c)

In Honors English and History. The gift of Dr. Samuel E. Weir, QC, through the Weir Foundation, in memory of his sister Miss Frances M. Weir who died in 1959 and, who was, at the time of her graduation in 1916, the winner of the Governor General's Gold Medal, which was then awarded to the best student in the Honors English and History Program.

$100 & Gold Medal

The Frances Weir Scholarship (c)

When the winner of the Governor General's Medal is a woman, she will receive a scholarship, a gift of Mr. Samuel E. Weir, QC, through the Weir Foundation, in memory of Miss Frances H. Weir who won the Governor General's Medal when she graduated from this University in 1916.

$100

Albert E. Wells

For second year of Honors Chemistry Program.

$150

The William Wyatt Scholarship, No. 1

For second year of Honors English Language and Literature Program.

$200

The William Wyatt Scholarship, No. 2

For second year of Honors History Program.

$200

The William Wyatt Scholarship, No. 3 (4)

For the highest ranking student (first year General Program) in Arts, Sciences, Social Sciences and Music, who enters an honors program, when no other scholarship is awarded. (The capital fund for the three scholarships above was bequeathed to the University by the late William Wyatt of London).

$200

NOTE: The University reserves the right to modify or cancel Scholarship offerings after the date of printing of this publication.

B) PROFESSIONAL FACULTIES AND SCHOOLS

1. SCHOOL OF BUSINESS ADMINISTRATION

The William C. Benson Prize

The gift of William C. Benson, awarded to the highest ranking student in the Business 250 Course in the second year, who is entering the third year in the School of Business Administration. The award will be made at the beginning of the third year.

$50

The Clarkson, Gordon & Co. Prize

The gift of Clarkson, Gordon & Co., Chartered Accountants, awarded to the student who completes the third year of Business Administration with the highest standing in accounting.

$100

Faculty of Business Administration Gold Medal

To be awarded by the faculty upon graduation to the undergraduate student with the highest first class standing.

Gold Medal

The GSW Centennial Medal

Awarded upon graduation to the undergraduate student with the highest first class standing in the Faculty of Business Administration.

Medal

The Johnson's Wax Scholarship

To an outstanding student in the first year of Pre-Business, tenable in the second year if he maintains scholarship standing from year to year. Must apply to the Office of the Registrar by October 1st.

$2,400 (800 / yr. for three years)

The Wilhelmina and J. Gordon McIntosh Scholarship No. 1

Awarded for general proficiency in the second year of the School of Business Administration, payable during the third year at the school.

$100

The Wilhelmina and J. Gordon McIntosh Scholarship No. 2

Awarded for general proficiency in the third year of the School of Business Administration, payable during the fourth year at the School.
(The two awards above were bequeathed to the University by the late Wilhelmina Morris McIntosh, of Winnipeg and London.)
$150

Price, Waterhouse & Co. Scholarship

Awarded to a student completing the third year of the course in Business Administration, whose academic record in the first three years and whose ability and other qualifications are considered to be outstanding. Preference will be given to those who plan to continue their studies after graduation with a practising firm of chartered accountants.
$250

Touche and Ross Award

To the student entering the fourth year of Honors Business Administration with the best marks in the Humanities and Social Sciences. He should have at least a second class standing in the Business subjects taken in his junior year, and should possess other qualifications which, in the opinion of the Faculty, indicate that he could, if he so desires, have a successful and happy career in the accounting profession.

Walter A. Thompson Alumni Fellowships

Provided by alumni of the school as a tribute to Walter A. Thompson who, for over forty years, was a member of its faculty and contributed in so many ways to its growth and standing as an internationally recognized institution. The fellowships will be awarded to outstanding students entering the School's B.A. or M.B.A. Program.
Three annual fellowships of $1,000 each

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2. FACULTY OF DENTISTRY

All scholarships and awards are recommended annually to the Council of the Faculty. If in the judgment of the recommending body it is felt that there is no appropriate recipient in any given year, the Council reserves the right not to approve the granting of the scholarship or award.

The American Academy of Dental Radiology Award

Awarded annually to the Fourth Year student who, on the recommendation of the Division of Radiology, Department of Oral Medicine, is most proficient in Dental Radiology. An application is not required
A Certificate and a one-year membership which includes a year's subscription to the Journal of Oral Surgery, Oral Medicine, Oral Pathology.

The American Academy of Oral Medicine Award

Awarded annually to the Fourth Year student who, on the recommendation of the Department of Oral Medicine, displays the greatest proficiency in Oral Medicine. An application is not required.

Certificate and a copy of the Journal of the American Academy of Oral Medicine in which the student's name will appear.

The American Academy of Periodontology Award

Awarded annually to the Fourth Year student who, on the recommendation of the Division of Periodontics, Department of Oral Medicine, has excelled in the area of Periodontics. An application is not required.

Certificate and a one-year subscription to the Journal of Periodontology-Periodontics

American Association of Endodontists Award

Awarded annually on the recommendation of the Division of Endodontics, Department of Restorative Dentistry, to the Fourth Year student who has shown the greatest interest and proficiency in the field of Endodontics. An application is not required.

A one-year membership in the American Association of Endodontists which includes a subscription to the Journal of Oral Surgery, Oral Medicine, Oral Pathology

The American Association of Orthodontists Award in Oral-Facial Growth

Awarded annually to the Fourth Year student who, on the recommendation of the Division of Orthodontics, Department of Paediatric Dentistry, demonstrates the most outstanding qualities and interest in the development of the oral-facial complex. An application is not required.

Certificate

** American Dental Society of Anaesthesiology Award

Awarded annually on the recommendation of the Department of Oral Surgery to the Third Year student who is judged to be most proficient in anaesthesiology. An application is not required.

Certificate

The Canadian Academy of Periodontology Award

Awarded annually to the Fourth Year student who, on the recommendation of the Division of Periodontics, Department of Oral Medicine, attains the highest standing in the final year in Periodontics. No application is required.

A text book to the value of $25.

The Canadian Society of Dentistry for Children Award

Awarded annually to the Fourth Year student who, on recommendation of the Department of Paediatric Dentistry, is proficient in subjects relating to Dentistry for Children. No application is required.

A textbook with application to Dentistry for children and a one-year subscription to the Journal of Dentistry for Children

The Canadian Society of Oral Surgeons Award

Awarded annually on the recommendation of the Department of Oral Surgery to the Fourth Year student who achieves the highest standing in the subject of Oral Surgery. Not tenable with any other award in Oral Surgery. An application is not required.

A textbook in Oral Surgery or the equivalent in cash

The Centennial Paediatric Dentistry Award

Established in the Faculty of Dentistry by the Ladies' Auxiliary to the London and District Dental Society. Awarded annually to the Third Year student who, on the recommendation of the Department of Paediatric Dentistry, is the most proficient in Paediatric Dentistry and who, by scholarship and attitude towards his responsibilities, has met the requirements for the Award. An application is not required.

$100 and Plaque

Clinical Paedodontic Award

Established in the Faculty of Dentistry by the Canadian Society of Dentistry for Children in honor of Dr. S.A. MacGregor. Awarded annually to the Fourth Year student who, on the recommendation of the Division of Paedodontics, Department of Paediatric Dentistry, has shown the greatest proficiency in Clinical Paedontics. No application is required.

A Medal

Dental Sciences Research Award

Donated by the Department of Restorative Dentistry on behalf of Dean W. Scott Hamilton, and awarded annually to the Fourth Year student who has demonstrated outstanding interest and activities in research related to the dental sciences throughout his undergraduate program. No application is required.

Plaque and a one-year subscription to the Journal of Dental Research

The Fixed Prosthodontics Award

Established in the Faculty of Dentistry by Dr. W.R. Teteruck. Awarded annually on the recommendation of the Division of Fixed Prosthodontics, Department of Restorative Dentistry, to the Fourth Year student who has shown the greatest proficiency in Fixed Prosthodontics throughout his undergraduate dental program. An application is not required.

A Plaque

Hamilton Academy of Dentistry Award in Oral Medicine

Established in the Faculty of Dentistry by the Hamilton Academy of Dentistry. Awarded annually to the Second Year student who, on the recommendation of the Department of Oral Medicine, displays the highest degree of academic excellence in Oral Medicine. An application is not required.

A Plaque

International College of Dentists Award

Established in the Faculty of Dentistry by the International College of Dentists (Canadian Section). Awarded annually on the recommendation of the Promotions Committee to the Third Year student who exhibits the highest degree of both academic proficiency and participation in extra-curricular activities. An application is not required.

$100 and a certificate

Johnson & Johnson Award

Awarded annually on the recommendation of the Department of Restorative Dentistry to the Second Year student who displays the highest degree of competence in Operative Dentistry. An application is not required.

$150 and a Plaque

Johnson & Johnson Award

Awarded annually on the recommendation of the Department of Restorative Dentistry to the Fourth Year student who displays the highest degree of competence in Operative Dentistry. An application is not required.

$150 and a Plaque

London and District Dental Scociety Award

Awarded annually to the Fourth Year student for general proficiency in the fourth dental year. No application is required.

A gift and certificate

Mosby Book Awards

Established in the Faculty of Dentistry by the C.V. Mosby Company. Awarded annually by the Council of the Faculty to the members of the First Year selected by the Committee on Examinations in the subjects of Anatomy, Occlusion and Physiology. Applications are not required.

Books to the value of $30 each

Mosby Book Awards

Established in the Faculty of Dentistry by the C.V. Mosby Company. Awarded annually by the Council of the Faculty to the members of the Second Year selected by the Committee on Examinations in the subjects of Oral Pathology and Restorative Dentistry. Applications are not required.

Books to the value of $30 each

The Ontario Dental Association Honorary Members Prize

Awarded annually, when applicable, to a student who, on the recommendation of the Executive Council of the Ontario Dental Association on advice from the Publications Committee, has written the best article of a cultural nature (non dental) published in the undergraduate journals of the Ontario Faculties of Dentistry during the previous year. An application is not required.

$40

The Elgin Dental Association Award in Oral Surgery

Established in the Faculty of Dentistry by the Elgin Dental Association. Awarded annually to the Third Year student who, on the recommendation of the Department of Oral Surgery, displays the greatest proficiency in Oral Surgery. No application is required.

$50 and a Plaque

Pro Liberis Prize

Established in the Faculty of Dentistry by the Dental Public Health Committee of the Ontario Dental Association. Awarded annually to the Fourth Year student who, on the recommendation of the Division of Paedodontics, Department of Paediatric Dentistry, shows the greatest proficiency in Paedodontics. An application is not required.

$50 and a Key

The Removable Prosthodontics Award

Established in the Faculty of Dentistry by Dr. J.E. Ryan. Awarded annually on the recommendation of the Division of Removable Prosthodontics, Department of Restorative Dentistry, to the Fourth Year student who has shown the greatest proficiency in Removable Prosthodontics throughout his undergraduate dental program. An application is not required.

A Plaque

The Restorative Dentistry Award

Established in the Faculty of Dentistry by Dr. D.B. Gilboe in memory of Dr. Erik T. Anderson. Awarded annually to the Third Year student who, on the recommendation of the Department of Restorative Dentistry, shows the greatest proficiency in Restorative Dentistry. An application is not required.

$100 and a Plaque

Royal College of Dental Surgeons of Ontario Scholarship

Established in the Faculty of Dentistry by the Royal College of Dental Surgeons of Ontario. Awarded to the First Year student ranking highest in Honors (an average of at least 80%) at the annual examinations of the first year. Applications are not required.

$150

Royal College of Dental Surgeons of Ontario Scholarship

Established in the Faculty of Dentistry by the Royal College of Dental Surgeons of Ontario. Awarded to the Second Year student ranking highest in Honors (an average of at least 80%) at the annual examinations of the second year. Applications are not required.

$150

Royal College of Dental Surgeons of Ontario Award in Oral Biology

Awarded annually to the Second Year student who achieves the highest standing in the combined First Year course of neuroanatomy and the Second Year course of neurophysiology. An application is not required.

$100 and a Plaque

W.B. Saunders Book Award

Awarded annually on the recommendation of the Department of Social Dentistry to the Third Year student who displays the greatest proficiency in Social Dentistry. An application is not required.

one-year subscription to "Dental Clinics of North America"

The Senior Award in Oral Surgery

Established in the Faculty of Dentistry by Dr. A.G. Parnell. Awarded annually on the recommendation of the Department of Oral Surgery to the Fourth Year student who achieves the greatest proficiency both academically and clinically in Oral Surgery. An application is not required.

A Plaque

The Senior Award in Oral Biology

Established in the Faculty of Dentistry by Dr. K. Hoshino. Awarded annually on the recommendation of the Examinations Committee to a Fourth Year student who achieves a high degree of excellence during his clinical years, and who has shown great proficiency in the basic Science courses during the pre-clinical years. An application is not required.

$100 and certificate

University of Western Ontario Medal

Awarded to a Fourth year student for general proficiency throughout the entire four years of the Dental Program.

Gold Medal

** - Awaiting Senate approval

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3. FACULTY OF ENGINEERING SCIENCE

Association of Professional Engineers Scholarships (2)

Awarded by the Ontario Professional Engineers Foundation for Education, on the recommendation of the Faculty Council, to a deserving undergraduate who has obtained first class honors in the course prescribed for the year preceding the award.

$250

Dr. E.V. Buchanan Prize

Awarded annually to the undergraduate student in the Faculty of Engineering Science who, in the opinion of the Faculty Council, has made the most significant social and cultural contribution to the life of the Faculty as well as achieving academic standing. (Underwritten anonymously).

$50

Canadian Construction Association Thesis Prize

Awarded to the fourth year student in Engineering Science with the best thesis on the subject of construction. Thesis to be reviewed by the Division of Building Research of the National Research Council and the Canadian Construction Association Research and Education Committee, with an additional $100 prize for an outstanding thesis.

$50 and an Engineer's Handbook

The Chemical Institute of Canada Prize

To the student with the highest academic standing in the penultimate year of Chemical Engineering.

$25

Chemical Rubber Company - Engineering Science Achievement Award

Recognizes competence and professionalism at the first-level of engineering. Students are nominated for this award.

The Harry Cross Medal

This medal is the gift of Mr. J.R. Cross in memory of his father, the late Harry Cross, and is awarded to the fourth year student, enrolled in the Electrical option of Engineering Science, with the highest aggregate percentage for the final examination of the third and fourth years, provided that the student obtains first class honors standing in the work of the final year.

Silver Medal

M.M. Dillon Ltd. Award

Awarded to the student obtaining the highest standing in design in Civil Engineering leading to Degree of Master of Engineering, the recipient to be determined by the scholarship committee of the Faculty of Engineering Science.

Book Prize valued at $25

The Electrochemical Society, Inc. - F.M. Becket Memorial Award

This award is given by the Electrochemical Society to commemorate F.M. Becket, a former president. Awarded to a member of the graduating class.

Engineering Institute of Canada (London Branch) Best Paper Award (c)

Presented to the engineering student in his fourth year whose project, presentation and thesis has been judged to have the greatest merit with regard to originality, scope, technical content, and written and verbal presentation.

Membership

Engineering Institute of Canada Prize

Conferred on the student who, in his third year, has made the greatest contribution to student engineering society affairs and at the same time has maintained a good academic record.

$50

The Faculty Association Scholarship

For students enrolled in second third or fourth year in this university on the basis of academic excellence during the previous year's work.

Professional Engineers Gold Medal (c)

Awarded annually by the Association of Professional Engineers of the Province of Ontario to the fourth year student, enrolled in any Engineering Science option, with the highest aggregate percentage for the final examinations of the four years of his undergraduate course, provided that the student obtains first class honors standing in the work of his final year.

Gold Medal

General Motors of Canada Scholarships (4)

Awarded to students who have demonstrated the highest academic and leadership qualities in their final two undergraduate years in Mechanical Engineering, Business or Economics. These scholarships are renewable provided the student remains in an industrial oriented curriculum.

$1000 each

Student Road Safety Competition

The Engineering Institute of Canada, supported by the North American Life Assurance Company, sponsors a Student Road Safety Competition. This is a competition for all undergraduate engineering students in Canada on ideas and methods to reduce motor vehicle accidents and thereby increase road safety. New or novel ideas are particularly desired. The only stipulation is that such ideas should be within reasonable economic reach and possible within the next 10 to 15 years. Contestants are encouraged to select their own subject but may coordinate the subjects or form of presentation to suit thesis requirements. Presentations may be made by groups of students, providing all are eligible; any awards would then be made to the group.

1st Prize of $1000
2nd Prize of $600
3rd Prize of $400
4th Prize of $200

The Timken International Fund Scholarships (4)

For students entering the Second Year in the Faculty of Engineering Science, students entering the Third Year in the Faculty of Engineering Science, students entering the Second or Third Year of Honors Mathematics and students entering the Second or Third Year of Applied Mathematics.

$250 each

The Dr. James A. Vance Prize

Awarded annually to the undergraduate student in the Faculty of Engineering Science who, in the opinion of the Faculty Council, has exhibited superiority in engineering design. (Underwritten anonymously).

$50

The Dr. James A. Vance Silver Medal (c)

This is the gift of Dr. James A. Vance, a past President of the Engineering Institute of Canada and a former Chairman of the Ontario Water Resources Commission. It is awarded annually to a fourth year student enrolled in the Civil Engineering option of the Faculty of Engineering Science having the highest aggregate percentage for the final examinations of the third and fourth years, provided that the student has attained first class honors standing in the work of the final year.

Silver Medal

University of Western Ontario Medal (c)

May be awarded to fourth year engineering students obtaining the highest standing in the Chemical Option and the Mechanical Option of the Engineering Science Program. The regulations governing awards shall be similar to those applying to the Harry Cross Medal.

Silver Medals

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4. FACULTY OF LAW:

The Hon. Edward Blake Prize

To the student achieving the highest standing in Company Law
(Endowed by the late Major Hume Cronyn, KC, MP, in memory of his uncle, the Hon. Edward Blake, sometime Premier of Ontario and, later, member of the British House of Commons).
$100

The Susan J. Ainger Memorial Award

To the female law student achieving the highest standing in the Law Program in the First Year.
$250

The Borden, Elliot, Kelly and Palmer Prize

To the student achieving the highest standing in second year law.
$200

The Campbell, Godfrey & Lewtas Prize

To the student achieving the highest standing in first year law.
$250

The Canada Law Book Company Prizes (c) (3)

To the student achieving (a) the highest standing in Torts, first year; (b) the highest standing in Evidence, second year; and (c) the highest standing in a course in the third year to be selected by the Faculty of Law.
Books valued at $50 each

Canada Permanent Trust Company Law Prizes (c) (2)

One to the student achieving the highest standing in Wills, and another to the student achieving the highest standing in Trusts.
$100

The Carswell Company Limited Prizes (c) (3)

To the third-year student achieving the highest standing in Conflict of Laws (books to the value of $100); to the second-year student achieving the highest standing in Commercial Law and the first-year student achieving the highest standing in a course to be designated by the Dean (books to the value of $50 each)

Special Prize in Commercial Law Subjects

Donated by Zimmerman, Winters, Warley, Grant, Hugo, Paddon, and Bennett, Toronto, to be awarded to a student who demonstrates exceptional ability in a group of third year Commercial Law subjects to be designated by the Faculty.

$100

The Davies, Ward and Beck Prizes in Commercial Law Subjects (3)

To three students who have shown exceptional promise in their second year and who have made the Dean's List of Honor Students in that year.

$150 each

Faculty of Law Foundation Fund Awards

To the two best voluntary mooters in the Law Program's 2nd and 3rd years, from funds provided by alumni and others associated with the Faculty

$75 each

Faculty Prize for Legal Writing (c)

To be awarded at the discretion of the Faculty of Law, for contributions to the University of Western Ontario Law Journal.

$100

Harold G. Fox Education Fund Award.

To be awarded to a student in first or second year who shows exceptional promise.

the sum of $100 for five years, 1971-72 to 1975-76

The Arthur T. Little Scholarship (c)

To the student achieving the highest standing in the final year of Law.

Gold Medal and $200

The London Life Insurance Company Prize (c)

To the Law student achieving the highest standing in Insurance.

$100

The Margaret H. McNulty Awards (2)

To two students who, in their first year, have shown great promise.

$100 each

Morrison, Haines, Buchner Prize

To the student showing the greatest overall improvement in academic standing in the first year of the Law Program.

$100

The Petch and Associates Prize.

To the second-year student achieving the highest standing in a corporate or commercial course to be designated by the Dean.

$100

Prize in Taxation

Donated by Shibley, Righton & McCutcheon, Toronto, to the student achieving the highest standing in Taxation in the Faculty of Law.
$50

Dean Ivan C. Rand Award

Endowed by bequest of the late Ivan C. Rand. The annual income from the bequest shall be divided equally in such manner as the Selection Committee for the Dean Ivan C. Rand Honor Society sees fit, amongst those students in their graduating year in the Faculty of Law who are honored by membership in the Honor Society.

Samuel Pearce Entrance Awards

To two students upon their entry into first year Law. Based upon their scholastic record and need.
$100 each

The A.B. Siskind Scholarship (c)

The income of a trust fund established under the will of the late A.B. Siskind QC, a former sessional lecturer at, and enthusiastic supporter of, the Faculty of Law, to be given to the student achieving the highest standing in Civil Procedure.

Stevenson & Evans Prize

For Constitutional Law, first year.
$100

The Thomson, Rogers' Prize in Company and Commercial Law

Awarded annually to the second-year student in the Faculty of Law who achieves the highest aggregate standing in two of the following three courses: Company Law, Commercial Law and Income Taxation (the two courses to be designated by the Faculty)
$150

The Thomson, Rogers' Prize in Trial Process (c)

Awarded annually to the second year student with the highest standing in Trial Process.
$150

NOTE: The University reserves the right to modify or cancel Scholarship offerings after the date of this publication.

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5. SCHOOL OF LIBRARY AND INFORMATION SCIENCE:

Canadian Library Association Scholarships

The CLA has a number of scholarships for students in accredited library schools. Applications *should be made before March 1st* to the Chairman, CLA Scholarships and Awards Committee, 63 Sparks Street, Ottawa, Ontario KiP 5E3.

National Research Council of Canada

N.R.C. awards a number of graduate scholarships in the field of science librarianship and documentation. They are awarded to candidates who are graduates or final-year students of science or engineering courses. Applications should be in by the end of December. Further information may be obtained from the Scholarships Officer, Office of Grants and Scholarships, National Research Council, Ottawa, Ontario K1A 0R6.

$3,800 plus a travel grant

The Canadian Federation of University Women

This Fellowship is open to any woman holding a degree from a Canadian university, whose domicile is in Canada a) who wishes to spend a year at an *accredited library school,* school of social work, college of education or similar professional school; or b) who wishes, after some years of experience in a chosen field or after a lapse of time away from formal study, to embark on a program leading to an advanced degree. One or two professional Fellowships are awarded. Information and Application forms from: Canadian Federation of University Women, Mount Allison University, Box 69, Sackville, New Brunswick.

Professional Fellowship $2,500

Medical Library Association

Each year, at least one scholarship is offered to individuals showing promise for medical librarianship, who will enter graduate library school. Applications must be completed and returned by March 1. Applications are available from the Medical Library Association, Suite 1601, 919 N. Mich. Ave., Chicago, Ill. 60611.
NOTE: Financial Assistance for Library Education, a publication of the American Library Association, is revised each summer. Copies are available from the Association, 50 E. Huron Street, Chicago, Illinois 60611 without charge.

$1,500

NOTE: In addition to the scholarships listed above, the Canadian Library Association issues a pamphlet entitled *Financial Aid for Study in the Field of Library Science.* A copy of this pamphlet is available from the School on request. Further information on financial aid may be obtained from the Awards Officer, the University of Western Ontario and by referring to the Calendar of the School of Library and Information Science.

FACULTY OF MEDICINE:

The Abbott Prize in Anaesthesia (c)

Awarded by the Abbott Laboratories Limited, to the fourth year student who has shown outstanding interest in the Specialty of Anaesthesia. For the prize, the marks in the third year examination and the performance during the fourth year clerkship, as judged by the Clinical Instructors shall be taken into consideration.

$150

The Alpha Kappa Kappa Gold Medal (c)

Awarded to the medical student taking the highest standing in the final year. (Provided for in Alpha Kappa Kappa's contribution to the University Endowment Fund).

Gold Medal

The B'Nai Brith Scholarship in Pathology

To be awarded by the London Lodge of the B'Nai Brith Society to the second year medical student with the highest standing in Pathology.

$50

The Borden Award in Paediatrics

Granted by the Borden Company Limited to the medical student showing the greatest merit in Paediatrics in the third year.

$100

The Bristol Prize in Medicine

Awarded annually by Bristol Laboratories to the third year student selected on the basis of meritorious performance in Clinical Medicine.

Medical texts in Therapy and/or Pharmacology to the value of $125

The J.B. Campbell Memorial Scholarship in Medicine (c)

To the student obtaining the highest marks in the combined examinations in Medicine and Clinical Medicine in the final year.

$100

The J.B. Campbell Memorial Scholarship in Physiology

To the medical student obtaining the highest marks in the examinations in Physiology.

$100

The Canadian Physiotherapy Association Book Prize

To the graduating student with the highest academic standing.

The Ciba Prize

Awarded to a student in the second year, at the discretion of the Council of the Faculty of Medicine.

A set of the Ciba Collection of Medical Illustrations

The Ciba Prize in Medicine

To be awarded to the third year student in the Faculty of Medicine who shows the greatest proficiency in Medicine.

$75

The Class of 1917 Prize (c)

To the medical student in the final year keeping the best case records on patients on the wards and in the out-patient departments.

$50

The Class of '55 Prize (c)

To be awarded at the discretion of the Dean and Faculty of Medicine to a student in the final year showing outstanding promise in the practice of Clinical Medicine.

$200

The Dr. T.H. Coffey Memorial Prize in Physical Medicine and Rehabilitation

Established by Dr. M.G.P. Cameron in memory of the late Dr. T.H. Coffey. Awarded to a third or fourth year medical student for the best essay in the field of clinical investigation or research related to Physical Medicine and Rehabilitation. Essays are to be submitted to the Dean of Medicine on or before March 31st of each year.

$50 and a book

The Crippled Children's Treatment Centre Book Prize

To the graduating student showing the greatest aptitude in paediatric physical therapy.

The Pearl Devenow Fox Memorial Prize in Obstetrics and Gynaecology (c)

Awarded by the London Section of the National Council of Jewish Women of Canada, to the final year medical student showing the greatest merit in Obstetrics and Gynaecology during the third and fourth years, as assessed by both marks in written examinations and performance in clinics.

$100

The Dr. F.R. Eccles Scholarship

The late Dr. Eccles established a scholarship fund to enable students of medicine to study abroad following graduation. Awarded annually to the student obtaining the highest standing in the final year of the medical course.

$1,200

Nellie L. Farthing Memorial Fellowship

Available to students engaged in postgraduate work or medical research in the medical sciences. Applications should be submitted to the Dean of Medicine no later than March 15.

$1,500 per academic year.

The Charles E. Frosst Medical Scholarship

Awarded by Charles E. Frosst and Company, at the end of the third year, to a medical student who has shown most promise in the field of Theropeutics.

$500 and a Bronze Medal

The Dr. Fred N. Hagerman Memorial Prize in Surgery (c)

Established by the family and friends of the late Dr. Fred N. Hagerman, Meds '63, and awarded to the final year student showing the greatest merit in Surgery during the third and fourth years, as assessed both by marks in written examinations and performance in clinics.

$100

Hippocratic Society Award in Anatomy

To be awarded annually as a prize to the student doing the best work in Gross Anatomy in the first year.

$50

The Horner Gold Medal Awards in Ophthalmology and Otolaryngology (c)

Awarded by Frank W. Horner Limited to the final year medical students showing the highest proficiency in Ophthalmology and Otolaryngology in all years of the medical course.

Gold Medals

The Alexander L. Hotson Scholarship

Awarded to the student achieving the second highest standing in examinations at the conclusion of the second year of the medical course. Established by the late Miss Aletha Hotson M.D., graduate of U.W.O.

$250

The Rachel Slobasky Kaplan Scholarship

Established by Mrs. Kaplan of Windsor, Ontario and awarded annually to the student achieving the highest standing in the examinations at the conclusion of the second year of the medical course.

$300

The Khaki University and Y.M.C.A. Scholarship (c)

Applications for the Khaki University and Y.M.C.A. Scholarship, will be received by the Dean from the sons or daughters of veterans of the Canadian Armed Forces. In the event that no applications are received from any veteran's dependents, then applications will be accepted from other students. The Scholarship will be awarded at the discretion of the Council of the Faculty of Medicine.

Valued at $200

The R.A.H. Kinch Prize in Community Medicine (c)

Awarded annually to the final year medical student who demonstrates the greatest competence in the community aspects of medicine, as determined by the Department of Epidemiology and Preventive Medicine and the Department of Family Medicine.

$150

The Kingswood Scholarship (c)

Awarded to a student in the graduating year in Medicine, as the authorities of the University consider most proficient. (The fund was established by a bequest of the late Mr. Isaac William Kingswood).

$100

The Lange Awards, First Year

Prizes of two books published by Lange Medical Publications to each of two outstanding students as selected by Council of the Faculty.

The Lange Awards, Second Year

Prizes of two books published by Lange Medical Publications to each of two outstanding students as selected by Council of the Faculty.

The Lange Awards, Third Year

Prizes of two books published by Lange Medical Publications to each of two outstanding students as selected by the Council of the Faculty.

The Lange Awards, Fourth Year

Prizes of four books published by Lange Medical Publications to each of two outstanding students as selected by Council of the Faculty.

London Academy of Medicine Memorial Scholarship

Awarded annually to the student entering First Year in the Faculty of Medicine from Programs in The University of Western Ontario, who has demonstrated the highest scholarship for admission to the Medical Program. (Endowed by the London Academy of Medicine as a memorial to deceased Academy members).

$150

The London District, Canadian Physiotherapy Association prize

To the graduating student who gains the highest mark for his work on a SPECIAL PROJECT.

The Dr. I.W. Man Award

One or more students in the third year of the Medical Program showing superior achievement in studies in Family Medicine, and demonstrating personal monetary need.

$300

The W.H. McGuffin Scholarships in Radiology (c) (2)

Given to medical students of either of the two final years, presenting the best essays on a subject pertaining to Radiology. The essays are to be in the Office of the Dean of Medicine on or before February 15th of each year.

$60 and $40 awards

The Medical Alumni Gold Medal (c)

Awarded to the student graduating in Medicine with the highest aggregate marks during the full course taken exclusively at The University of Western Ontario.

Gold Medal

C.V. Mosby Company Scholarship Awards, First Year

To the student obtaining the highest standing in each of the following first year subjects: Biochemistry and Histology.

A book to the value of $30

C.V. Mosby Company Scholarship Award, Second Year

To the student obtaining the highest standing in each of the following second year subjects: Bacteriology and Immunology, Psychiatry.

A book to the value of $30

C.V. Mosby Company Scholarship Award, Third Year

To the student obtaining the highest standing in Clinical Biochemistry.

A book to the value of $30

The Ontario Medical Association Prize in Preventive Medicine

Awarded by The Ontario Medical Association to the most able student in the Third Year as selected by the Chairman of the Department of Epidemiology and Preventive Medicine.

$100

Parkwood Hospital Prize (Physical Therapy)

Conditions to be determined.

The Doctor Lillian Pollard Award

Awarded annually to the Physical Therapy Student who has completed Third Year with the highest marks in Physical Therapy subjects taken in that year.

$100

Physical Therapy Faculty Prize

To the graduating student who has made the greatest overall contribution to the Program during his student years.

The Roche Scholarship (c)

Awarded to a graduating student on the work of the two final years in Medicine. It will be based on the general lines of the Rhodes Scholarship, in which proficiency, progress and leadership will be evaluated by a Board of Assessors.

$50

The Rowntree Prizes in Medical History (3)

Given annually in memory of the late Dr. L.G. Rowntree, for essays in Medical History. Essays may be submitted by students in any year, and students in the first year class are particularly encouraged to do so. The students writing the three best essays will be awarded the prizes. These essays will be judged on the basis of historical content, style, accuracy and originality. The essays are to be submitted to the Department of Medical History on or before March 31st of each year.

$150 (3 prizes of $75, $50 and $25)

The Dean Russell Prizes in Neurological Science

Given annually to two second year medical students obtaining the highest mark in Neurological Science.

An opthalmoscopic outfit

The Ivan Hamilton Smith Memorial Prize (c)

Donated by the friends of the late Dr. Ivan Hamilton Smith, awarded to the final year medical student obtaining the highest mark in Therapeutic Radiology.

$25 for books

The Leonard Sutcliffe Memorial Scholarship

Awarded to the medical student with the highest academic standing the third year.

$150

The Victoria Hospital Clinical Prize

To the graduating student rated by the Victoria Hospital Physical Therapy staff as having the best clinical record at that hospital.

The Verda Taylor Vincent Scholarship

Established by the late Miss Verda Taylor Vincent, a graduate of The University of Western Ontario. It is to be awarded annually to the student achieving the highest standing in the examinations at the conclusion of first year Medicine.

$1,000

The Helen Atfield White Scholarship

For the U.W.O. undergraduate student registering in the first year of the Faculty of Medicine with the highest average in the previous year's work.

$250

The Carleton C. Whittaker Memorial Scholarship in Psychiatry

Established by the late Miss Edith M. Whittaker, and awarded to a student in the third year of Medicine with high standing in Psychiatry and other evidence of interest in the subject.

Valued at $125

Will Pharmaceuticals Prizes

In order to promote interest in Pharmacology, a Fund has been established by Will Pharmaceuticals, which is made available for student competition. The fund is to be used in the following manner:

a) Will Pharmaceuticals First Prize in Pharmacology to be awarded to the student obtaining the highest marks in Pharmacology.

b) Will Pharmaceuticals Second Prize in Pharmacology to be awarded to the student obtaining the second highest marks in Pharmacology.

c) The First Will Pharmaceuticals Prize for an Essay in Pharmacology.

d) The Second Will Pharmaceuticals Prize for an Essay in Pharmacology.

Undergraduate students standing in the upper third of the class will be eligible for the essay competitions. The subjects are to be chosen by the students competing for the prizes. Essays in duplicate are to be submitted to the Office of the Dean of Medicine on or about February 15th of each year. The first and second prize winners (3 and 4) will be decided by a special committee, which shall include the Professor of Pharmacology and the Professor of Medicine. The quality of the essay must be such that they will warrent publication in a recognized journal or review.

Pharmacology:
1st prize — $100;
2nd prize — $75;
Essay Prize —
1st prize — $75;
2nd prize — $50.

The Glen S. Wither Memorial Award (c)

Established by the family, classmates and friends of the late Dr. Glen S. Wither, and is awarded to the final year medical student who, in the opinion of his peers and associates, demonstrates the highest attributes of the physician—integrity, concern for his patients, compassion, and a devotion to his profession.

$250

Elena B. Wolf Memorial Awards (2)

The sum of $125 is awarded annually in memory of Mrs. Elena B. Wolf for essays in the field of cancer research of treatment submitted by final year medical students. Awards in the amount of $75 and $50 will be presented for the two best essays as judged by a special committee appointed by the Dean of Medicine. Essays are to be submitted to the Office of the Dean of Medicine on or before March 31st of each year.

$75 and $50

Dr. W. ZaHaria Memorial Prize in Endocrinology

Eligibility: A student in the Faculty of Medicine who has shown the greatest competence in the laboratory and/or clinical aspects of Endocrinology, the selection of whom shall be made by the Council of the Faculty of Medicine.
Continuation and value of award to be determined.

NOTE: No one student in any year will be awarded more than one prize of monetary value, excluding competitive essay prizes and certain other prizes awarded by selection. Should a student qualify for more than one prize, he will be awarded the prize of greatest monetary value and any lesser prizes will then revert to the next eligible student.

NOTE: The University reserves the right to modify or cancel Scholarship offerings after the date of printing of this publication.

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7. FACULTY OF MUSIC

Alumni Gold Medal

For the graduating student with the highest standing in the Bachelor of Arts with Honors Music Program or the Bachelor of Music with Honors Program.

Gold Medal

Board of Governors Scholarships (2)

Awards for the students with the highest standing in the second and third years of the Bachelor of Music Honors program when no other scholarship is awarded.

$60 each

The Earl Arscott Memorial Scholarships (4)

For students entering the final year of a three-year program in any of the Faculties of Arts, Music, Science, and Social Science. These scholarships were endowed by the Frances Georgina Chadwick Estate.

$100 each

Faculty of Music Award

One award to be awarded to the music student gaining the highest marks on violin, viola, violoncello or double bass and who is not the recipient of any other scholarship.
$300

London Women's Music Club Award

One award annually to a student of voice, piano, organ or string instrument.

St. Paul's Cathedral Choir Prize

To a student of composition for a musical setting of a text specified by the donors.
$50

University Gold Medal (c)

For a graduating student with the highest standing in a Bachelor of Music Honors program, when no other medal is awarded.
Gold Medal

The William Wyatt Scholarship, No. 3 (4)

For the highest ranking student (first year General Program) in Arts, Sciences, Social Sciences and Music, who enters an honors program, when no other scholarship is awarded. The capital fund for the above scholarships was bequeathed to the University by the late William Wyatt of London.
$100 each

NOTE: The above awards and scholarships are available to full-time students registered in the Faculty of Music. Music students may also be eligible for some of the medals, scholarships, awards and prizes listed under the section heading—Faculties of Arts, Science and Social Science.

NOTE: The University reserves the right to modify or cancel Scholarship offerings after the date of printing of this publication.

8. FACULTY OF NURSING:

Alumni Gold Medal

Awarded annually. Selection is made by the Faculty of the Faculty of Nursing from among students with first class standing in the Bachelor of Science in Nursing programs.
Gold Medal

Registered Nurses' Association of Ontario Fellowship

For members of the R.N.A.O. enrolled in full-time graduate study. Enquiries are to be directed to Miss Laura W. Barr, Executive Director, Registered Nurses Association of Ontario, 33 Price Street, Toronto 289, not later than May 15th.
$3,500

St. John Ambulance Association of Canada — The Margaret MacLaren Memorial Fund

For Registered Nurses for study at the Masters level. Enquiries are to be directed to the Chairman of Bursary Funds, St. John Ambulance, 321 Chapel Street, Ottawa 2, not later than May 1st.
$1,000

The W.B. Saunders Company Canada Limited Nursing Fellowship

For a nurse undertaking advanced study in nursing. Availability of this fellowship is subject to the decision of the W.B. Saunders Company from year to year. Enquiries are to be directed to the Secretary Treasurer, Canadian Nurses' Foundation, 50 The Driveway, Ottawa 4.

$1,200

NOTE: Nursing students may also be eligible for some of the medals, scholarships, awards, and prizes listed under the section headings: Faculties of Arts, Science and Social Science.

Note: The University reserves the right to modify or cancel Scholarship offerings after the date of printing of this publication.

(C(FACULTY OF GRADUATE STUDIES:

For Information pertaining to medals, scholarships, awards, and prizes see the Graduate Studies section of the composite calandar.

III Scholarships Tenable at any Ontario University

H.J. Heinz Company of Canada Scholarship

For a student enrolled in the district high school of Essex and Kent Counties, on the basis of academic record or character. Applications are to be submitted to the principal of the school attended by May 1.

$2,000 ($500 for each of four years).

Imperial Leaf Tobacco Scholarship

For the highest standing in required Grade 13 credits; to students enrolled in East Elgin District High School and Delhi District High School. Applications are to be submitted through the appropriate high school principal.

$1,000 ($600 the 1st. year $400 the second year)

National Secretaries' Association Scholarship

For a student from a secondary school in Windsor or Riverside, Ontario, who registers in a Secretarial Science Program. Applications are to be submitted to the Scholarship Chairman, Windsor Chapter of the National Secretaries' Association, 1163 Pierre Avenue, Windsor, Ontario.

$100 payable the first year

IV Ontario Student Assistance Program

The Ontario Student Assistance Program (OSAP) is specifically designed to help full-time students of this province who lack adequate financial resources to pursue post-secondary education. Under OSAP the students are classified Group A (dependent) or Group B (independent). All applicants are classified Group A unless:

(a) The applicant has been married prior to the first day of the month of registration for the academic year for which he/she is requesting assistance.

(b) He/she is 24 years of age or over prior to the first day of the month of registration for the academic year for which he/she is requesting financial assistance.

OSAP is intended to supplement rather than replace family and/or student resources. In the case of a Group A applicant, the family and the student's resources are used in determining the amount of financial assistance required to meet the student's educational costs. A student's assessed resources include: an arbitrary amount for summer savings (e.g. approximately $300 for a student entering first year from high school), interest on bonds or bank accounts, monetary gifts, the retail value of any motor vehicle owned or operated by the student (minimum $400) and a computed parental contribution. No parental contribution is required for the Group B students. However, if the Group B student is married and the spouse is working then, in addition to the student's own summer savings, the applicant's assessable resources will include the spouse's income for the twelve-month period ending concurrently with the academic year. This income, less the standard table of deductions for married students, will be applied against the computed costs of the academic year to determine the amount of financial assistance required.

In general, the first $800 of any OSAP Award is loan and the remainder grant. Thus an award of $1,200 would be comprised of $800 loan and $400 grant. The minimum need for which a loan can be made is $50. The maximum award can be $2,000 or more, depending upon actual educational costs. The loan portion which must be negotiated through a Canadian bank or other approved lending institution is guaranteed by the Federal Government and is provided interest free until six months after the student either completes or discontinues full-time studies. The grant portion, which is paid by the Province of Ontario is nonrepayable providing the academic year is completed. Other awards which exceed the amount of tuition are deducted from the OSAP Award.

To qualify for OSAP assistance, a student must be accepted at an eligible post-secondary institution in a full-time program of studies of at least twenty-six weeks in duration, leading to a certificate, diploma or degree. Normally, both the student and parents, guardians or sponsors must be permanent residents of Ontario. Also, the student must be a Canadian citizen or must have landed immigrant status with at least twelve consecutive months residence in Ontario prior to first enrolling in the program for which assistance is required.

OSAP brochures and application forms may be obtained from the Student Financial Aid Office, Room 32, University Community Centre, University of Western Ontario, London. Completed applications must be submitted directly to the Student Financial Aid Office which is available to assist in any inquiries you may have in regard to this program. (Please note that, except for sample forms, OSAP applications are not available through secondary school guidance offices). Completion of the OSAP application form automatically secures consideration for the majority of bursaries administered by the University.

V Students From Foreign Countries

Students from foreign countries applying for admission to an undergraduate program of study, are advised that it is practically impossible to secure financial assistance through Canadian university sources. Such applicants should make inquiries through official channels in their own countries as to the possibility of aid from the United Nations Technical Assistance Program, the Colombo Plan, the Canadian International Development Agency, etc. American students should inquire about the various federal and state bursaries available to students.

VI Admission Bursaries

To be eligible for an admission bursary an applicant must be a full-time student and show genuine financial need. An average of 70% is generally required. The follwing are applied for before registration:

The Bobby Bauer Memorial Award

Available to students demonstrating outstanding proficiency in Hockey. Apply by August 31st to: The Bobby Bauer Memorial Foundation, 60 Victoria Street North, Kitchener, Ontario.

Up to the total expenses of one academic year depending on need

Brant County Medical Association Award

Brant County residents enrolled in a course leading ultimately to a degree in Medicine are eligible. Apply in writing to Dr. A.E. Croal, Brantford General Hospital, Brantford, Ontario, no later than October 12th.

$500

The Children of the War Dead (Education Association Act)

Provided for children of veterans whose death was attributable to military service. Application should be made to your District Office, Department of Veterans Affairs. The Canadian Legion and the Provincial Chapter of the Imperial Order Daughters of the Empire also offer some scholarships and bursary aid to children of deceased veterans. Apply through your local branch.

Fees and monthly allowances

Leonard Foundation Bursaries

Available to selected students in any year of any course. Preference is given to sons and daughters of clergymen, school teachers, members (active or retired) of Her Majesty's Armed Forces, graduates of the Royal Military College of Canada, members of the Engineering Institute of Canada, and members of the Mining and Metallurgical Institute of Canada. These bursaries are paid from the income of a Trust created by the late Lieutenant Colonel and Mrs. Rueben Wells of St. Catherines, Ontario. Application forms may be obtained from the Director of Financial Aid and must be filed by February 15th of the year preceding the award.

Up to $400 each (for from one to four years)

London Free Press Printing Company Limited Award

Renewable each year for scholarship satisfactory to the Selection Committee. Only students who have attended secondary schools in the 14 counties of Southwestern Ontario for three years or more and have demonstrated interest and ability in journalism are eligible. Submit applications to the London Free Press before June 1st.

$250 each and summer employment worth $1000 or more

Ontario Hockey Association Bursary

Available to students selected by the Awards Officer, in consultation with the Department of Physical Education, on the basis of need; and normally, some contribution made to amateur hockey in Ontario.

$100 payable the 1st year

O-Pee-Chee Company Bursaries

$500 each renewable for two additional years.

The Steel Company of Canada Bursaries

$500 each renewable for three additional years.

VII Restricted and Un-Restricted Bursaries

These bursaries are generally awarded to students who have an average of B or better in their previous year's work. In every case it is absolutely essential that the applicant demonstrate genuine financial need. Completion of an application form for the Ontario Student Awards automatically gains consideration for all the restricted and unrestricted bursaries except where otherwise stated.

A) FACULTIES OF ARTS, SCIENCE, SOCIAL SCIENCE, PHYSICAL EDUCATION

Atkinson Charitable Foundation Student Aid Funds

Students who are residents of Ontario are eligible.

Up to $200 each

A.T.A. Trucking Industry Educational Foundation Fund

Up to $250

The J.P. Bickell Foundation Bursaries

Students registered in the Department of Geology or in the Chemical Engineering Course.

Up to $500 each

Birks Family Foundation Bursaries

Up to $150 each

The Circle "K" Club Award

$100

The Isabel Dingman Memorial Bursary

Female students entering the third or fourth year of the Honors Journalism program are eligible for this bursary, which is a gift of the Canadian Women's Press Club. (London Branch).

$50

The Leslie W. Dunstall Educational Bursary (3)

Offered in competition annually. Open to full-time students registered in Actuarial Mathematics (G.P.2). Further information should be requested directly from: Director of Awards, Association of Canadian Universities and Colleges, 151 Slater Street, Ottawa. Completed applications must arrive at the above address not later than June 1 of each year.

$500 each

Faculty Women's Club Bursary

Available to a female student over the age of 25.

$100

Mary Gillespie Memorial Bursary

This bursary is available to a woman in a senior year of the Secretarial program. It is awarded by a committee consisting of the Dean of Women, the Head of the Department of Secretarial Science, the Director of Financial Aid, and a member of the Executive of the London Centennial Chapter of the National Secretaries Association (International).

$100

The Maude Gordon Educational Fund

The purpose of this bursary is to assist deserving students from the counties of Elgin, Essex, Kent, Lambton, Middlesex, Huron, Oxford and Perth. This fund was established by a bequest of the late Miss Maude E. Gordon of Wallaceburg, Ontario.

Up to $500 each

The Greek Ladies' Philoptochus Society Award

This bursary is provided annually to a student of Greek descent.

$100

The Kathleen Gordon Hanna Educational Fund

The purpose of this fund is to assist deserving students from the counties of Elgin, Essex, Kent, Lambton, Middlesex, Huron, Oxford, and Perth. This fund was established by a bequest of the late Mrs. Kathleen Gordon Hanna of Wallaceburg.

Up to $500 each

Huron County Bursaries

These bursaries are available to students who have lived in Huron County for at least three years.

Up to $250 each

H.M.C.S. Prevost Student-Aid Award

$75

The I.B.M. Thomas J. Watson Memorial Bursaries

Up to $200 each

I.O.D.E. (Eldon House Chapter) Bursary
$100

I.O.D.E. (Princess Patricia Chapter) Bursary
$100

I.O.D.E. (The Colonel G. Eric Reid Chapter) Bursary
$50

I.O.D.E. (Nicholas Wilson Chapter) Bursary
$100

I.O.D.E. (London Air Force Chapter) Bursary

Students in any branch of Honors Physics or any allied program are eligible for this bursary.
$100

I.O.D.E. (Dr. John Dearness Chapter) Bursary

Students in Honors Biology, preferably in a Mycology course, are eligible for this bursary.
$100

I.O.D.E. (Nina Moore Jamieson Chapter) Bursary

Students in the third year of the Honors Program in English and French are eligible for this bursary.
$100

I.O.D.E. (Municipal Chapter) Bursary

Students in any year of a degree program in Honors Science are eligible for this bursary.
$100

I.O.D.E. (Nicholas Wilson Chapter) Bursary

Students entering any degree program are eligible for this continuing bursary.
$100

David Ivor Memorial Award

Undergraduates in the Departments of Economics or Political Science are eligible for this bursary.
$150

Leonard Foundation Bursaries

Available to selected students in any year of any course. Preference is given to sons and daughters of clergymen, school teachers, members (active or retired) of Her Majesty's Armed Forces, graduates of the Royal Military College of Canada, members of the Engineering Institute of Canada. These bursaries are paid from the income of a Trust created by the late Lieutenant Colonel and Mrs. Reuben Wells of St. Catherines, Ontario. Application forms may be obtained from the Director of Financial Aid and must be filed by February 15th of the year preceding the award.
Up to $400 each (for from one to four years)

The Local 27 U.A.W. Bursary
$250

The John P. Metras Bursaries (2)

Male and female students will be considered on the basis of academic achievement and athletic ability, in that order.

Up to $150 each

The Olga Alice Miller Bursary

Available to a woman in any year of any program. The Selection Committee shall be the Dean of Women and the Director of Financial Aid. This bursary is a memorial to the late Olga Alice Miller who was a 1928 graduate in Honors English and History, and Assistant Registrar, 1933-51. It was established by her mother, Mrs. A.E. Miller and her sister, Helen.

$100

Oxford County Bursaries

Students from Oxford County, excluding Ingersoll and Woodstock, are eligible.

Up to $250 each

The Proctor and Gamble Company of Canada Bursaries

Up to $250 each

The James H. Rattray Memorial Trust Fund

Available to students in any year of a Science Program which includes English 20.

Up to $200 each

Royal Canadian Legion (London) Student-Aid Fund

Deserving undergraduates who are veterans or dependents of veterans are eligible.

Up to $200 each

The W.F. Thomas Student-Aid Fund

Preference is given to applicants whose residence is in St. Thomas or Elgin County.

Up to $300 each

The Undergraduate Women's Organization Bursary

Available to a woman in any year of any program selected by a Committee composed of the Dean of Women, the Director of Financial Aid, and the President and Chairman of the Undergraduate Women's Organization.

$100

The U.W.O. Alumni Association Bursary

Up to $400 each

Walter Wright Scholarships

Up to $250 each

The Masonic Foundation of Ontario Special Awards (see "Grants" Section)

The Joy Taylor Memorial Bursary

To be awarded to a woman student entering the third or fourth year of the Physical Education Program

Up to $150 each

B(PROFESSIONAL FACULTIES AND SCHOOLS:

NOTE: Students enrolled in the professional faculties and schools listed below are also eligible for many of the bursaries listed under the section heading—*Faculties of Arts, Science, and Social Science.*

1) SCHOOL OF BUSINESS ADMINISTRATION

F.J. Blackwell Memorial Bursary

Available to students registered in the School of Business Administration

Up to $150 each

I.O.D.E. (Nicholas Wilson Chapter) Bursary

Students enrolled in the final year of any Honors or Professional course are eligible for this bursary.

$100

2) FACULTY OF DENTISTRY:

Cooper Laboratories Award

May be awarded to dental students in second, third, or fourth year of the Dental Program. Academic Standing must be staisfactory and there must be demonstrated financial need. Applications should be made to the Director of Financial Aid.

$150, $100

Ontario Dental Association

May be awarded to students in any year of the course. Academic standing must be satisfactory and there must be a demonstrated financial need. Applications should be made to the Dean.

$500 provided. Maximum value of any one bursary is $250

I.O.D.E. (Nicolas Wilson Chapter) Bursary

Students entering any Honors or Professional course are eligible for this bursary.

$100

Royal College of Dental Surgeons Bursary

Students in any year of the course are eligible.

Up to $150 each

3) FACULTY OF ENGINEERING SCIENCE:

The J.P. Bickell Foundation Bursary

Students registered in the Department of Geology or in the Chemical and Biochemical Engineering course are eligible.

Up to $500 each

I.O.D.E. (Nicholas Wilson Chapter) Bursary

Students entering any Honors or Professional course are eligible for this bursary.

$500

Canadian Bechtel Limited Bursaries

Available to a matriculant student entering the Engineering Science course.

Up to $150 each

The James H. Rattray Memorial Trust Fund

Available to students in any year of Engineering Science or a Science program which includes English 20.

Up to $200 each

4) FACULTY OF LAW: (see also Faculty section)

Fred J. Blackwell Bursary Fund

Available to deserving students in any year of the Faculty of Law on the recommendation of the Faculty.

Up to $150 each

Harold G. Fox Education Fund

The benefactors have requested that a deserving undergraduate in the Law Program be selected for this bursary by the Faculty.

Up to $150.

I.O.D.E. (Nicholas Wilson Chapter) Bursary

Students enrolled in the final year of any Honors or Professional course are eligible for this bursary.

$100

The Law Society Foundation Bursaries

Available to law students in any year of the course, payable out of funds allocated to the University by the Foundation.

Up to $250

5) SCHOOL OF LIBRARY AND INFORMATION SCIENCE:

Ontario Graduate Fellowships

The Government of the Province of Ontario has allocated a number of graduate fellowships for M.L.S. candidates in Ontario universities. Graduates or final-year undergraduates, with at least second-class honors, are eligible to apply. Students who are studying on student visas do not come under the program.

Application forms are distributed by the Office of the Dean of Graduate Studies and must be submitted by the middle of February.

A Fellow receives an amount not to exceed $1500 for one academic session; he may also receive $750 for the summer term. The maximum amount is $3,000.

Ontario Regional Library Boards

A number of bursaries are offered by the Boards of Regional Library Systems in Ontario. Application should be made to the Director of one or other of Regional Library Boards. For information about bursaries and scholarships offered by Regional Library Boards in Ontario, write to:

—Algonquin Regional Library System, Mr. R.A. Smith, Director, 29 Mary Street, Parry Sound, Ontario.

—Eastern Ontario Regional Library System. Director, Ottawa Public Library, 114 Metcalfe Street, Ottawa 4, Ontario.

—Georgian Bay Regional Library System Board. The Secretary, Box 521. Barrie, Ontario.

—Lake Ontario Regional Library System. The Secretary, 88 Wright Crescent, Kingston, Ontario.

—Niagra Regional Library System. 59 Church Street, St. Catharines, Ontario.

—North Central Regional Library System Board. The Secretary, 19 Fir Street, Sudbury, Ontario.

—Southwestern Regional Library System. Mr. Fred Israel, Director, 434 Victoria Avenue, Windsor 12, Ontario.

Canadian Federation of University Women Professional Fellowship

One or two fellowships are available for a period of duration of one year to students of an accredited library school.

This fellowship is open to any woman holding a degree from a Canadian university, whose domicile is in Canada (a) who wishes to spend a year at an accredited Library School, School of Social Work, College of Education or similar professional school; ob (b) who wishes, after some years of experience in a chosen field or after a lapse of time away from formal study, to embark on a program leading to an advanced degree.

APPLY: Miss Christine Irvine, Dean of Women, Shirreff Hall, Dalhousie University, Halifax, Nova Scotia, Miss Irvine is Chairman of the Fellowship Committee.

$2,500

Council on Library Resources Fellowship Program 1972-73

The Council on Library Resources is offering a limited number of *fellowships and internships* to mid-career librarians of the United States and Canada who have demonstrated a strong potential for leadership in the profession. The purpose of the grants is to enable successful candidates to improve their competence in the substantive, administrative and/or technical aspects of their profession. A few candidates may find an internship experience in a particular institution the most profitable use of the fellowship opportunity.

The awards are intended to cover costs during a period of continuous leave, which may range in time from a minimum of an academic quarter up to nine months. They do not cover salaries but are for such items as travel, per diem for living expenses, supplies and equipment incident to a Fellow's program. It is expected that his salary while on leave of absence will be paid by his parent institution.

In reviewing applications the Committee will place emphasis on the thought and care given to the development of the proposed program of study, investigation, training, or internship as well as on the candidate's professional qualifications. The fellowships are not intended to support work toward an advanced degree in librarianship, although course work which complements a candidate's program and is outside the normal professional curriculum may be considered.

Interested librarians may receive an application form by writing to:

The Fellowship Committee
Council on Library Resources
One Dupont Circle, Suite 620
Washington, D.C. 20036

The Committee will also welcome nominations of candidates for the awards.

Completed applications must be received no later than December 1, 1971. The awards will be announced on or about April 1, 1972. Successful candidates must complete their *fellowships prior* to October 1, 1973.

NOTE: Financial support is also available in the form of library and computer assistantships which require duties in the School. In addition, there is the possibility of part-time work in other London libraries.

Information about loans may be obtained from the Student Financial Aid Officer,
University Community Centre,
University of Western Ontario, London 72, Ontario.

6) FACULTY OF MEDICINE:

The American Medical Association Education and Research Foundation Bursary

Available to students in any year of Medicine.

Up to $200 each

Dr. James L. Anderson Memorial Bursaries

Available to students in any year in the Faculty of Medicine. The fund for these bursaries was established by a bequest of the late Mrs. Clare Leland Anderson as a memorial to her husband, Dr. James L. Anderson, Meds '09.

Up to $250 each

Bradshaw-Errington Fund

Available to students in any year of Medicine who reside twenty-five miles or more beyond the corporation limits of the City of London.

Up to $250 each

The Dr. Frank M. Cole and Dr. M. Cole Memorial Awards

These bursaries are available to students entering the third year of Medicine.

$200 each

Co-operative Medical Association of Ontario Bursary

Available to students in any year of Medicine who are members, or the sons or daughters of members, of one of the Medical Co-operatives of the Co-operative Medical Services Federation of Ontario. Apply by October 10th.

$500 a year to a maximum of $2000

Essex County Medical Association Bursary

Available to a resident of Essex County who has been accepted in the first year of Medicine at a Canadian University. Apply directly to: Ethics and Credentials Committee, Essex County Medical Association, 1427 Ouellette Avenue, Windsor, Ontario.

$750

Dr. Arthur F. Haasz Medical Student-Aid Bursaries

Available to students in any year of medicine.

Up to $250 each

I.O.D.E. Bursaries

Students entering Medicine are eligible for following continuing I.O.D.E. Bursaries.

The Colonel Willian Gartshore Chapter

$100

Bishop Hellmuth Chapter

$100

Nicholas Wilson Chapter

Students entering any Honors or Professional Program are eligible for this bursary.

$100

The London District, Canadian Physiotherapy Association Bursary

Available to any student in the final three years of the Four Year Program in Physical Therapy, at The University of Western Ontario. The bursary will be awarded on the basis of need and scholastic standing. Inquiries should be sent to the president, London District, Canadian Physiotherapy Association, P.O. Box 2011, London, Ontario by September 30th.

$100

The Dr. I.W. Mann Award

Available to a student in family medicine who best exemplifies scholastic achievement and monetary need.

Up to $450

The Bill McKibbon Bursary

A male student, preferably from South-Western Ontario, is to be selected by the Secretary of the Loans and Bursaries Committee and the donor. Academic standing and personality will count equally in the selection. This bursary was endowed by the late Dr. Walton McKibbon of Wingham, a medical graduate of this university, in memory of his son.

$500 each year throughout Pre-Medicine and Medicine

Medical Students Bursary Plan, Ontario Department of Health

A number of bursaries are available to students who have completed their first year in Medicine. Maximum assistance will not exceed three years for any one student. Every recipient of this bursary has an obligation to practise general Medicine in a location acceptable to the Minister of Health, one year for each year of bursary assistance given. Apply at end of first year or later.

$3,000 each

The Meds'50 Bursary Fund

Available to students in any year of medicine.

Up to $300 each

The M.C. Mowry Memorial Bursary

Available to students in the fourth year of medicine.

$75

Ontario Medical Association Bursary and Loan Fund

Available to students in the first and second years of Medicine.

Up to $350 each

Maud H. Smallman Awards (2)

Available to students in any year of Medicine. The fund for these Awards was established by a bequest of the late Mrs. Maud H. Smallman of London, Ontario.

$500 each

7) FACULTY OF MUSIC:

The London Music Scholarship Foundation Awards

One or more scholarships awarded on a basis of performance excellence and individual need. Application forms may be obtained by writing to the Secretary-Treasurer, London Music Scholarship Foundation, Faculty of Music, The University of Western Ontario, London, Ontario, N6A 3K7.

Gordon V. Thompson Bursary

$100

Howard Munn Memorial Bursary

Available to a pianist enrolled in the Faculty of Music.

Women's Committee to the London Symphony Association Bursary

$200

Waterloo Music Company Bursary

$500

8) FACULTY OF NURSING:

Alumnae Association Royal Victoria Hospital School of Nursing Bursary

For Graduates of the Royal Victoria Hospital School of Nursing accepted in an approved University program. Application before March 31 to: Alumnae Office, Nurses' Home, Royal Victoria Hospital, Montreal.

$1,000

Faculty Association Award

For the student with the highest academic average in Year 3 of a Bachelor of Science in Nursing program.

I.O.D.E. (Dr. David Crombie Chapter) Bursary

For a student registered in the Faculty of Nursing. Enquiries are to be directed to the Awards Officer, University Community Center, The University of Western Ontario, 1151 Richmond St., London, Ontario, N6A 3K7

$100

Miss Helen Marion Cole RN Memorial Bursary

For students in the penultimate year of a nursing program. Enquiries to be directed to the Awards Officer, University Community Center, The University of Western Ontario 1151 Richmond Street, London, Ontario, N6A 3K7

$100

Ontario Department of Health Bursaries

Bursary assistance to study public health nursing at university will be available to those nurses who meet the following criteria:

1. Registration with the College of Nurses in Ontario
2. Acceptance by a recognized university school of nursing
3. Canadian citizenship or landed immigrant status
4. Satisfactory work references
5. Sponsorship by a local official health agency

Assistance may be granted for the last two years of a post R.N. program. For each academic year of assistance, the student must return twelve months of service to her sponsoring agency.

Assistance may be granted for study at the master's level. For information write to: Senior Consultant, Public Health Nursing, Local Health Services Branch, Department of Health, Hepburn Block, Queen's Park, Toronto 182, Ontario

Tuition fees plus living allowance.

Registered Nurses' Association of Ontario Loan Fund

For members of the R.N.A.O. for a minimum of one year, registered in university study. Enquiries are to be directed to Miss Laura W. Barr, Executive Director, Registered Nurses' Association of Ontario, 33 Price Street, Toronto 289, not later than May 15th.

Up to $1,000 interest free for three years.

The Mildred I. Walker Bursary

For a nursing student in a Bachelor of Science in Nursing program. Enquiries are to be directed to the Awards Officer, University Community Center, The University of Western Ontario, 1151 Richmond Street, London, Ontario, N6A 3K7.

Up to $500

The W.B. Saunders Company Award

For the student in the final year of a Bachelor of Science in Nursing program who has achieved the highest average in the nursing courses of the second and third years.

The W.B. Saunders Company Canada Limited Nursing Fellowship

For a nurse undertaking advanced study *in nursing*. Availability of this fellowship is subject to the decision of the W.B. Saunders Company from year to year.
Enquiries to be directed to the Secretary Treasurer, Canadian Nurses' Foundation, 50 The Driveway, Ottawa K2P 1E2

$1,200

Victorian Order of Nurses for Canada (National) Bursaries

For students in the final year of a baccalaureate program which includes preparation in public health nursing and for graduate nurses taking post-basic preparation in public health nursing. Enquiries are to be directed to the Director In Chief, Victorian Order of Nurses for Canada, V.O.N. House, 5 Blackburn Avenue, Ottawa K1N 8A2

$1,860

Victorian Order of Nurses, Brantford Branch Bursaries

For students registered in the final year of a Bachelor of Science in Nursing program who intend to serve with the Victorian Order of Nurses, Brantford Branch, if required, and if not for one year at a branch to be designated by the National Victorian Order of Nurses. Enquiries are to directed to Victorian Order of Nurses, Brantford Branch, 194 Terrace Hill, Brantford.

$1,500

Victorian Order of Nurses Hamilton-Dundas Branch Bursaries

For students registered in the final year of a Bachelor of Science in Nursing program who intend to serve with the Victorian Order of Nurses, Hamilton-Dundas Branch. Enquiries are to be directed to Victorian Order of Nurses, Hamilton-Dundas Branch, 29 Augusta Street, Hamilton 20.

$1,500

Victorian Order of Nurses, Metropolitan Toronto Branch Bursaries

For students registered in the final year of a Bachelor of Science in Nursing program who intend to serve with the Victorian Order of Nurses, Metropolitan Toronto Branch. Enquiries are to be directed to the Director, Victorian Order of Nurses, Metropolitan Toronto Branch, 277 Victoria Street, Toronto 200.

$1,000

Victorian Order of Nurses Windsor-Essex Branch Bursaries

For students registered in the final year of a Bachelor of Science in Nursing program who intend to serve with the Victorian Order of Nurses, Windsor-Essex County Branch, for a minimum of one year. Enquiries are to be directed to Victorian Order of Nurses. Windsor-Essex County Branch, 410 Giles Boulevard East, Windsor.

$1,000

NOTE: Nursing students may also be eligible for some of the medals, scholarships, awards, and prizes listed under the section headings: Faculties of Arts, Science and Social Science.

NOTE: The University reserves the right to modify or cancel Scholarship offerings after the date of printing of this publication.

VIII Grants

A "grant" is an award to a student who demonstrates financial need and who has a satisfactory academic standing.
Completion of an application form for the Ontario Student Awards automatically secures consideration for the following grants which are described in the preceding bursary section:

A.T.A. Trucking Industry Bursary Fund

The Atkinson Charitable Foundation Student-Aid Fund

The Circle "K" Club Award

The Maude Gordon Educational Fund

The Greek Ladies' Philoptochus Society Award

The Kathleen Gordon Hanna Educational Fund

H.M.C.S. Prevost Student-Aid Fund

The Royal Canadian Legion (London) Student-Aid Fund

The W.F. Thomas Student-Aid Fund

The Masonic Foundation of Ontario Special Awards

The Masonic Foundation makes available funds to assist deserving students who encounter unexpected difficulties in their second term. Application forms are available from the Director of Financial Aid.

IX Loans

To be eligible for a loan a student must have a satisfactory academic record and be able to show that he cannot continue his studies without financial assistance. Application should be made through the Director of Student Financial Aid.

Canada Student Loans Plan

Full details of this Plan are available in a brochure issued by the Government of Canada which may be obtained at all eligible post secondary institutions in Ontario. Ontario residents see Ontario Student Awards.

University Loan Funds

Up to $400. Available to full-time students in the final year of any program.

Commercial Bank Student Loans:

Several Canadian banks make money available to students for educational purposes. Interested students should consult the bank of their choice.

Ontario Medical Association Grant-In-Aid Fund:

Loans from this fund are interest-free and are on the honor system requiring no formal contract to repay. Available to students in the third and fourth years of Medicine.

The Dean Russell Medical Student-Aid Fund:

Up to $400 each. Available to students in any year of Medicine. This fund was established by the late Mr. Dean Russell of Dean Russell Drugs Ltd. to provide small grants or interest-free loans.

Maude Abbott Memorial Scholarship Loan Fund:

This fund has been established by the Federation of Medical Women of Canada. Loans of up to $350 per year are available to any woman medical student or first year interne. A second loan up to $350 may be granted to a previous recipient. In special cases, a loan up to $1,000 may be granted to a medical woman for postgraduate training. Loans are payable within seven years of date of issuw, after which time interest will be charged in the rate of 5% compounded annually. Information regarding these loans may be obtained from Dr. Alice E. Gray, Director of Laboratories, Women's College Hospital, 76 Grenville Street, Toronto, Ontario.

Notes:

More information regarding Financial Aid may be obtained by writing to: Director of Student Financial Aid, University Community Centre, The University of Western Ontario, London N6A 3K7, Canada.

FACULTY

NOTE: Unless otherwise indicated, degrees are from the University of Western Ontario.

Abu Sitta, S. H., BSc Cairo; PhD London; PEng — *Engineering Science.*

Abrahams, S., BSc., McGill; MSc. PhD Toronto — *Bacteriology & Immunology.*

Abrams, L. D., BSc (POT) McGill; OTReg — *Occupational Therapy.*

Adamson, D. H., MB ChB Edin: FRCP(C) — *Anaesthesia.*

Adilman, B., BA Sask; MD Alberta; FRCP(C) — *Pathology.*

Agnos, J. W., MD UWO; DMR Toronto; CRCP(C) — *Diagnostic Radiology.*

Ahmad, D., LRCP(&)SI, MRCPI, CRCP(C) — *Medicine.*

Ahuja, S. P., MB BS Nagpur; DTM&H(Eng), FRCP(C) — *Medicine.*

Aikenhead, D. E., MD Manitoba; MRCP London; FRCP(C) — *Medicine.*

Aikin, R. C., BA, BN McGill; MA Chicago — *Nursing.*

Aitken, R. R., MD UWO; CRCP(C) — *Anaesthesia.*

Albers, H. J., MD Dusseldorf; CRCP(C) — *Medicine.*

Alcorn, R. S., BA Monmouth College; MA Illinois — *History.*

Aldis, R. M., MD UWO; DPH Toronto — *Epidemiology & Preventive Medicine.*

Aldrich, P., LTCL Trinity, LRSM Royal Schools, London, England: Premier Prix, Luxembourg — *Music.*

Aldrich, R. F., LRSM, LGSM, London, England: MusBac, Victoria, Wellington N. z. — *Music.*

Alford, W. P., BSc UWO; PhD Princeton; — *Physics.*

Ali, M. M., BSc, MSc Dacca; MS Michigan; PhD Toronto — *Mathematics.*

Allcock, J. M., MRCS, LRCP(Eng), MB, BS London; DMRD(Eng), FFR — *Diagnostic Radiology; Clinical Neurological Sciences.*

Allen, H. H., MD UWO; FRCS(C) — *Obstetrics & Gynaecology.*

Allison, G. F., BA Queens; MA, MEd, Toronto — *Professional Practice & Administration (Education).*

Allison, I., DOT Toronto; OTReg — *Occupational Therapy.*

Allnatt, A. R., BSc, PhD, London — *Chemistry.*

Altmann, G. G., BSc Dalhousie; MSc, PhD McGill — *Anatomy.*

Amacher, A. L., MD UWO; FRCS(C) — *Clinical Neurological Sciences; Paediatrics.*

Anderson, A. R., BA Toronto; PhD Brown — *German.*

Anderson, C., MD Buenos Aires; MRCPath — *Pathology.*

Anderson, J. M., LRAM Royal Acadamy, London, England; BM Nottingham; MM Eastman — *Music.*

Anderson, N. R., BA, PhD Washington — *Psychology & Sociology Althouse.*

Anderson, R. J., MD UWO; FRCS(C) — *Obstetrics & Gynaecology.*

Andresino, M., AB Canisius College; MA Columbia Teachers College; MA Ohio State — *Psychology & Sociology (Education).*

Andrews, W. N., MB ChB New Zealand; CRCP(C) — *Psychiatry.*

Ankney, C. D., BSc Michigan — *Zoology.*

Annett, R. K., MD — *Family Medicine.*

Anonsen, D. C., Reg N; BSc St Xaviers, Chicago; MScN UWO — *Nursing.*

Archibald, T. R., BA UWO; MBA, PhD, Chicago; CA(Ontario) — *Business Administration.*

Archibald, W. P., BA Mount Allison; MA UBC; PhD Michigan — *Sociology.*

Armstrong, D. T., BSA Toronto; MS, PhD Cornell — *Physiology; Obstetrics & Gynaecology.*

Armstrong, F. H., BA, MA, PhD, Toronto — *History.*
Armstrong, R. F., MD Toronto — *Pathology.*
Arnold, B. J., BA UWO; JD Harvard; of Osgoode Hall (Barrister-at-Law) — *Law.*
Arnold, D. R., BS Bethany; PhD Rochester — *Chemistry, Photochemistry.*
Arnold, I. A., BA London; MA UBC; PhD Toronto — *French.*
Arnold, L. E., BA Leeds; MA Simon Fraser — *English.*
Asensio, J., Lic, Dr Fil y Let Madrid — *Spanish Italian.*
Atance, F. R., BA Toronto; MA Nebraska; PhD UWO — *French (Trois Pistoles S. School).*
Atkinson, B. G., BA Ohio; PhD Connecticut — *Zoology.*
Atkinson, D., MD UWO; FRCP(C) — *Paediatrics.*
Atkinson, G. V., BA UWO — *Art (Education).*
Atkinson, W. E. D., BA Cantab; PhD Chicago — *English.*
Aufreiter, G., MD Vienna — *Psychiatry.*
Aufreiter, J., MD Vienna — *Psychiatry.*
Auksi, P., BA Toronto, Oxon; BA,MA Oxon; AM,PhD Harvard — *English.*
Austin, T. W., MD, FRCP(C) — *Medicine.*
Austrup, M., MB, BS Madras; FRCS(C) — *Family Medicine.*
Avery, D. H., BA,BEd,MA Manitoba; PhD — *History.*
Avio, K. L., BS Oregon; PhD Purdue — *Economics.*
Avotins, I., BA Toronto; MA,PhD Harvard — *Classical Studies.*
Babb, J. W., BA,MD UWO; CRCS(C) — *Otolaryngology.*
Babiak, W., MD Kiel; DPsych, Toronto — *Psychiatry.*
Bacal, H. A., BA,MDCM McGill; CRCP(C) — *Psychiatry.*
Baguley, D., BA Nottingham; MA Leicester,DU Nancy — *French.*
Bailey, R. H., BA Toronto — *Business & Commerce (Education).*
Bailey, W. H., BA,MD UWO; FRCS(C) — *Surgery.*
Bain, R. W., BA McMaster — *Science (Education).*
Bain, J. A., MD UWO; FRCP(C) — *Anaesthesia.*
Baird, K. M., OBE CD; DDS Toronto; FICD — *Dental Clinics.*
Baird, N. C., BSc, PhD, McGill — *Chemistry, Photochemistry.*
Baker, C. G. J., BSc, DIC, PhD, London — *Engineering Science.*
Baker, K., ARCT Toronto; AMus, MusBac, UWO; MM Eastman — *Music.*
Baker, P. G., BA, MA Toronto — *English.*
Bakerspigel, A., BA, MA McMaster; PhD UWO — *Bacteriology & Immunology.*
Balakrishnan, T. R., BA, MA Madras; PhD Michigan — *Sociology.*
Balderston, W., BA, PhD Cornell — *History, History Of Medicine and Science.*
Baldwin, H. W., BA, MA Saskatchewan; PhD Chicago — *Chemistry; University Research Council.*
Baldwin, M. M., BA, MA, UWO — *Modern Languages (Education).*
Ball, J., BA Toronto; MSc Syracuse; CCC — *Communicative Disorders.*
Ball, J. K., BSc Mount Allison; MSc, PhD Dalhousie — *Cancer Research, Biochemistry.*
Ball, M. J., MD Toronto; CRCP(C) — *Pathology; Clinical Neurological Sciences.*
Balogh, L. V., BA, LLB Saskatchewan; of Osgoode Hall (Barrister-at-Law) — *Law.*
Balse, M. L., BA, MA, PhD Bombay; Du Paris — *French.*
Bambrick, F. K., BA UWO; MA Michigan State — *Journalism.*
Bancroft, G. M., BSc, MSc, Manitoba; PhD Cantab — *Chemistry, Geology.*
Bancroft, J. B., BA Brit. Col.; PhD Wisconsin — *Plant Sciences.*
Bandeen, B. I., BA UWO; AM, PhD Radcliffe — *English.*
Banerjee, P., MBBS Calcutta; DMRT(Eng), FFR(Eng) — *Therapeutic Radiology.*

Banting, D. W., DDS, DDPH, MSc Toronto — *Social Dentistry; Epidemiology and Preventive Medicine.*

Baran, D., BA McGill; MA Columbia; PhD Michigan — *Psychology.*

Barker, A. E., BA, MA Toronto; PhD London — *English.*

Barnard, F. M., BA, MA Oxon; PhD Leicester — *Political Science.*

Barnett, H. J. M., MD Toronto; FRCP(C) — *Clinical Neurological Sciences; Medicine (Neurology).*

Barney, R. K., BSc, MSc, PhD, New Mexico — *Intercollegiate Athletics.*

Barr, H. W. K., BSc(Med) Toronto; MD UWO; FRCS(C) — *Clinical Neurological Science; Surgery.*

Barr, M. L., OC; BA, MSc, MD UWO; LLD Queens, Toronto; Alberta; Dalhousie; Saskatchewan; Dr med.h.c. Basel; FRCP(C) FACP, FRCOG, FRSC, FRS — *Anatomy.*

Barr, R. M., MD UWO; FRCP(C) — *Medicine.*

Bartlett, R. J., BA, BPHE Queen's — *Physical Education (Education).*

Barton, P. G., BScF, Toronto; LLB Queens; LLM Harvard — *Law.*

Barton, W. B., MD UWO; FRCP(C) Dipl Int Med, McGill — *Medicine; Therapentic Radiology.*

Bartram, E. A., MD UWO — *Medicine.*

Basavarajappa, K. G., BSc, Mysore; MSc Karnatak; PhD Australian National — *Sociology.*

Base, T. E., BSc Bristol; MSc Brown; PhD Southampton — *Engineering Science.*

Bass, R. W., BA UWO — *Althouse Practice Teaching.*

Baskerville, J. C., BS Suny at Cortland; MS Purdue; PhD Cornell — *Mathematics.*

Bass, M., BSc, MD, DECH Toronto — *Family Medicine.*

Bates, R. G. N., BA, MA, PhD Toronto — *English.*

Battle, H. I., BA, MA UWO; PhD Toronto LLD, UWO; DSc. Carleton — *Zoology.*

Bayer, J. A. — *BA British Columbia; MA Carleton.*

Baxter, R., MA, MBBChir Cambridge; MRCS(Eng) LRCP — *Family Medicine.*

Beam, L. A., DDS Toronto — *Oral Medicine.*

Beaman, E., AB Cincinnati — *Philosophy.*

Beamish, G., ARCT, LRCT Toronto — *Music.*

Beattie, L. M., DTMH Liverpool; MD; FRCS(C); FRCP(C) — *Pathology.*

Beatty, H. W., BPHE Toronto — *Vocational (Education).*

Beck, A. E., BSc London; PhD Austraham National University — *Geophysics.*

Becker, H. J., BA Saskatchewan; MS Wisconsin — *Visual Arts.*

Beckhoff, G. F., Dipl Ing Aachen; MSc Southern Methodist; DSc Laval — *Computer Science.*

Bedrosian, G. A., DDS Toronto; BSA Guelph — *Restorative Dentistry.*

Beeckmans, J. M., BSc London; MASc, PhD Toronto — *Engineering Science.*

Beecroft, E. A., BA, MA Toronto; PhD Yale — *Political Science.*

Begg, R. A., DDS Toronto — *Paediatric Dentistry.*

Behme, R. J., AB, Evansville; PhD Indiana — *Bacteriology & Immunology.*

Bell, D., MD UWO — *Physical Medicine & Rehabilitation; Bacteriology & Immunology; Medicine.*

Belladonna, R., BA London; Dott ling e lett Mod Genoa — *Spanish Italian.*

Bennett, B., BSc, MS New Mexico; EdD Northern Colorado — *Physical Education.*

Bennett, G. C., BA Carleton; ARCT Toronto — *Music (Education).*

Bennett, J. M., BSc Queens; MA, PhD UWO — *Computer Science.*

Bergering, A. J., BA, MA UWO — *Psychology & Sociology (Education).*

Bergey, B. G., BEd Toronto; BA — *Primary (Education).*

Bergougnou, M. A., MA, MS Nancy; PhD Minnesota — *Engineering Science.*
Berkeley, J., MBChB, DPH, MD Glasgow; CRCP(C) — *Physical Medicine & Rehabilitation.*
Bernotas, N., BA UWO; MA Toronto — *Russian Studies.*
Bernstein, P., MDCM Queens; CCFP — *Family Medicine.*
Berry, R. A., BA UWO; PhD Princeton — *Economics.*
Bhatia, K. B., BComm, MComm Delhi; PhD Chicago — *Economics.*
Bidinosti, D. R., BSc, MSc, Manitoba; PhD McMaster — *Chemistry.*
Biehn, J., MD UWO — *Family Medicine.*
Bieman, H. E., BA, MA UWO — *English.*
Biesenthal, R. B., DDS Tennessee — *Paediatric Dentistry.*
Bigelow, C. C., BASc Toronto; MSc, PhD McMaster — *Biochemistry.*
Biggs, R. G., BS Stanford; PhD UBC — *Mathematics.*
Billger, J. M., BS Tulsa; MA Northwestern — *Communicative Disorders.*
Binkley, R. W.., BA Colorado; PhD Minnesota — *Philosophy.*
Binns Smith, M., MB, ChB, PhD Edinburgh; CRCP(C) — *Biochemistry.*
Bishop, P., BSA (OCA), BASc Toronto; MBA UWO; DBA Harvard — *School Business Administration.*
Bjorklund, E., BSc Utah; MA Washington; PhD Chicago — *Geography.*
Black, J. H. D., MB, BCh Dublin; MRCPI, FRCP(C) — *Diagnostic Radiology.*
Black, W. A., MB, ChB Glasgow; MRCPath — *Bacteriology & Immunology.*
Blackwell, J. H., ED; BSc Melbourne; MSc, PhD UWO — *Applied Mathematics.*
Bliss, I. E., BSc, BEd New Brunswick — *Physical Education Althouse.*
Block, I. L., BA Vanderbilt; AM, PhD Harvard — *Philosophy.*
Blomqvist, A. G., Civ-ekonom Stockholm; PhD Princeton — *Economics.*
Blume, W. T., BA Princeton; MDCM McGill; FRCP(C) — *Paediatrics; Clinical Neurological Sciences.*
Boate, G. A., BA Queen's; BEd Toronto — *English (Education).*
Bocking, D., MD UWO; FRCP(C), FACP — *Medicine.*
Bode, A. E. M., BA, MA, Saskatchewan — *Mathematics.*
Bodkin, R., BA, Swarthmore; MA, PhD, Pennsylvania — *Economics.*
Boersema, J. M., BA UWO — *Business Administration.*
Boles, J. I., BA Cornell College; PhD Indiana — *Psychology.*
Bolgan, A. C., BA D'Youville; MA, PhD Toronto — *English.*
Bolton, C. F., MDCM Queen's; MS Minnesota; FRCP(C) — *Clinical Neurological Science; Medicine.*
Bolton, J. R., BA, MA Saskatchewan; PhD Cantab; — *Chemistry, Photochemistry.*
Bolton, R. J., MD Queen's; FRCP(C) — *Paediatrics; Occupational Therapy.*
Bonario, B., BS Texas; MA Michigan — *Visual Arts.*
Bondy, D. C., MD UWO; FRCP(C) — *Physiology; Medicine.*
Bonnema, T., BSc Queen's MASc Toronto; PhD Purdue; P Eng — *Engineering Science.*
Boone, J. E., MD Toronto; FRCP(C); FAAP — *Paediatrics.*
Booth, J. C., BA, MA, PhD Florida — *Communicative Disorders.*
Borda, I. T., MD Budapest; FRCP(C) — *Pharmacology; Medicine.*
Borwein, B., BSc Witwatersrand; PhD — *Anatomy.*
Borwein, D., BSc Witwatersrand; PhD, DSc London; FRSE — *Mathematics.*
Bosch-domenech, A., Licenciado, Barcelona — *Economics.*
Boughner, D. R., MD UWO; PhD UWO; FRCP(C) — *Biophysics, Medicine.*
Bourns, T. K. R., BA, MA British Columbia; PhD Rutgers — *Zoology.*
Bow, Y. F., BSc National Chakiang; MS, PhD Michigan State — *Physics.*
Bowker, C., BA, MA Toronto — *French.*

Boyce, R. M., MD UWO; DPsy Toronto; FRCP(C) — *Psychiatry.*
Boyd, J. A., BA Toronto — *Modern Languages (Education).*
Boydell, C. L., BA Rutgers; MA, PhD Massachusetts — *Sociology.*
Boyden, M. H., BA, MA Nebraska — *Communicative Disorders.*
Boyer, R. S., BA Columbia; MA Wisconsin; PhD Chicago — *Economics.*
Bracey, J. P., BM Converse; MM Eastman — *Music.*
Brady, P., MD Toronto; FCFP — *Family Medicine.*
Bramwell, L., BSc NEd Oregon; MScN — *Nursing.*
Brand, J. C. D., BSc, MSc, PhD, DSc London — *Chemistry, Photochemistry.*
Brandt, G. J., BA, LLB Saskatchewan; MA Oxon; of Osgoode Hall (Barrister-at-Law) — *Law.*
Brannen, E., BA, MA Toronto; PhD McGill — *Physics.*
Brash, S. W., MB, BS Western Australia; FRACS, FRCS(C) — *Surgery.*
Bratuz, D., Master's Diploma in Piano (Trieste); MM St. Louis; Mus Doc Indiana — *Music.*
Bray, K., Mus, Bac Toronto; MM Eastman — *Music.*
Bremner, H. — *Journalism.*
Brendon, A., BA McMaster — *Science (Education).*
Brennan, M., LRCP & SI; CCFP — *Family Medicine.*
Brien, F. S., BA, MB Toronto; FRCP London; FRCP(C), FACP — *Medicine.*
Britney, R. R., BESc, MBA Bowling Green; DBA Indiana.
Brizio, V. M., BA, Dott Fa Bologna — *Spanish & Italian.*
Broege, V. A., BA Vassar; MA, PhD Bryn Mawr — *Classical Studies.*
Bronaugh, R. N., BA Oregon; MS, PhD Wisconsin — *Philosophy.*
Brooke, R. I., BChD, LDS Leeds; MRCS(Eng), LRCP(London); FDSRCS — *Oral Medicine; Medicine.*
Brooks, V. B., BA, PhD Toronto; MS Chicago — *Physiology.*
Brown, B. G., RegN, BScN; MN Washington — *Nursing.*
Brown, E. L., MD; CCFP — *Family Medicine.*
Brown, J. D., BSc McMaster; PhD Maryland — *Engineering Science.*
Brown, J. D., BSc (Med), MD, PhD Manitoba — *Clinical Neurological Science; Medicine.*
Brown, L. S., RegN, BScN, MSN Western Reserve — *Nursing.*
Brown, M. M., BA, MA — *English.*
Brown, T. C., MD, CRCP(C) — *Diagnostic Radiology.*
Brown, W. F., MD, FRCP(C) — *Clinical Neurological Sciences; Medicine.*
Brownstone, Y. S., BScA, MSc Manitoba; PhD McGill — *Biochemistry.*
Brubacher, L., BA Goshen; MD — *Family Medicine.*
Bruen, A. A., BSc, MSc Dublin; PhD Toronto — *Mathematics.*
Brunet, J. P., LésL, DES, Capes, D3eC Sorbonne — *French.*
Bryan, R. N., BA, MA, PhD Utah — *Mathematics.*
Bryant, A. W., BComm McGill; LLB Toronto — *Law.*
Bryant, W. E., MD, FCFP — *Family Medicine.*
Bryant, W. H., MD, CCFP — *Family Medicine.*
Bub, J., BSc Capetown; PhD London (Birkbeck) — *Philosophy.*
Bucher, B., AB Knox; PhD Princeton; PhD Pennsylvania — *Psychology.*
Buck, C., MD, PhD, DPH London — *Epidemiology & Preventive Medicine; Family Medicine.*
Buck, R. C., MD, MSc UWO, PhD London — *Anatomy.*
Buckley, G. E., BA Mount Allison; MA Columbia — *English.*
Bulani, W., BSc, MSc Saskatchewan; PhD McGill; PEng — *Engineering Science.*
Bunston, H. G., DDS McGill — *Restorative Dentistry.*

Burgess, D. F., BA Queen's; MA, PhD Wisconsin — *Economics.*
Burghardt, W., BA, MA Toronto.
Burgoyne, D., BA, MBA — *Business Administration.*
Burke, D. R., BA, MA New Mexico, Albequerque; PhD Michigan State — *Philosophy (Education).*
Burley, K. H., BA, PhD London — *Economics.*
Burnett, W. H., MD Toronto; CRCS(C) — *Otolaryngology.*
Burt, W. L., MD, FRCS(C) — *Ophthalmology.*
Burton, A. C., MBE, BSc London; MA, PhD Toronto; LLD Alberta; FRSC — *Biophysics.*
Busby, S. M., MD, CRCS(C) — *Surgery.*
Bush, W. S., AB John B. Stetson; MA South Dakota; DU Paris — *French.*
Bushnell, S. I., BSA Toronto; LLB Dalhousie; LLM York; of Osgoode Hall (Barrister-at-Law) — *Law.*
Butler, R. W., BA Nottingham; PhD Glasgow — *Geography.*
Butler, W. E., BSc, MD — *Family Medicine.*
Butlin, G. R., MD Del Litoral; CRCP(C) — *Anaesthesia.*
Butson, F. J., MD — *Family Medicine.*
Butts, R. E., AB, AM Syracuse; PhD Pennsylvania — *Philosophy.*
Cable, R., MBChB St. Andrews; DMRD(Eng); CRCP(C) — *Diagnostic Radiology.*
Cain, J. P., MD — *Medicine.*
Calaresu, F. R., BA Pavia; MD Milan; PhD Alberta — *Physiology.*
Calbert, J. P., Lic Agreg Louvain; PhD Indiana — *German.*
Callaghan, N. L., BA, MA — *Mathematics.*
Cameron, H., MB, ChB Edin; CRCP(C) — *Anaesthesia.*
Cameron, H. S., MD, FRCS(C), FACS — *Surgery.*
Cameron, M. A. S., BA, MA Liverpool — *Visual Arts.*
Cameron, M. G. P., MD Toronto; FRCP(C) — *Physical Medicine & Rehabilitation; Medicine; Occupational Therapy.*
Cameron, S. E., BPT Manitoba; MCSP, MCPA — *Physical Therapy.*
Cameron, W. J., BA, MA Victoria, N. Z.; PhD Reading — *Dean of the School of Library & Information Science.*
Cameron, W. M., MD, FRCP(C) — *Medicine.*
Campbell, D. A., DDS, Dip Orth Toronto — *Paediatric Dentistry.*
Campbell, D. R., BA — *Mathematics (Education).*
Campsall, E. W. R., BA Queen's; MDCM McGill — *Bacteriology & Immunology.*
Canham, P. B., BASc Toronto; MSc Waterloo; PhD UWO — *Biophysics.*
Carbone, M. E., BA, MA — *Classical Studies.*
Carey, L. S., MDCM, MSc(Med) Queen's; MS Minnesota; CRCP(c) — *Diagnostic Radiology.*
Carlson, P. M., BS Wisconsin; PhD Washington — *Psychology.*
Carmichael, C. M., BSc, MSc, PhD — *Geophysics.*
Carroll, J. M., BSc Lehigh; MA Hofstrat; PhD New York — *Computer Science.*
Carroll, K. K., BSc, MSc New Brunswick; MA Toronto; PhD UWO — *Biochemistry.*
Carroll, S. E., BA, MD, FRCS(C), FACC, FACS, FACCP — *Surgery.*
Carron, A. V., BPE, MA Alberta; EdD California — *Physical Education.*
Carson, His Honour Judge E. H. A., MA Toronto; of Osgoode Hall; (Barrister-at-Law) — *Law.*
Carson, R., MA, MB, BChir Cantab; DCH(Eng); CRCP(C) — *Paediatrics.*
CARTER, R. A. L., BA, RMC, MA, PhD Queen's — *Economics.*
Cartwright, J., BA Queen's; MA, PhD Toronto — *Political Science.*

Casaubon, T. J., BA Laval — *Office of Dean Althouse.*
Cass, F. P. A., BSc, MSc Victoria, N. Z.; PhD — *Mathematics.*
Castle, G. S. P., BESc, PhD, MSc, DIC London; PEng — *Engineering Science.*
Caveney, S., BSc Witwatersrand; DPhil Oxford — *Zoology.*
Cavers, P. B., BSA Toronto; PhD Wales — *Plant Sciences.*
Cecil, R. G., BSc, MA, PhD McGill — *Geography.*
Chamberlain, L. W., BSc, PhD Keele — *Psychology.*
Chamberlain, M. J., MRCS, LRCP London; MB, ChB Birmingham; MRCP London — *Medicine; Therapeutic Radiology.*
Chambers, D. A., BA British Columbia; MSc, PhD McGill — *Faculty Social Science; Psychology.*
Chan, L. K., BSc Hong Kong Baptist; MA, PhD — *Mathematics.*
Chan, R. K. C., BA, PhD Toronto — *Chemistry.*
Chapin, D. F., BA, MA, PhD Toronto — *English.*
Chapman, C. G., BA McMaster — *Assistant Registrar Althouse.*
Cheevers, W. P., BA Colorado; PhD Mississippi — *Cancer Research Biochemistry, Bacteriology & Immunology.*
Chefurka, P. M., BSc Manitoba; MS Montana State — *Physics.*
Chefurka, W., BSc Manitoba; MSc Montana State; PhD Harvard — *Biochemistry.*
Chelladurai, P., BA Madras; MA — *Physical Education.*
Cherniak, E. A., BA; of Osgoode Hall (Barrister-at-Law) — *Law.*
Chernick, A. B., MD, FRCS(C) — *Family Medicine.*
Chernick, B. A., MD, PhD — *Family Medicine.*
Chertkow, G., BA Saskatchewan; MD Toronto; FRCP(C) — *Medicine.*
Chess, G. F., BASc Toronto; M Eng McGill; PhD. WPI.; PEng. — *Physiology, Engineering, Dentistry.*
Chiu, H. F., MB, BS Hong Kong; MSc Toronto; FRCP(C) — *Pathology.*
Chodirker, W. B., BSc (Med), MD Manitoba; FRCP(C) — *Medicine, Dentistry, Bacteriology & Immunology.*
Cholod, E. J., MD Alberta; CRCP(C) — *Medicine.*
Church, W. R., BSc, PhD Wales — *Geology.*
Clancy, P. R., BA, MD, CRCP(C) — *Anaesthesia.*
Clark, C. S., BA Queen's; PhD California — *Economics.*
Clark, H. C., BSc, MSc, PhD Auckland; PhD, ScD Cantab — *Chemistry.*
Clark, J. G., DDS Toronto — *Oral Medicine.*
Clark, M., BA Nursing Pretoria — *Family Medicine.*
Clark, R. J., BA McMaster; MA — *History (Education).*
Clark, S. D., BA Carleton; MA Toronto — *Sociology.*
Clarke, G. L., BSc, MD, MRCOG, CRCS(C), FACS — *Family Medicine.*
Clarke, J., Mus Bac Toronto — *Music.*
Clarke, O., BA, MA, MB, BCh, MD Cantab; MRCS, LRCP London; MRCP London — *Medicine.*
Clattenburg, R. E., BSc, MSc Acadia; Ph.D. — *Anatomy, Occupational Therapy.*
Clements, P. J., Mus Bac, MM Michigan — *Music.*
Cline, A., MD — *Anatomy.*
Clute, F. J., BA — *Guidance (Education).*
Coates, C. F., MD Toronto; FRCP(C) — *Diagnostic Radiology.*
Coates, R. K., BA, MD, FRCP(C) — *Clinical Neurological Science; Diagnostic Radiology; Anatomy.*
Cohn, T. H., BA Michigan; MA Wayne State; PhD Michigan — *Political Science.*
Colcleugh, R. G., MD, FRCS(C) — *Surgery.*

Cole, A. — *Journalism.*
Cole, R. H., BA, UWO; MA, PhD Wisconsin — *Mathematics.*
Coles, J. C., BA, MD, MSc, FRCS(C) — *Surgery.*
Colhoun, E. H., BSA Toronto; PhD Cantab — *Pharmacology.*
Collins, J. A., MD, FRCS(C) — Obstetrics & Gynaecology.
Collins, J. R. L., BA — *Journalism.*
Collins, T. J., BA, MA, UWO; PhD Indiana — *English.*
Collins, W. H., BSc Carleton, MSc PhD UWO — *Applied Mathematics.*
Collyer, J. E., BA, MD — *Family Medicine.*
Collyer, R. T., BA, MD, FRCS(C) — *Ophthalmology.*
Colpitts, B., BSc New Brunswick; MSc UWO — *Computer Science.*
Colvin, L. C., AB William & Mary; ABLS, AMLS Michigan — *Library & Information Science.*
Conlon, M. F., MB, BAO, BCh Ireland; DDM(Eng), MRC Psych London — *Psychiatry.*
Connolly, M. T., MD — *Family Medicine.*
Conron, A. B., DSO, BA, MA, UWO; AM, PhD Harvard — *English.*
Cook, F. S., BA, PhD Toronto — *Plant Sciences.*
Cook, R. A., BSc, MSc, PhD Manitoba — *Biochemistry.*
Cooke, J. D., BSc Mount Allison; MSc, PhD Dalhousie — *Physiology.*
Copeland, G. G., BA, MD, CRCS(C) — *Obstetrics & Gynaecology.*
Cordy, P. E., MD Toronto; FRCP(C) — *Medicine.*
Cornelius, S. A., BA McMaster; MSW Carleton — *Family Medicine.*
Cornish, E., BA, DDS Toronto; Dip Perio New York — *Oral Medicine.*
Corrin B. N., MD — *Psychiatry.*
Corrin, R. C., MD UWO; D Psych Toronto; CRCP(C) — *Psychiatry.*
Cortner, L. L., Mus Bac Oberlin; MM Eastman — *Music.*
Cosentino, F., BA, BPE McMaster; MA, PhD Alberta — *Intercollegiate Athletics.*
Coulter, W. K., MD, FRCP(C) — *Medicine.*
Courchene, T. J., BA Saskatchewan; PhD Princeton — *Economics.*
Covvey, H. D. J., BA Wisconsin; MSc Toronto — *Psychiatry.*
Craig, A. W., MA Glasgow; PhD Manchester — *Political Science.*
Craig, H. K., BA Carleton; MA Northwestern; CCC — *Communicative Disorders.*
Cram, D. M., MD, MSc, FRCP(C) — *Paediatrics; Epidemiology & Preventive Medicine.*
Crawford, J. A, BA — *Sociology (Education).*
Crealock, C., PhD Toronto; MA — *Psychology (Education).*
Creeggan, S., Reg N, BScN Windsor; MScN — *Nursing.*
Creighton, D. G., BA, MA Toronto; PhD Columbia — *French.*
Crisp, E. V., BSc Sir George Williams — *Education Media Department (Education).*
Crookell, H., MBA, PhD, RIA (Alta) — *Business Administration.*
Crown, J. M., BA, BCL Oxon — *Law.*
Crowson, L., ARCM Royal College, London England — *Music.*
Crowther, N. B., BA Leeds; MA McMaster; PhD Sheffield — *Classical Studies.*
Cummins, J. E., BS Washington PhD Wisconsin — *Plant Sciences.*
Cunningham, D. A., BA UWO; MSc Alberta; PhD Michigan — *Physical Education, Physiology.*
Cunningham, D. N., BA Queen's; MSc Cornell — *Science (Education).*
Currie, P. E., DDS Toronto — *Social Dentistry.*
Dale, W. S. A., BA, MA Toronto; PhD Harvard; FRSA — *Visual Arts.*
Dalkert, C. H., BM Illinois Wesleyan; MM Eastman — *Music.*

Dauk, C., Reg N, BN McGill; MA Columbia — *Nursing.*
Davenport, A. G., BA Cantab; MASc Toronto; PhD Bristol; P Eng — *Engineering Science.*
Davies, B., BA McMaster; MA Harvard — *French.*
Davies, G. W., BA, MA, PhD Michigan — *Economics.*
Davies, E. M., MD Toronto; FRCP(C) — *Pathology.*
Davis, J. W., AB, AM, PhD Boston — *Philosophy.*
Davis, P. F., BA — *Secretarial Science.*
Davis, W. H., BASc Toronto; Dipl. H. Delft; P Eng — *Engineering Science.*
Dawes, A. M., BSc Victoria; MSc, PhD Toronto — *Mathematics.*
Dawson, D. J., BASc, MA, PhD Toronto — *Physics, Therapeutic Radiology.*
Dawson, W. F., BA Toronto; MA Queen's; D Phil Oxon — *Political Science.*
Day, A. W., BSc, PhD Reading — *Plant Sciences.*
Day, J. C., BSc, MSc, PhD Chicago — *Geography.*
Day, L. L., BSc Reading — *Plant Sciences.*
Deakin, A. S., BSc Carleton; MA, PhD Toronto — *Applied Mathematics.*
Dean, P. A. W., BSc, PhD Imperial College London — *Chemistry.*
Decker, R. M., BA — *Intercollegiate Athletics.*
Deinum, E. J., MD UWO; D Psych Toronto; FRCP(C) — *Psychiatry.*
de Kergommeaux, D. — *Visual Arts.*
Delkin, J. L., BA Reid; MA British Columbia, PhD UWO — *Mathematics.*
Dellow, P. G., BDS, MBBS Adelaide; FACDS — *Physiology.*
Demas, C. P., BSc Alexandria; PhD London — *Chemistry.*
De Mayo, P., BSc, MSc, PhD London; DèsSc Paris-Sud; FRSC — *Chemistry, Photochemistry.*
Dennis, S. C. R., ARCS, DIC, BSc, PhD London — *Applied Mathematics.*
Denny, J. P., BA Toronto; PhD Duke — *Psychology.*
de Veber, L. L., MD Toronto; FRCP(C) — *Paediatrics.*
Devereux, E. J., BA, MA Newfoundland; D Phil Oxon — *English.*
Dewdney, A. K., BSc, MA Waterloo — *Computer Science.*
Dewis, G. M., DDS Dalhousie; Dip Orth Toronto — *Paediatric Dentistry.*
Diamond, M. J., MB, ChB Leeds; DA England; CRCP(C) — *Anaesthesia.*
Dickie, G. L., MB, ChB Aberdeen; D Obst RCOG; CCFP — *Family Medicine.*
Dickinson, S. M., BSc, PhD Nottingham; C Eng, P Eng — *Engineering Science.*
Diehl, J. E., BA Loyola; AM North Carolina — *Spanish & Italian.*
Dillon, M. T., BA, MD — *Family Medicine.*
Dilmore, H. C., BM, MM Eastman — *Music.*
Dingus, R. L., BA, MA Cincinatti — *Psychiatry.*
Dingus, R. M. A., AB Wellesley; MA Pittsburgh — *Psychiatry.*
Dinniwell, W. A., DDS Toronto — *Oral Medicine.*
Di Stefano, J. J., BSc Rensselaer; MBA Harvard; MA, PhD Cornell — *Business Administration.*
Dixon, A. H., BSc, MSc, PhD British Columbia — *Computer Science.*
Dobell, W. M., BA McGill; MA, D Litt Oxon — *Political Science.*
Dolan, F. T., BSc St F X; MSc Georgia Inst of Tech — *Library & Information Science.*
Dolan, J., MBChB Glasgow; DPH (Eng), DPM (Eng), MRCP Glasgow; FRCP(C) — *Psychiatry.*
Donald, L. J., BSc, MSc Queen's; PhD London — *Paediatrics.*
Donaldson, E. F., Dipl SW Toronto — *Epidemiology & Preventive Medicine.*
Donisch, E. W. K. F., MD Bonn; MSc UWO — *Anatomy, Physical Medicine - Rehabilitation; Physical Education.*

Donisch, V., MD Bonn; PhD UWO — *Biochemistry.*
Dorland, A. G., BA Queen's; MA Yale; PhD Toronto; LLD, FRSC — *History.*
Douglas, J. H., BA, MD — *Medicine.*
Dow, M. R., BA, BEd, MA Toronto; FIBA — *English (Education).*
Downham, D. W., BA, B Chir, MB Cantab; FRCS (Eng), CRCS(C) — *Surgery.*
Downs, P. G., BA Leeds; Mus M, PhD Toronto — *Music.*
Dragland, S. L., BA, MA Alberta; PhD Queen's — *English.*
Drake, C. G., MD, MSc UWO; MS Toronto; DSc Memorial; FRCS(C) — *Clinical Neurological Science; Surgery.*
Drea, J. F., BA Cansius, Buffalo — *Journalism.*
Dreimanis, A., MagRerNat Riga, DSc Waterloo — *Geology.*
Dreyer, F. A., BA Toronto; BA Oxon; PhD St Andrew's — *History.*
Driedger, A. A., MD, PhD Saskatchewan — *Therapeutic Radiology; Medicine.*
Dubois, J. R., BSc, MD Michigan; CRCP(C) — *Psychiatry; Paediatrics; Occupational Therapy.*
Duerden, I. J., BSc Leeds; D Phil Oxon; AIM — *Engineering Science.*
Duff, J. H., BA, MD Toronto; FRCS(C) — *Surgery.*
Duncan, R. I., BSc, MSc, PhD Oklahoma — *Biophysics.*
Dunham, C. B., BA, MA British Columbia; PhD Toronto — *Computer Science.*
Dunlop, C. C., BA, MA Queen's — *Political Science.*
Dunn, C., BEd Toronto; BA — *Mathematics (Education).*
Dunn, W. J., DDS Toronto; FACD — *Dean of Denistry; Social Dentistry.*
Dupraz, J. Y., LèsL MèsL Grenoble — *French.*
Durnford, A. M. I. A. W., BA, MA, PhD Toronto — *Physics.*
Durnin, R. A., MDCM Queen's; FRCP(C) — *Physical Medicine & Rehabilitation.*
Dvorak, Z., MSc Charles University, Prague PhD, Czech. Acad. Sci., Prague — *Geophysics.*
Dyson, C., MD UWO; D Oph McGill; CROS(C) — *Ophthalmology.*
Eakins, T. S. G., MB, BCh, BA Dublin; DMRD, FFRCS, FRCP(C) — *Diagnostic Radiology.*
Eaman, J. A., BA Queen's; BPaed Toronto — *Social Studies (Education).*
Eastwood, A. W., BDS Liverpool; DDS Dalhousie; MS (Ortho) Michigan — *Paediatric Dentistry.*
Ebanks, G. E., BA London; MA, PhD Cornell — *Sociology.*
Eberhard, R. S., MD — *Medicine.*
Ebisuzaki, K., BSc, UWO MS, PhD Wisconsin — *Cancer Research Bacteriology & Immunology.*
Ecclestone, E. R., MD, FRCP(C) — *Paediatrics.*
Edgar, A. D., BA, MSc McMaster; PhD Manchester — *Geology.*
Edgar, H. W., MD UWO; DMR McGill; CRCP(C) — *Diagnostic Radiology.*
Edmonds, M. L., BA, BLS North Carolina — *Music.*
Edwards, K. N., MD Manitoba; FRAI — *Family Medicine.*
Edwardson, B., BPT Manitoba; Dip T P Manitoba; MCPA, MCSP — *Physical Therapy.*
Eggleston, A. C., BA Washington; PhD California — *Zoology.*
Ehrman, J. B., AB Pennsylvania; AM, PhD Princeton — *Applied Mathematics.*
Elcock, E. W., BSc, PhD Leeds — *Computer Science.*
Elder, P. S., BA Queen's; LLB British Columbia; LLM London; of the Bar of British Columbia — *Law.*
Elgie, M., BA UWO — *Plant Sciences.*
Elliott, D. W., Phm B Toronto; MD — *Family Medicine.*
Ellyatt, W. G., MD — *Family Medicine.*

Emerson, G. J., MEd Toronto; BA — *Philosophy (Education).*
Emerson, R. L., BA Dartmouth; MA Brown; MA, PhD Brandeis — *History.*
Emery, G. N., BA Queen's; PhD British Columbia — *History.*
Emmerson, G. S., BSc, ARCST Glasgow; MSc London; P Eng — *Engineering Science.*
Emmerton, R. J., DDS Toronto — *Restorative Dentistry.*
England, N. J., MBE, MD, FRCP(C) — *Medicine.*
Engli, C., BMus UWO — *Music.*
Enriquez, A. A., AA San Carlos; MD Santo Tomas; FRCP(C) — *Pathology, Dentistry.*
Eramian, G. M., BA Brown, MA Columbia; PhD Brown — *Russian Studies.*
Ernest, M., DOT Toronto; BSR, MA British Columbia; OT Reg — *Occupational Therapy.*
Evans, D. R., BA, PhD Toronto; MA Ottawa — *Psychology.*
Evans, G. P., MB, ChB, DPH Glasgow — *Epidemiology & Preventive Medicine.*
Evens, C. — *Music.*
Evens, M., BM, MA Mills College, California — *Music.*
Ewen, W. P. — *Visual Arts.*
Eynon, R. B., BA, MS Illinois — *Physical Education.*
Fahselt, M. D., BA Sask; PhD Washington — *Plant Sciences.*
Fairs, J. R., BSc, MA Columbia — *Physical Education.*
Fairs, M. P., BA — *Physical Education (Education).*
Fay, T. L., BA Michigan; MS, PhD Northwestern — *Psychology.*
Feasby, W. H., DDS, Dip Paed Toronto; MSc Manitoba; FRCD(C) — *Paediatric Dentistry; Paediatrics.*
Fenwick, R. W. — *Visual Arts.*
Ferguson, K. G., BA, MD, PhD; FRCS(C) — *Biophysics, Clinical Neurological Sciences.*
Ferguson, H. I. S., BSc, MSc, PhD UWO — *Physics.*
Ferguson, W. K., BA, MA, PhD Cornell; D LITT, FRSC — *History.*
Fetterly, J. C., MDCM Queen's; DMRT, CRCP(C) — *Therapeutic Radiology.*
ffolliott, J. D., B Comm Rhodes; MBA, CA & FCA (Eng & Wales) — *Business Administration.*
Fieguth, W., BSc Bethel College; MA Queen's — *Geography.*
Finlay, J. B., BSc (Mech Eng), Lanchester; PhD Strathclyde — *Biomedical Engineering; Biophysics; Occupational Therapy.*
Fisher, C. F., MD, MSc, CRCP(C) — *Medicine.*
Fisher, M., BEd Saskatchewan; MEd Alberta — *Early Childhood (Education).*
Fitz-James, P. C., BSA British Columbia; MSA Toronto; MD, PhD — *Biochemistry. Bacteriology & Immunology.*
Flaherty, D., BA McGill; MA, PhD Columbia — *History, Law.*
Flaherty, M. J., BScN, BA, MA, PhD Toronto — *Dean of Nursing.*
Fleck, P. D., BA, MA UWO; PhD Queen's (Belfast) — *English.*
Fleet, M. E., BSc, PhD Manchester — *Geology.*
Fletcher, H. G., MD — *Family Medicine.*
Flint, W., BA Harvard; MA, PhD North Carolina — *Spanish & Italian.*
Florence, J. B., MA St Andrews; MSc Newcastle-upon -Tyne; PhD Simon Fraser — *Mathematics.*
Flumerfelt, B. A., BSc Sir George Williams; MSc McGill; PhD Cambridge — *Anatomy.*
Ford, A. J. — *Music.*
Foreman, J. E., BASc Toronto; MME Cornell; P Eng — *Engineering Science.*

Forrest, J., Reg N, BN McGill; BA Laurentian; MS Boston — *Nursing.*
Forsyth, G. R., B Ind Eng Georgia Inst of Tech; MBA — *Business Administration.*
Forsyth, L. H., BA Sask; MA, PhD UWO — *French.*
Forsyth, P. A., BA, MA Sask; PhD McGill; FRSC — *Centre for Radio Science.*
Fowler, J. B., DDS Toronto — *Restorative Dentistry.*
Fowler, P. J., BA, MD, FRCS(C) — *Surgery.*
Fox, M. E., BA, MA Toronto — *English.*
Fraleigh, D. M., Reg N, BScN, MScN — *Nursing.*
Frankena, M. W., BA Swarthmore; PhD, MIT — *Economics.*
Fraser, N., BA, MD Toronto — *Family Medicine.*
Fraser, P. A., BSc, PhD UWO; MS Wisconsin — *Applied Mathematics.*
Fraser, W. P., BA British Columbia; MDCM McGill; CCFP — *Family Medicine.*
Freed, R. B., BA Kenyon College; PhD California (Berkeley) — *Philosophy.*
Freedman, J., BA Johns Hopkins; MA Princeton — *Anthropology.*
Frei, J. V., MDCM Queen's; MSc, PhD McGill; FRCP(C) — *Pathology.*
Frelick, L., MD, D Psych (Child) Queen's; CRCP(C) — *Psychiatry.*
Frey, G. C., DDS Toronto — *Paediatric Dentistry.*
Fried, J. S., BA Stanford; PhD Northwestern — *Economics.*
Frisch, S., BA Minnesota — *Psychology.*
Frishette, W. A., MD, FRCP(C) — *Pathology.*
Froelich, H. R., BSc Berlin; MSc, PhD UWO — *Physics.*
Fry, J. N., BSc Eng Alberta; MBA, PhD Stanford — *Business Administration.*
Fryer, B. J., BSc McMaster; PhD, MIT — *Geology.*
Fujii, E. T., BA, MA, PhD Stanford — *Economics.*
Fulford, J. A., BSc, PhD UWO — *Physics.*
Fuller, D. R., PhmB, MD Toronto; CCFP — *Family Medicine.*
Fumerton, W. R., BScEng, BScMed, MD Manitoba; CRCP(C) — *Diagnostic Radiology.*
Funston, G., BA — *Physical Education.*
Fyfe, J., MA Edinburgh; FLA — *Library & Information Science.*
Fyfe, W. S., BSc, MSc, PhD Otago, NZ; FRS — *Geology.*
Gagnon, G., BA, LèsL Laval; MA Aix-en-Provence — *French.*
Gaily, T. D., AB Oregon State; MS, PhD Washington — *Physics.*
Galbraith, D. A., MD, CRCP(C) — *Psychiatry.*
Galbraith, H. C., MD, CRCP(C) — *Psychiatry.*
Galil, K. A., DDS, DOralSurg Alexandria; SSCM(Cert); PhD — *Anatomy.*
Gallaher, D. F., BASc, MSc British Columbia; MA Toronto; PhD Washington — *Physics.*
Galpin, D. E., BA — *Althouse Assistant Registrar.*
Galsworthy, P. R., BSc Queen's; PhD Wisconsin — *Biochemistry.*
Galsworthy, S. B., BA Pomona; PhD Wisconsin — *Bacteriology & Immunology.*
Gambrill, R. B., MD — *Family Medicine.*
Gammal, E. B., MB, BCh Cairo; PhD — *Anatomy, Obstetrics & Gynaecology.*
Gann, A. G., BA Brown — *French.*
Garber, L. A., BA, MA Toronto — *English.*
Gardner, D. G., DDS Toronto; MSD Indiana — *Pathology, Dentistry.*
Gardner, R. C., BSc Alberta; MSc, PhD McGill — *Psychology.*
Gargantini, I., BA, PhD Milan — *Computer Science.*
Gartrell, J. W., BA McMaster; MA Wisconsin — *Sociology.*
Gatfield, P. D., MD Queen's — *Biochemistry, Paediatrics.*
Gaudet, G. O., BA Moncton; BSc Soc Laval; PhD Pennsylvania — *Economics.*
Gaudet, P. M., BA Toronto; MA, PhD Princeton — *English.*

Gay, K. E., MD Ottawa; CRCP(C) — *Family Medicine.*
Geach, G. A., BSc, MSc, PhD Sheffield; FIM, P Eng — *Engineering Science.*
Gedalof, A. J., BA Newfoundland; MA Alberta; PhD London — *English.*
Geddes, B., BSc, MSc — *Pharmacology.*
Genest, His Honour Judge M. H., LLB; of Osgoode Hall (Barrister-at-Law) — *Law.*
George, J. A., BSA Sask; MSA Toronto; PhD UWO — *Zoology.*
George, P. M., BA Earlham; MA Boston; PhD North Carolina — *Sociology.*
Gerber, D. E., BA, MA, PhD Toronto — *Classical Studies.*
Gergely, N. F., MD Budapest; FRCS(C) — *Surgery.*
Gerhard, W. J., Reg N, BSc N, MSc N — *Nursing.*
Gerson, D. F., BSc UWO; PhD McGill — *Biophysics.*
Gettas, P. G., MD, CRCS(C) — *Otolaryngology.*
Gibson, G., MD — *Family Medicine.*
Gidney, R. D., BA, MA McMaster; BEd Toronto; M Phil London — *History of Education (Education).*
Giesbrecht, M. P., BSc Eastern Michigan, MSc Southern Illinois — *Communicative Disorders.*
Gilbert, J. J., BSc, MDCM McGill; FRCP(C) — *Pathology; Clinical Neurological Sciences.*
Gilboe, D. B., DDS Toronto — *Restorative Dentistry.*
Gilchrist, J. A., MBBS London; DMRT (Eng); CRCP(C) — *Therapeutic Radiology.*
Gilmour, S. C. — *Business Administration.*
Gilroy, J., Dip TP Toronto; MCPA — *Physical Therapy.*
Gingrich, D. E., MD; CCFP — *Family Medicine.*
Gingrich, R. G., MD — *Family Medicine.*
Giron, A., B Mus Oberlin; MA Tulane — *Music.*
Giron, P. A., B Mus Oberlin — *Music.*
Girvan, G. R., MDCM McGill; CRCS(C) — *Obstetrics & Gynaecology.*
Girvin, J. P., MD UWO; PhD McGill; FRCS(C) — *Clinical Neurological Sciences; Surgery Physiology.*
Given, J. M., Reg N, BSc N, MEd Toronto — *Nursing.*
Glennie, G. D., MBBS London; DA McGill; MRCS (Eng), LRCP (London), CRCP(C) — *Anaesthesia, Oral Surgery.*
Glover, M. H. E., BA Queen's; BEd Toronto; ADCM — *Music (Education).*
Goddard, M. D., MB, ChB Otago; MRACP, FRCP(C) — *Medicine.*
Gold, R. E., BSc (Med), MD Manitoba; CRCP(C) — *Diagnostic Radiology.*
Goldberg, B., BSc New Brunswick; MDCM Dalhousie; CRCP(C) — *Psychiatry.*
Goldberg, H., DDS McGill; Dip Os Tufts — *Oral Surgery.*
Goldfarb, A. J., DDS — *Restorative Dentistry.*
Goldschlager, A., LèsL Agrég Brussels — *French.*
Gonser, G., BSc, MA Michigan — *Physical Education.*
Good, J. M., BA, MA UWO; PhD Columbia — *English.*
Goodbrand, D. B., DDS Toronto — *Paediatric Dentistry.*
Goodchild, M. F., BA Cantab; PhD McMaster — *Geography.*
Goodstadt, M. S., BA Manchester; PhD Stanford — *Psychology.*
Gordon, B. A., MDCM, MSc, PhD Queen's — *Biochemistry, Paediatrics.*
Gordon, D. H., BA, LLB Queen's; of Osgoode Hall (Barrister-at-Law) — *Law.*
Gordon, E. M., BA, BLSc Columbia — *School Librarianship (Education).*
Gorsky, M. R., BA, LLB Manitoba; of the Bars of Manitoba and Ontario — *Law.*
Gort, G., MD Alberta; CRCP(C) — *Psychiatry.*
Gow, C. M., Reg N, BSc, MSc Manitoba; BSc N Queen's; MN Washington — *Nursing.*

Gowdey, C. W., BA, MSc UWO; D Phil Oxon — *Pharmacology.*
Grace, D. M., MD UWO; D Phil Oxon — *Surgery.*
Graham, D. M., BSc, MSc UWO; PhD Brooklyn Pl — *Chemistry.*
Graham, J. F., BA Assumption; MBA — *Business Administration.*
Graham, J. W., BA Manitoba; MA, PhD Toronto — *English.*
Grainger, R. W., MD, FRCS(C) — *Surgery.*
Grantham, P., MCSP, MCPA, Dip TP Toronto — *Physical Therapy.*
Gratton, D. R., DDS Toronto — *Restorative Dentistry.*
Gray, D. F., BSc Wisconsin; MSc, PhD Michigan — *Astronomy.*
Gray, D. M., BA, MA Queen's — *History (Education).*
Green, J. P., ARCT Toronto; Mus Bac Toronto; MM Eastman — *Music.*
Green, R. N., MDCM McGill; FRCP(C) — *Medicine.*
Green, J. P., ARCT, MusBac Toronto; MM Eastman — *Music.*
Greene, G. K., A Mus, BA, BEd, MA Alberta; PhD Indiana — *Music.*
Greenfield, J. H., BA, DDS Toronto — *Oral Medicine.*
Greenhow, P., MD Toronto; CRCP(C) — *Diagnostic Radiology.*
Greenway, R. E., MD; FRCS(C) — *Otolaryngology.*
Greyson, R. I., BA British Columbia; MSc, PhD Oregon — *Plant Sciences.*
Griffin, A. E., Reg N; BA Toronto; MSc Wayne State; EdD Columbia — *Nursing.*
Griffiths, J. C., BSc Wales; MBBCh Welsh Ntl; FIMLT(London) — *Biochemistry.*
Grindlay, A., BSc Sask; MBA, PhD California — *Business Administration.*
Grindstaff, C. F., BA Wayne State; MA, PhD Massachusetts — *Sociology.*
Groom, A. C., BSc, PhD London; FInstP — *Biophysics, Anaesthesia.*
Guemple, D. L., BA, MA, PhD Chicago — *Anthropology.*
Guest, J. A., DDS Toronto — *Restorative Denistry.*
Guinsburg, T. N., AB, MA, PhD Columbia — *History.*
Gunton, R. W., MD UWO; D Phil Oxon; FACP; FRCP(C) — *Medicine.*
Gustafson, M. E., BS in Mus Ed Kent State — *Music.*
Gustafson, R. S., BM Oberlin; MA Kent State; MA (Musicology) Michigan State — *Music.*
Guthrie, J. P., BSc UWO; PhD Harvard — *Biochemistry, Chemistry.*
Gutteridge, D. G., BA — *English (Education).*
Gwyn, D. G., MRCS(Eng); LRCP, MB, BS London; PhD Birmingham — *Anatomy, Diagnostic Radiology.*
Gwynne-Timothy, J. R. R., BA, MA Toronto; D Phil Oxon — *History.*
Gyorok, L. L., BSc Roy Hung Air Force Acad.; BA UWO — *Geology.*
Haenselman, C. F., B Mus Ed, M Mus Colorado; PhD Indiana — *Music.*
Haessel, W., BSc, MSc Alberta; PhD Iowa State — *Economics.*
Hagerman, E. S., MD, CM Queen's; FRCP(C) — *Medicine.*
Hagerman, M., BA, MBA — *Business Administration.*
Hahn, E., BA UBC; MA, PhD Yale — *History.*
Hain, I. C., MD Toronto; MRCOG; FRCOG — *Family Medicine.*
Haines, D. S. M., BA, MD UWO; PhD Toronto — *Biochemistry.*
Haines, R. A., BSc, MSc Dalhousie; PhD Pittsburgh — *Chemistry.*
Hair, D. S., BA UWO; MA, PhD Toronto — *English.*
Haites, F. F., BSc Alberta; MBA McGill; MS, PhD Purdue — *Economics.*
Halip, J. W., DDS Toronto — *Oral Medicine.*
Hall, E. J. — *Vocational (Education).*
Hallberg, E. T., BA Idaho; DEd Arizona State — *Guidance (Education).*
Halliday, B., MD Toronto; CCFP; FCFP — *Family Medicine.*
Hamacher, J., BA UWO; MA Toronto; PhD Cornell — *Psychology.*
Hamilton, G., MD, FRCP(C) — *Diagnostic Radiology.*

Hamilton, J. T., BSc, PhD Edinburgh — *Pharmacology.*
Hamilton, W. B., BA, BEd, MA Acadia; PhD — *History of Education (Education).*
Handy, A., BFA, MFA Alfred (NY State College of Ceramics) — *Visual Arts.*
Hanna, E., MSW, DSW Michigan State, DSW Smith — *Family Medicine.*
Hannay, C. L., BSA Toronto; DIC, PhD London — *Bacteriology & Immunology, Denistry.*
Hansen, K., BA, BLS McGill, MLS Toronto — *Library & Information Science.*
Haq, M. S., BSc, MSc Dacca; MA, PhD Toronto — *Mathematics.*
Hardie, M. J., MB, ChB Aberdeen; CRCP(C) — *Paediatrics.*
Harding, P. G. R., MD, MSc UWO; FRCS(C) — *Physiology, Obstetrics & Gynaecology.*
Hardy, K. G., BA, MBA, PhD Michigan — *Business Administration.*
Hardy, M., BSc Columbia; Med, EdD Toronto — *Elementary Teaching Althouse.*
Harland, R. F. — *Vocational (Education).*
Harle, J. R., BSc, MSc Alberta; PhD Washington State — *Plant Sciences.*
Harman, D. J., BASc Toronto; MSc Purdue; PhD Illinois; PEng — *Engineering Science.*
Harper, F. B., MA Glasgow; PhD California — *Psychology & Sociology (Education).*
Harper, W. L., BS Rensselaer; MA Rochester — *Philosophy.*
Harris, A. J., DDS Toronto — *Epidemology & Preventive Medicine.*
Harris, A. W., BA — *Mathematics (Education).*
Hart, J. F., BA, PhD Toronto — *Computer Science.*
Hart, W. S., BA, MA California (Berkeley) — *Visual Arts.*
Harth, M., MD Toronto; FRCP(C) — *Medicine; Physical Medicine & Rehabilitation; Occupational Therapy.*
Hartry, M. J., BA, Dip Ed — *Secretarial Science.*
Hartsell, G. L., BA — *Althouse Associate Registrar.*
Harvey, W. B, BA, MA, LLB Manitoba; PhD Chicago — *Economics.*
Harwood, R. A., MD, CRCP(C) — *Diagnostic Radiology.*
Hassard, J. H., BA, Med Ottawa — *Guidance (Education).*
Hatch, J. E., BComm Sask; MBA McMaster; PhD Michigan — *Business Administration.*
Hatch, L. A., MBBS London; Dip Bact & Immun London; FRC FCPath — *Bacteriology & Immunology.*
Hauch, P. P., DRMD London; MD; CRCP(C) — *Diagnostic Radiology.*
Haust, H. L., MD Heidelberg; MSc (Med), PhD Queen's — *Biochemistry.*
Haust, M. D., MD Heidelberg; MSc Queen's; FRCP(C) — *Pathology; Clinical Neurological Sciences; Paediatrics.*
Hay, D. E., BSc, MSc, British Columbia — *Zoology.*
Hay, D. R., BSc, MSc, UWO; PhD McGill — *Physics.*
Hay, G. C., BA, BEd, MEd Toronto — *Professional Practice & Administration (Education).*
Hay, M. A., BA — *Secretarial Science.*
Hayatsu, A., BSc, MSc Tokyo; PhD Toronto — *Geophysics.*
Hayden, D. B., BSc, PhD UWO — *Plant Sciences.*
Hayden, F. J., BA, MS, PhD Illinois — *Physical Education.*
Hayes, D. L., BPE Alberta; MSc Oregon State — *Intercollegiate Athletics.*
Hayman, W. P., MD; FRCS(C) — *Surgery.*
Heagy, F. C., MD, MSc, PhD UWO — *Biochemistry, Therapeutic Radiology.*
Heath, D. S., MB, ChB Liverpool; FRCP(C) — *Psychiatry.*
Heddington, C. M. — *Althouse Teaching Aids.*

Hedley, J., BA, StFX; MA North Dakota — *Secretarial Science.*
Heeneman, H., MD Leiden; FRCS(C) — *Otolaryngology.*
Heimbecker, R. O., BA Sask; MD, MA, MSurg Toronto; FRCS(C) — *Surgery.*
Heine, W. C., BA — *Journalism.*
Heinicke, A. G., BSc, MSc Manitoba; PhD British Columbia — *Mathematics.*
Heinrich, G. R., MD Saskatchewan; FACA, FRCP(C) — *Anaesthesia.*
Heller, L. M., BA, MA, PhD Wisconsin — *French.*
Henderson, A. R., BSc, MB, ChB, PhD Glasgow — *Biochemistry.*
Hennen, B. K., MD Queen's; MA Michigan State; CRCP(C) — *Family Medicine.*
Henry, M., BA Toronto; MusBac, MM — *Music.*
Henry, W. C., BA, MA UWO; PhD Toronto — *Philosophy.*
Henshel, R. L., BA Texas; PhD Cornell — *Sociology.*
Hensley, D. H., BA, MA Oregon; PhD Wisconsin — *English.*
Hersey, M. L. W., BSc McGill; MD, PhD, CRCP(C), FACA — *Pharmacology, Anaesthesia.*
Heseltine, G. F. D., BA Manitoba; LMSA West London; DPsych McGill; FRCP(C), MRC Psych(Eng); FAPA — *Psychiatry.*
Hess, G., BA, MA Toronto — *German.*
Hession, B. L., MD, MSc, FRCP(C) — *Medicine.*
Hey, M. H. — *Vocational (Education).*
Hibbert, D. M., RegN, BS Manitoba; MA Profess Dipl Columbia — *Nursing.*
Hickey, M. C., MD; CCFP — *Family Medicine.*
Hickling, M. A., MA, LLB, PhD London; of Osgoode Hall (Barrister-at-Law) — *Law.*
Hickman, C. J., BSc, MSc, PhD DSc Birmingham — *Plant Sciences.*
Hicks, B. E., BComm Toronto; MBA McMaster; PhD Illinois; CA Ontario — *Business Administration.*
Hidayet, M. A., MB, BCh MCh Cairo; FRCS England FICS FACS — *Anatomy.*
Hieatt, A. K., AB Louisville; PhD Columbia — *English.*
Hieatt, C. B., BA, MA Hunter College; PhD Yale — *English.*
Hilborn, K. H., BA, MA Queen's PhD Oxon — *History.*
Hill, M. B., MDCM Queen's; CRCP(C) — *Diagnostic Radiology.*
Hill, S. J., DPE Jordan Hill College; MA — *Physical Education.*
Hinnegan, K. A., BBA, Michigan; LLB, LLM Chicago; of Osgoode Hall (Barrister-at-Law) — *Law.*
Hinton, G. G., BSc, MDCM McGill; DCH (Eng); FRCP(C) — *Paediatrics; Clinical Neurological Sciences.*
Hirst, M., BSc, PhD Liverpool; PhD UWO — *Pharmacology.*
Hiscock, R. J., BA, MD — *Family Medicine.*
Hobbs, G. E., BA, MD Toronto; MPH Michigan; FRCP(C), FAPA — *Psychiatry.*
Hobkirk, R., BSc, PhD, DSc Edinburgh; ARIC — *Biochemistry.*
Hockney, D. J., BA McMaster; PhD Cornell — *Philosophy.*
Hodder, R. W., BA Queen's; PhD California-Berkeley — *Geology.*
Hodgson, G. H., MB, BS Durham; DA Toronto; FRCP(C) — *Anaesthesia.*
Hodgson, R. C., BSc, MSc McGill; DBA Harvard — *Business Administration.*
Hohner, R. A., BA, MA, PhD Duke — *History.*
Holder, M. A., BA, MA, PhD Toronto — *French.*
Holliday, R. L., MD; FRCS(C) — *Surgery.*
Holmes, F. L., BSc MIT; MA, PhD Harvard — *History of Medicine & Science, SLIS, History.*
Holmes, G., BA Leeds — *French.*
Holness, A. E., MCSP, MCPA, BPT (Man), DipTP — *Physical Therapy.*

Holsworth, W. N., BSc, MSc British Columbia; PhD Western Australia — *Zoology.*

Hooker, C. A., BSc, BA, PhD Sydney; PhD York — *Philosophy; Occupational Therapy.*

Hoover, M. P., MD Toronto — *Psychiatry.*

Hopkins, W. G., BA Wesleyan; PhD Indiana — *Plant Sciences.*

Horn, E. M., RegN; BS, MA Columbia — *Nursing.*

Hossé, H. A., BA, MA Manitoba; PhD Ottawa — *Geography and Political Science.*

Hotimsky, C. M., ACIA Shanghai; MA Waterloo — *Library & Information Science.*

House, G. S., AB, MA, PhD California (Berkeley) — *English.*

Houston, B. E., BA, MA — *Philosophy (Education).*

Howard, J. H., BESc, MSA, DBA Harvard — *Business Administration.*

Howard, N., BSc Toronto — *Plant Sciences.*

Howard, V. A., BA Maine; PhD Indiana — *Philosophy (Education).*

Howell, W. C., BSc, MSc, PhD — *Chemistry, Secretary of Senate.*

Howitt, P., BA McGill; MA, PhD Northwestern — *Economics.*

Howson, W. T., BSc, MSc Manitoba; PhD Alberta — *Bacteriology & Immunology.*

Hrabik-Samal, M. J., BA Notre Dame, MA Fordham, PhD Penn State — *Political Science.*

Hudson, A. J., MD BSc Toronto; FRCP(C) — *Clinical Neurological Science; Biochemistry; Medicine.*

Hughes, R. A., MusBac, BEd, MM Toronto — *Music.*

Hugill, R. A., DDS, BScD Toronto — *Restorative Dentistry.*

Hulley, G. G., BA — *Psychology (Education).*

Humphrey, J. A., BA, MBA, DBA Harvard — *Business Administration.*

Hunter, A. T., BA, MD, CCFP, FCFP — *Family Medicine.*

Hunter, D. H., BSc Alberta; PhD UCLA — *Chemistry.*

Hunter, J. K., DDS Toronto — *Oral Medicine.*

Hunter, W. S., DDS Toronto; MS, PhD Michigan — *Paediatric Dentistry.*

Hurst, L. N., MD Toronto; FRCS(C) — *Surgery.*

Huston, J., DipOT (London); MAOT, OTReg — *Occupational Therapy.*

Hutchison, D. A., MD, DPH Toronto — *Family Medicine, Epidemiology & Preventive Medicine.*

Hutchinson, R. W., BSc UWO; MSc, PhD Wisconsin — *Geology.*

Hyatt, A. M., BA RMC; BA Toronto; MA Carleton; PhD Duke — *History.*

Iguarta, J., BA Loyola; Licence Laval — *History.*

Immerwahr, R., AB Swarthmore; MA Northwestern; PhD California (Berkeley) — *German.*

Inch, R. S., BA Mount Allison — *Geography & Geology (Education).*

Inch, W. R., BSc Queen's; PhD UWO — *Biophysics, Therapeutic Radiology.*

Inculet, I. I., DiplEng Bucuresti; MSc Laval; PEng — *Engineering Science.*

Inman, M. K., BA Acadia; MA, PhD Harvard — *Economics.*

Issacharoff, M., BA London; DU Strasbourg — *French.*

Jaatoul, N., MD Damascus; FRCP(C) — *Clinical Neurological Sciences; Medicine.*

Jack, R. N., DDS, DipPerio Toronto — *Oral Medicine.*

Jackson, D. N., BSc Cornell; MS, PhD Purdue.

Jaco, N. T., MA, BSc, BM, BCh Oxon; MRCP, CRCP(C), DCH (Eng) — *Paediatrics.*

Jacobs, P. W. M., BSc, MSc Natal; PhD, DSc London — *Chemistry, Photochemistry.*
Jaeger, L. L., BM Indiana — *Music.*
Jamieson, A., BA, BLS McGill; MA McMaster — *Library & Information Science.*
Jamieson, W. G., BA Eastern Michigan; MD, FRCS(C), FRCS(Eng) — *Surgery.*
Jancey, R. C., BSc, MSc Southampton; PhD Sydney — *Plant Sciences.*
Janes, D. J., BA Toronto; MLS — *Library & Information Science.*
Janelle, D. G., BA Southwestern Louisiana; MA, PhD Michigan State — *Geography.*
Janzen, V., MD Alberta; FRCS(C) — *Otolaryngology.*
Jarmain, W. R., BA UWO; MA Wisconsin — *Physics.*
Jarvis, A. M., BDS London; MSD Minnesota — *Pathology.*
Jarvis, G. K., BA Beigham Young; PhD Michigan — *Sociology.*
Jasinski, J., RegN, BScN — *Nursing.*
Jenkins, G. E., MD UWO; DPsych Toronto; CRCP(C) — *Psychiatry.*
Jenner, M. R. F., BA, MD Saskatchewan — *Paediatrics.*
John, P. K., BSc Kerala; MSc Madras; PhD Ohio State — *Physics.*
Johnson, A. H., BA Mt Allison; MA, PhD Toronto; DLitt Mount Allison; FRSC — *Philosophy.*
Johnson, A. I., BASc Toronto; MCh E Brooklyn; PhD Toronto; P Eng — *Engineering Science.*
Johnson, D. J., BA Sterling Kansas; MA Colorado — *Music.*
Johnson, D. M., BA, MD, CRCP(C) — *Psychiatry.*
Johnson, F. G., MB, BS London; LRCP, MRCS, FRCP(C) — *Psychiatry.*
Johnson, F. L., MD Toronto; FRCS(C) — *Obstetrics & Gynaecology.*
Johnson, H. J., BA Alfred; PhD Chicago — *Philosophy.*
Johnson, H. T., AB Harvard; MBA Rutgers; MA, PhD Wisconsin — *Economics.*
Johnson, L. N., BS Pacific; MS Oregon; PhD Michigan — *Restorative Dentistry, Biophysics.*
Johnson, M., BA Sterling Kansas — *Music.*
Johnson, R. H., BSc, DDS McGill; MSD Indiana; Cert Perio Washington — *Oral Medicine.*
Johnston, C. B., BA, MBA — *Business Administration.*
Johnston, D. W. B., BA, MD, FACS, FRCS(C) — *Surgery.*
Johnston, E. E., MDCM, DMR Queen's; CRCP(C) — *Diagnostic Radiology.*
Johnston, K. A., BA, MD — *Family Medicine.*
Johri, S. P., MB, BS, MS Agra; FRCS(C); FACOG — *Family Medicine.*
Jones, D. F., AB Smith; MA Columbia; PhD Brown — *French.*
Jones, D. T., BA, MD, FRCP(C) — *Medicine.*
Jones, F. W. P., BA — *Business Administration.*
Jones, J., BSc, PhD Sheffield — *Physics.*
Jones, R. F., BA Dublin; MA Queen's — *French.*
Jordan, R. E., BA Sask; DDS Alberta; MSD Washington; FICD — *Restorative Dentistry.*
Judd, W. W., BA McMaster; MA UWO; PhD Toronto — *Zoology.*
Judson, J. W. T., BA, LLB Queen's; of Osgoode Hall (Barrister-at-Law) — *Law.*
Jurjans, V., MD Tuebingen; CRCP(C) — *Psychiatry.*
Kalb, S., MD Manitoba; D Psych Toronto; CRCP(C) — *Psychiatry.*
Kalbfleisch, H. K., BA, MA New York; MA, PhD Michigan — *German.*
Kaluza, H. J., BA McMaster — *Business & Commerce (Education).*
Kandel, P. F., MD Ottawa; CRCP(C) — *Anaesthesia.*

Kaplan, N. R., BA Antioch; MA Cincinnati; PhD Wayne State — *Communicative Disorders.*

Kaufman, J. J., BA UWO; MD Ottawa; CRCP(C) — *Psychiatry.*

Kaufmann, J. C. E., MB, ChB Cape Town; MRC Path — *Neuropathology, Pathology, Dentistry, Clinical Neurological Sciences.*

Kaula, D. C., BA Cornell; MA Connecticut; PhD Indiana — *English.*

Keenleyside, M. H. A., BA, MA British Columbia; PhD Groningen — *Zoology.*

Keeri-Szanto, M., MD Budapest; CRCP(C) — *Anaesthesia.*

Keidan, H., MB, ChB Liverpool — *Family Medicine.*

Keil, W. E., MD, CRCP(C) — *Psychiatry.*

Kelly, C. M., Reg N, BSc N — *Nursing.*

Kendall, S. B., AB Indiana; PhD Emory — *Psychology.*

Kennedy, F. S., BA, MD UWO; MS in Medicine Minnesota; FACP — *Medicine.*

Kennedy, J. C., MD, FRCS(C) — *Surgery.*

Kennedy, J. R., B Comm Manitoba; MBA, PhD Stanford — *Business Administration.*

Kenney, K. W., MEd Toronto; BA — *Mathematics (Education).*

Kenny, D. J., BSc, Waterloo; DDS — *Physiology.*

Kerr, D. G. G., BA McGill; PhD London — *History.*

Kertesz, A., MDCM Queen's; BSc (Med) Toronto; FRCP(C) — *Clinical Neurological Science; Medicine; Communicative Disorders.*

Ketchum, E. J. D., BA Toronto; MSc L S E; MA, PhD Princeton — *Economics.*

Key, W. B., BA Mexico City College; MA California; PhD Denver — *Journalism.*

Keypour, N. D., BA Paris; LèsL Paris — *French.*

Khanh, H. K., BA Johns Hopkins; MA Lehigh; PhD California — *Political Science.*

Kidd, M. E., BA, MA Toronto — *French.*

Kidd, R. G., BSc, MSc Manitoba; PhD London — *Chemistry.*

Kidder, G. M., BA Hiram; PhD Yale — *Zoology.*

Kiernan, J. A., BSc, MB, ChB, PhD Birmingham; MA Cambridge; MRCS (Eng), LRCP London — *Anatomy.*

Kieser, W. E., BA Leeds & London — *Modern Language (Education).*

Kimpel, R., BA, MA Waterloo — *German.*

Kimura, D., BA, MA, PhD McGill — *Psychology.*

King, D. A., BSc, DDS Alberta; MS Rochester — *Paediatric Dentistry.*

King, H. J., BA, MD; FRCS(C) — *Obstetrics and Gynaecology.*

King J., BSc Toronto — *Plant Sciences.*

King, J. F., BSc, PhD New Brunswick — *Chemistry.*

King, R. H., BSc Swansea; MSc Aberdeen; PhD Saskatchewan — *Geography.*

King, W. E., MD Ottawa; DPsych Toronto; FRCP(C) — *Psychiatry.*

Kinnear, T. C., B Comm Queen's; MBA Harvard; PhD Michigan — *Business Administration.*

Kirkham, P. G., BASc UBC; MBA, MA, PhD Princeton — *Business Administration, Economics.*

Klapp, O. E., AB, AM, PhD Chicago — *Sociology.*

Klass, W. C., BSc West Indies; MA, PhD Toronto — *Mathematics.*

Klein, W. C., DDS Toronto — *Oral Medicine.*

Klinck, C. F., BA, UWO, MA, PhD Columbia; FRSC — *English.*

Kline, R. L., BSPharm Temple; PhD Pitt — *Physiology.*

Knight, R. M., B Eng McGill; SM M I T; DBA Harvard — *Business Administration.*

Kogon, S., DDS Toronto; MS — *Oral Medicine.*

Kosaric, N., MESc Zagreb; PhD, P Eng — *Engineering Science.*

Kostuk, W. J., MD, FRCP(C) — *Medicine.*
Koutsouvilis, A. P., BA, MA, PhD London — *Philosophy (Education).*
Kozoris, J. G., DDS Manitoba — *Restorative Dentistry.*
Kral, V. A., MD Prague; FRCP(C) — *Psychiatry.*
Kroll, H. C., BA Brooklyn; MS Purdue — *Communicative Disorders.*
Krupka, R. M., MA Saskatchewan; PhD McGill — *Biochemistry.*
Krysztofiak, B. E., MD Poznan; CRCP(C) — *Physical Medicine & Rehabilitation.*
Kuch, P. J., BA Cornell; MA Syracuse; PhD Minnesota — *Economics.*
Kudar, R. P., B Eng, BMC, MBA — *Business Administration.*
Kuechle, D., BA, LLB Wisconsin; MBA, DBA Harvard — *Business Administration.*
Kuehner, D., BSc Bishop's; MSc Queen's; PhD Edinburgh — *Computer Science.*
Kuhlman, R., BA, MBA — *Business Administration.*
Kunkel, J. H., BA Pomona; MA, PhD Michigan — *Sociology.*
Kydd, M. L., BSR UBC; OTReg — *Occupational Therapy.*
Kymlicka, B. B., BA British Columbia; MA, PhD Columbia — *Political Science.*
Laing, M. M., BA, BS Wisconsin — *Journalism.*
Laman, K. J., Reg N, BSc PH Ottawa; MS Suny at Buffalo — *Nursing.*
Lamb, L., BA, BSN British Columbia — *Family Medicine.*
Lambert, D. M., BA, MBA — *Business Administration.*
Lambert, G. R., BA, MA Toronto — *Classics (Education).*
Lancaster, M. J., MBBS London; LRCP; MRCS(Eng) DA(Eng); FFARCS; FRCP(C) — *Anaesthesia.*
Lander, J. R., BA, MA, M Litt Cantab — *History.*
Landstreet, J. D., BA Reed; MSc, PhD Columbia — *Astronomy.*
Lane-Smith, D. R., BSc, MSc Manchester; PhD Durham — *Physics.*
Langland, K. G., BA Saskatchewan; MSc — *Computer Science, Medicine.*
Langman, R. C., BA, MA Toronto — *Geography & Geology (Education).*
Langtvet, O. P., C Mag, C Phil Oslo — *Geography.*
Lapp, C. A., BA, MDCM Queen's; CRCP(C) — *Psychiatry.*
Lauchland, L. S., ED, BASc, MASc Toronto; P Eng — *Engineering Science.*
Lawford, H. G., BSc, PhD Toronto — *Biochemistry.*
Lawr, D., BA, MA, PhD Toronto — *History of Education (Education).*
Lawrence, D. W., BSc Sir George Williams; MD; FRCS(C) — *Obstetrics & Gynaecology.*
Laws, W. B., BA Windsor — *Teaching Methods (Education).*
Lawson, G. B., BA Queen's; BEd Toronto — *Mathematics (Education).*
Leach, J. J., BA Heidelberg; MA Trinity; PhD Michigan State — *Philosophy.*
Leake, J. L., DDS, DDPH Toronto — *Epidemiology & Preventive Medicine.*
Leboldus, G. M., MD, FRCS(C) — *Otolaryngology.*
Lee, R. E., BA Guilford; BSLS, MFA North Carolina; PhD Chicago — *Library & Information Science.*
Lee, T. T., BSc Nanking, MSc, PhD Wisconsin — *Plant Sciences.*
Leenders, M., BSc Alberta; MBA, DBA Harvard — *Business Administration.*
Leeson, J. I., MD, CCFP(C) — *Family Medicine.*
Lefcoe, N. M., BSc McGill; MD Vanderbilt; FRCP(C) — *Medicine.*
Lefcoe, M. S., BSc, MDCM McGill — *Diagnostic Radiology.*
Leith, J. C., BA Toronto; MSc, PhD Wisconsin — *Economics.*
Lemmon, J. C., BA Queen's; MBA — *Business Administration.*
Lenehan, M. J., BScN UWO; DSPA Toronto — *Communicative Disorders.*
Lenhardt, J. K., Reg N, BSN Columbia — *Nursing.*
Lennon, T. M., BA Manhattan; PhD Ohio State — *Philosophy.*

Lenz, A. C., BSc, MSc Alberta; PhD Princeton — *Geology.*
Lesk, D. M., MD Alberta; FRCP(C) — *Therapeutic Radiology.*
Leslie, C. E., MEd Toronto; BA — *Primary (Education).*
Leung, F. Y., BSc UWO; MSc, PhD, British Columbia — *Clinical Biochemistry.*
Lewis, F. N., BA, MD, MRC Path, FRCP(C) — *Pathology.*
Lewis, J. A., MD, FRCP(C), FACP — *History of Medicine & Science, Medicine.*
Leyshon, G. A., BA UWO; MS Illinois; PhD Oregon — *Physical Education, Anatomy.*
Lheureux, W. J., BA, MA Michigan; LLD New Brunswick — *Physical Education Graduate Program.*
Li, K. T., MB Taiwan; CRCP(C) — *Paediatrics.*
Li, M. D., MB National Taiwan; FRCP(C) — *Paediatrics.*
Liang, D. Y. S., MB, BCH Witwatersrand; DObst; RCOG; MRCOG; FRCS(C) — *Family Medicine.*
Lin, C. H., BScP, MSc Taiwan; PhD UWO — *Biochemistry.*
Linden, P. J., BA, MA — *English (Education).*
Lindsay, R. M., MB, ChB Glasgow; MRCP (Edin); CRCP(C) — *Medicine.*
Linsdell, F. J., BA, MD, CRCP(C) — *Diagnostic Radiology.*
Linton, A. L., MB, ChB Edin; FRCP Glasgow; FRCP Edin; CRCP(C) — *Medicine.*
Little, W. B., B Comm UBC; DBA Harvard — *Business Administration.*
Littlewood, A. R., BA Leeds; B Litt Oxon — *Classical Studies.*
Livingstone, C. E., BSc, MSc British Columbia; PhD — *Engineering Science.*
Lo, K. Y., BSc Hong Kong; MSc, DIC, PhD London; P Eng — *Engineering Science.*
Locke, M., BA, MA, PhD Cantab — *Zoology.*
Lockyer, P. R., BA, LLB — *Journalism.*
Lodge, S., B Pharm London; PhD Bradford — *Physiology.*
Logan, A. D., BFA, AOCA, OIP Toronto — *Art (Education).*
Lohmann, R. C., MD Freiburg; FRCP(C) — *Medicine, Therapeutic Radiology.*
Long, H. B., MEd Toronto; BA — *Social Studies (Education).*
Long, R., B Comm UBC; MBA Washington; CA (BC) — *Business Administration.*
Longton, M. M., ARCT Toronto; LTCL Trinity London; B Mus, M Mus UBC — *Music.*
López-Pacheco, J., Lic Fil y Let Madrid — *Spanish & Italian.*
Lorcini, M. — *Music.*
Lord, K. L., DipPOT Toronto; BSc(PT) — *Physical Therapy.*
Lorimer, J. W., BA, MA, PhD Toronto — *Chemistry.*
Lovegrove, T. D., BA, MD, MSc — *Pharmacology, Psychiatry.*
Lowe, R. P., BSc, PhD UWO — *Physics.*
Lubell, R. F., BA, MD; FRCP(C) — *Paediatrics.*
Luckman, B., BA, MA Manchester — *Geography.*
Luke, T. M., BSc Queen's; MSc, PhD McGill — *Applied Mathematics.*
Lundgren, B. R., BA Manitoba; MA, PhD UWO — *English.*
Ly, T. N., LèsL Salgon; DU Paris — *French.*
Lyon, G. F., BA, MA, PhD Saskatchewan — *Physics.*
Macallum, A. B., BA, MD, PhD Toronto; FRSC — *Medicine (Emeritus).*
MacDonald, A. C., MD, FRCP(C) — *Diagnostic Radiology.*
MacDonald, J. A., BE NS Tech; MSE Michigan; P Eng — *Engineering Science.*
MacDonald, J. C. F., BA, MA British Columbia; PhD Toronto — *Therapeutic Radiology, Physics, Clinical Neurological Sciences.*
MacDowell, J. L., BA, ARCT Toronto — *Music.*
MacFarlane, A. W., BA Toronto — *Journalism.*

Mack, J. S., BS Colorado State; OTR, OT Reg — *Occupational Therapy.*
MacKay, R. S., QC; LLM Columbia; of Osgoode Hall (Barrister-at-Law) — *Law.*
MacKenzie, D. A., MD, MSc Minnesota; FRCS(C), FACS — *Surgery.*
MacLennan, M. O., RCAD Toronto; BA — *Music.*
MacMaster, E., Reg N, BScN — *Nursing.*
MacNeill, I. B., BA Sask; MA Queen's; PhD Stanford — *Applied Mathematics.*
MacPherson, C. F. C., BSc Mount Allison; MSc Dalhousie; PhD Columbia — *Psychiatry, Biochemistry; Clinical Neurological Sciences.*
MacRae, D., BSc British Columbia — *Computer Science.*
MacRae, E. E., MD Dalhousie; CRCS(C) — *Otolaryngology.*
MacRae, A. G., MCSP, MCPA — *Physical Therapy.*
MacRae, N. D., BSc Queen's; MSc, PhD McMaster — *Geology.*
Magee, G. R., BA, UWO, MA PhD Chicago — *Mathematics.*
Magee, W. L., BSc, MSc, PhD UWO — *Biochemistry.*
Mai, F. M., MBChB Cape Town; DPM (Eng), MRCP Edin; MD Adelaide; MRC Psych (Eng); CRCP(C) — *Psychiatry.*
Maine, S. F., BA Queen's; MA, PhD Toronto — *History.*
Malanchuk, R., BA, MBA — *Business Administration.*
Manners, D. O., BA, MD, FRCS(C), FACS, FACOG — *Obstetrics & Gynaecology.*
Manning, G. W., MA, MD, PhD Toronto; FRCP(C) — *Medicine, Physiology.*
Mansinha, L., BSc, M. Tech IIT Karagpur; PhD British Columbia — *Geophysics.*
Mantle, J. H., Reg N, BN McGill; MSc N California (San Francisco) — *Nursing.*
Manuel, P. W., BSc, MSc, PhD UWO — *Applied Mathematics.*
Marchuk, P., MD — *Family Medicine.*
Marin, I. C., BSc CUNY; MA, MSc, PhD Michigan — *Psychiatry.*
Markusen, J., BA, PhD Boston College — *Economics.*
Marlborough, J. M., BSc, MA Toronto; PhD Chicago — *Astronomy.*
Marples, L. W., BSc Delaware; MBA Stanford — *Business Administration.*
Marras, A., BA Colgate; PhD Duke — *Philosophy.*
Marshall, D. G., MD, FRCS(C), FAAP — *Surgery.*
Marti, A. M., Lic Dr Fil y Let Barcelona — *Spanish & Italian.*
Martin, R. R., BSc MSc, St F X; PhD UWO — *Chemistry.*
Martin, R. J., BSc, MSc, UWO — *Computer Science.*
Martin, S. A., MBA, DBA Harvard; FCA (Ontario) — *Business Administration.*
Martinello, B. P., DDS, DPH Toronto — *Social Dentistry, Epidemiology & Preventive Medicine.*
Marton, J. P., BSc Budapest; PhD UWO — *Physics.*
Mateer, C. A., BA, MSc Wisconsin — *Communicative Disorders.*
Maun, M. A., MSc American University of Beirut; PhD Washington State. BSc, MSc, Pakastan — *Plant Sciences.*
Max, P., BA, MD, CRCP(C) — *Psychiatry.*
May, J. D., B Comm Queen's; PhD York (England) — *Economics.*
Maynard, P. L., AB Chicago; PhD Cornell — *Philosophy.*
Mazan, A., L Mus London Ont; Graduate of Vienna Academy; BA — *Music.*
McAlpine, K. L., MD, CRCP(C) — *Paediatrics.*
McAninch, L. N., MD, FRCS(C), FACS — *Surgery.*
McCallum, B., BScN — *Family Medicine.*
McCallum, J. A., BSc Bishop's; MDCM McGill; FRCP(C) — *Diagnostic Radiology.*
McCamus, B. M., BA Toronto; MLS — *Library & Information Science.*
McCarter, J. A., BA, MA British Columbia; PhD Toronto; FRSC — *Biochemistry Cancer Research.*
McCaughey, W. T. E., MB, BCh, MD Queen's Belfast; MRC Path — *Pathology.*

McClean, R. M., BA, LLB — *Law.*
McClelland, W. J., BA, MA Toronto; PhD London — *Psychology.*
McClure, J. A., BSc, MD Queen's — *Otolaryngology.*
McColl, J. S., MEd Toronto; BA — *Teaching Methods (Education).*
McConnell, W. G., BA McGill; MA Kansas — *German.*
McCordic, A. L., BSc(POT) McGill; OTReg — *Occupational Therapy.*
McCourtie, D., MD, FRCP(C) — *Medicine.*
McCredie, J. A., MB, BCh, BAO, MCh Belfast; FRCS (Edin); FRCS(Eng); FRCS(C); FACS — *Surgery; Therapeutic Radiology.*
McCue, D., MB, ChB Glasgow — *Family Medicine.*
McCullum, H. — *Journalism.*
McDaniel, R., BA, MA — *Geography.*
McDonald, J. W. D., MD, PhD, FRCP(C) — *Medicine, Biochemistry.*
McDougall, A. K., BA McGill; MA Carleton; PhD Toronto — *Political Science.*
McDougall, W. J., BA, FCA (Ont) — *Business Administration.*
McFadden, K. D., BA, UWO; MA British Columbia — *Russian Studies.*
McFarlane, D. C., MD, CRCS(C) — *Ophthalmology.*
McFarlane, N. A., BA, DDS Toronto; DA Pitt — *Anaesthesia, Oral Surgery.*
McFarlane, R. M., MD, MSc, FRCS(C), FACS — *Surgery.*
McFetridge, D. G., B Comm Sask; MA Toronto — *Economics.*
McGhie, T. G., MD — *Family Medicine.*
McGowan, J. W., BSc St F X; MSc Carnegie Mellon; DSc Laval — *Physics.*
McInnis, W. P., BA, MD — *Clinical Neurological Science; Medicine.*
McIntosh, J. S., ARCT Toronto; AAGO New York; Mus Bac Toronto; MM, DMA Eastman — *Music.*
McKay, D. F., BA, MA, PhD Wales — *English.*
McKay, D. O., BA, MA, PhD Buffalo — *Mathematics.*
McKeen, W. E., BSc, MSc, PhD, Toronto — *Plant Sciences.*
McKellar, D. A., ARCT Toronto; A Mus London, Ont; Mus Bac Toronto; MM Eastman — *Music.*
McKenzie, F. A., BA Iowa; MD, CRGP(C) — *Psychiatry.*
McKeon, P. J., BA — *Education Media Department (Education).*
McKibben, W. L., AB, PhD California, Berkeley — *Business Administration.*
McKie, D. C., BA, MA York — *Sociology.*
McKim, J. C., MD — *Family Medicine.*
McKim, J. S., MD, MSc; DCH (Eng), CRCP(C) — *Epidemiology & Preventive Medicine; Paediatrics; Family Medicine.*
McKim, M. E., MD Toronto; CRCP(C) — *Psychiatry.*
McKinna, A. J., BA Sask; MDCM McGill; CRCP(C) — *Ophthalmology.*
McLachlin, A. D., MD, MSc, D Phil Oxon; MS Toronto; FRCS(C), FRCS (Eng), FACS — *Surgery.*
McLachlin, J. A., MD, MClSc, FRCS(C), FACS — *Surgery.*
McLaren, R. H., BA, LLB UWO; LLM London — *Law.*
McLarty, D. A., BA, PhD Columbia — *Plant Sciences.*
McLarty, T. D., BA, MD, FRCS(C) — *Surgery.*
McLaughlin, J. P., BA Queen's; PhD London — *History.*
McLean, H. J., FRCO, ARCM, LRSM London, England; AMus Manitoba; MusB MA Cantab — *Music.*
McLeavey, D. W., BA, MBA Wayne State — *Business Administration.*
McLeish, E. A., MEd Toronto; BA — *Professional Practice & Administration (Education).*
McLeish, J. C., MD, CRCP(C) — *Psychiatry.*

McLeod, J. G., LLB UWO; LLM London — *Law.*
McManus, J. E., DDS Detroit — *Restorative Dentistry.*
McMillan, D. B., BSc, MSc UWO; PhD Toronto — *Zoology.*
McMurray, J. G., PhD Toronto; BA, MA — *Psychology (Education).*
McMurray, W. C. C., BSc, PhD UWO — *Biochemistry.*
McPeck, J. E., BA Vermont; MA, PhD — *Philosophy (Education).*
McWhinney, I. R., MB, BCh, MD Cambridge; MRCP London — *Family Medicine; Epidemiology & Preventive Medicine.*
Meads, G. E., BA Michigan; MD, FRCS(C) — *Surgery.*
Meath, W. J., BSc Carleton; PhD Wisconsin — *Chemistry.*
Medzon, E. L., BSc, MSc Manitoba; PhD McGill — *Bacteriology & Immunology.*
Melchior, L., Reg N, BSc N — *Nursing.*
Mellamphy, E. N., BA Dublin; MA Manitoba — *English.*
Meltzer, D. B., BSc Manitoba; MD; FRCP(C) — *Pharmacology; Medicine.*
Melvin, J. R., BSc Manitoba; MA Alberta; PhD Minnesota — *Economics.*
Melvin, R. A., BA Brandon; PhD Alberta — *Political Science.*
Menear, D. W., BA, BEd Toronto; MEd Alberta; FCCT — *Professional Practice & Administration (Education).*
Mercer, P. F., DVM Toronto; PhD Cornell — *Physiology.*
Meredith, A. R., MD — *Family Medicine.*
Mereu, J. A., BA, FSA, FCIA UWO — *Mathematics.*
Mereu, R. F., BSc, MSc Toronto; PhD — *Geophysics.*
Merritt, J. O., MD — *Family Medicine.*
Metcalf, G., BA, MA Toronto; PhD London — *History.*
Metzger, F. K., BA Bowdoin; MA Pennsylvania; PhD Rutgers — *History.*
Meyer, G. J., Graduate of Royal Conservatory, Amsterdam — *Music.*
Middleton, W. W., MD, FCCP — *Medicine.*
Migneron, J. H. R., BA Montréal; BSc Ottawa; MSc Cornell; PhD London — *Applied Mathematics.*
Mikalachki, A., B Comm Sir George Williams; MBA, PhD — *Business Administration.*
Milburn, G., BA, MA, Durham; BEd Toronto — *History (Education).*
Millar, J. S., BSc, MSc British Columbia; PhD Alberta — *Zoology.*
Miller, C., BA London; MA McMaster — *Anthropology.*
Miller, C. B., BA Saskatchewan; AM, PhD Illinois — *Mathematics.*
Miller, D. M., BSc; MSc; Alberta, PhD McGill — *Chemistry, Biophysics.*
Millman, W. L., MD, FRCP(C) — *Anaesthesia.*
Mills, A. R., DDS Toronto — *Restorative Dentistry.*
Mills, D. M., BA, MD, FRCP(C) — *Pathology.*
Mills, D. W., BA, BSc Carleton; MD UWO; MSc(Med) Queen's; FRCS(C) — *Ophthalmology.*
Milne, D. C., BPE McMaster; MA, PhD Michigan State — *Physical Education.*
Milne, J. K., MD, FRCS(C) — *Obstetrics & Gynaecology.*
Milnes, L., B Mus Toronto — *Music.*
Milnes, P., BSc MA, PhD Toronto — *Mathematics.*
Minshall, W. H., BSA Toronto; MSc, PhD McGill — *Plant Sciences.*
Misra, R. K., MSc, PhD Nagpur; PhD Edinburgh — *Zoology.*
Mitalas, R., BA, MA Toronto; PhD Cornell — *Astronomy.*
Mobbs, I. G., BSc Aberdeen MSc McMaster — *Zoology.*
Mochizuki, K. G., DDS — *Restorative Dentistry.*
Mogenson, G. J., BA, MA Saskatchewan; PhD McGill — *Physiology.*
Molineux, E. J., BA, MA Queen's — *Family Medicine.*

Montemurro, D. G., BA, MSc, PhD UWO — *Anatomy.*
Moorcroft, D. R., BASc, MSc Toronto; PhD Saskatchewan — *Physics.*
Moore, D. S., DDS, Dip Perio Toronto; FRCD(C) — *Oral Medicine.*
Moore, N. — *Journalism.*
Moore, J. T., BA, UWO MA Wisconsin; PhD Chicago — *Mathematics.*
Moorhead, J. M., BSc California Institute of Tech; MA UCLA — *Astronomy.*
Morgan, S. M., BA UWO; DipP Toronto; MCPA, Teacher's Diploma in Physiotheropy — *Physical Therapy.*
Moro, R. — *Vocational (Education).*
Morris, R. W., DDS Toronto — *Oral Medicine.*
Morrissey, J. R., MB, ChB Sheffield; CCFP — *Family Medicine.*
Moscovich M. J., BA Alberta; MA Cincinnati; PhD McMaster — *Classical Studies.*
Moulton, M. E., BSc, MSc UWO — *Zoology.*
Moulton, R., MA, MBBChir Cantab; DObst, RCOG — *Family Medicine.*
Mount, J. H., BSc, MD, CM McGill; FRCP(C) — *Psychiatry.*
Mountain, H. E., MD, CRCP(C) — *Psychiatry.*
Muehlmann, R. G., BA Indiana; PhD Iowa — *Philosophy.*
Muir, J. M., MB, ChB Glasgow; FRCP(C) — *Anaesthesia.*
Mullin, J. K., BS, MS, PhD Carnegie Mellon — *Computer Science.*
Mumby, D. M., BScN UWO; MA Columbia — *Epidemiology & Preventive Medicine.*
Munn, B. W., BA, MA Cantab; PhD British Columbia — *Spanish & Italian.*
Munn, L. G., B Mus Philadelphia Conservatory of Music — *Music.*
Munn, W. H. — *Music.*
Munro, T. G., MD, DMR Toronto; CRCP(C) — *Diagnostic Radiology.*
Murison, C. L., MA Edinburgh; MA Cantab — *Classical Studies.*
Murphy, K. C. — *Educational & Vocational Counselling, Psychology.*
Murphy, P. M., BA, Mus G Paed — *Music.*
Murray, G. P., BSc London; MA Lehigh — *Political Science.*
Murray, H. G., BA, MA, PhD Illinois — *Psychology.*
Murray, J. M., BA, DDS McGill; MS Manitoba — *Paediatric Dentistry.*
Murray, R. G. E., BA, MA Cantab; MDCM McGill; FRSC — *Bacteriology & Immunology.*
Murty, R. C., BSc Andhra; MSc, Dip Lib Bombay; PhD UWO — *Physics.*
Mutambirwa, C. C., BA Lincoln; MA Pennsylvania — *Geography.*
Muxlow, K. R., DDS Toronto — *Restorative Dentistry.*
Naftolin, L. Z., BA, MD — *Family Medicine.*
Nagai, T., MEng, MSc, DSc Tokyo — *Biophysics.*
Nardocchio, E. F., BA Saint Francis Xavier; MA Middlebury — *French.*
Naylor, D. H., BSc, PhD London — *Applied Mathematics, Bacteriology & Immunology.*
Neal, L. E., BA, MA, PhD Toronto — *Dean of Women, Psychology.*
Neary, P. F., BSc, MA Memorial; PhD London — *History.*
Neill, S. D., BA, BLS, M Ed Toronto — *School of Library & Information Science.*
Neilson, J. B., MBE, MD Toronto; FACHA — *Epidemiology & Preventive Medicine.*
Nelson, J. G., BA McMaster; MA Colorado; PhD Johns Hopkins — *Geography.*
Nerenberg, M. A., BSc, PhD McGill — *Applied Mathematics.*
Neufeld, A. H., BSc, MSc, PhD Manitoba; MDCM McGill; FCIC — *Faculty of Medicine (Emeritus).*
Neufeld, R. W. J., BA Alberta; MSc, PhD Calgary — *Psychology.*

Neuhauser, R., MA Toronto; PhD Vienna — *Russian Studies.*
Newell, E. N., MD, FRCP(C) — *Physical Medicine & Rehabilitation; Medicine.*
Newell, J. P., BA, MD — *Family Medicine.*
Newkirk, R. L., BSc, MSc UWO — *Computer Science.*
Newkirk, R. T., BA, MSc — *Geography.*
Newland, C. — *Music.*
Newman, J. C., BA McGill; MA Radcliffe; Dra Fil y Let — *Spanish & Italian.*
Newson, E. P., BASc Alberta; MBA, PhD M I T — *Business Administration.*
Nicholas, J. M., BSc, MSc Sussex; PhD Pittsburgh — *Philosophy, History of Science.*
Nicholls, J. V. V., BA, MDCM, MSc McGill; FACS, FRCS(C) — *Ophthalmology.*
Nicholson, J. R., BA, MD, FAAP, CRCP(C) — *Paediatrics.*
Nicholson, J. T., SB Cornell; MBA, DBA Harvard — *Business Administration.*
Nicholson, N. L., BA, MSc, PhD Ottawa; FRGS — *Geography.*
Nicol, D. A., BA Sask; MD, DMR Toronto; CRCP(C) — *Diagnostic Radiology.*
Nielsen, J. S., LRCP (London), MRCS (Eng), CRCP(C) — *Anaesthesia.*
Nobbs, R. A., BSc, MBA Alberta; PhD — *Business Administration.*
Noel, S. J. R., BA Memorial; MA, DPhil Oxon — *Political Science.*
Nordine, M. C., BA Saskatchewan; DDS Toronto — *Oral Medicine.*
Norman, R., BA Memorial; PhD Michigan — *Psychology.*
Norry, H. T., MD, CRCP(C) — *Anaesthesia.*
Nourse, R. E., BSc Queen's; MBA, DBA Harvard — *Business Administration.*
Novak, M., Dipl Ing Prague; PhD Acad Sc Prague; P Eng — *Engineering Science.*
Novak, S. — *Music.*
Nowak, E. S., B Eng McGill; MSME, PhD Purdue; P Eng — *Engineering Science.*
Nugent, S. M., MB, BCh, BAO National University, Ireland; DPM(Eng) — *Psychiatry.*
Nurse, W. E., LRCPI; LRCSI; LM; DRCOG (Eng); MRCOG — *Family Medicine.*
Nursey, W. C., LLB Queen's; LLM London; of Osgoode Hall (Barrister-at-Law) — *Law.*
Nuttall, J. H., BA, PhD Cantab — *Physics.*
Oaxaca, R. L., BA Fresno State College; MA, PhD Princeton — *Economics.*
O'Brien, A., BSc Dalhousie — *Political Science.*
O'Brien, F., RN, DOT(SC); OTReg — *Occupational Therapy.*
O'Brien, J. R., BSc, MDCM McGill; FRCS(C); FACS — *Family Medicine.*
O'Connor, B., BA Loyola; MA Southern Illinois — *Journalism.*
O'Connor, D. P., MBBCh, BAO Ireland; DRCOG(Eng); DObst Ireland; CCFP — *Family Medicine.*
Ogelsby, J. C., AB Stanford; MA, PhD Washington — *History.*
Ogilvie, D. M., BSc New Brunswick; PhD UWO — *Zoology.*
Ogletree, J., BSc — *Science (Education).*
O'Hea, E. K., BAgrS, MAgrSc Dublin; PhD Illinois — *Physiology.*
O'Leary, P. T., AB Boston; MA Toronto — *Philosophy (Education).*
Oliver, D., BA, MBA — *Business Administration.*
Oliver, G. L., MD, MSc, FRCS(C) — *Ophthalmology.*
Ollerhead, W. W., BA, MD UWO; MChOrth Liverpool; FRCS(C) — *Surgery.*
Olson, A. T., BSc Queen's; MSc Birmingham; P Eng — *Engineering Science.*
Olson, D. D., BA Stanford — *Economics.*
Oneail, J. M., BA — *Journalism.*
O'Neil, T. F., RN, BSc St Thomas, New Brunswick — *Family Medicine.*
Oosterhoff, A. H., BA, LLB UWO; LLM Toronto; of Osgoode Hall (Barrister-at-Law) — *Law.*

Orchard, J. W., MD; CCFP — *Family Medicine.*
Orloci, L., BSF Sopron; MSc, PhD British Columbia — *Plant Sciences.*
Osberg, L. S., BA Queen's — *Economics.*
O'Sullivan, J. C., BA Dublin — *English (Education).*
Ouellette, G., BA, MBA — *Business Administration.*
Owen, M. D., BSc Wales; PhD Monash — *Zoology.*
Pace, W. E., MD, MSc, FRCP(C) — *Medicine.*
Packer, R. W., BA, MA Cantab — *Geography.*
Paiement, M. G. T., DDS Toronto — *Restorative Dentistry.*
Paivio, A. U., BSc, MSc, PhD McGill — *Psychology.*
Palmer, E. E., BA William & Mary; MA Yale; LLB, LLM Toronto; of Osgoode Hall (Barrister-at-Law) — *Law.*
Palmer, H. C., BSc St F X; PhD Princeton — *Geophysics, Geology.*
Palmer, J. P., BA Carleton College, Minn — *Economics.*
Palmer, R. B., MD, CRCP(C) — *Psychiatry.*
Panjer, H. H., BA, MA, UWO; ASA — *Mathematics.*
Papmehl, K. A., MA Ottawa; PhD London — *Russian Studies.*
Park, P., BA — *Elementary Teaching (Education).*
Park, R. G., BSc Glasgow PhD Keele — *Geophysics.*
Parker, G. D., BA Acadia; MA Dalhousie; PhD Toronto — *English.*
Parker, G. L., BS, MA N Y U; OTR, OT Reg — *Occupational Therapy.*
Parker, J. M., MD Manitoba; DPH, PhD Toronto — *Pharmacology, Medicine.*
Parks, J. S., BSc (Pharm) Dalhousie — *Pharmacology.*
Parmar, R. S., MBBS Punjab; DCH (Eng); MRCP (Edin); DPM (Eng) — *Psychiatry.*
Parnell, A. G., FDS, RCS England — *Oral Surgery.*
Passi, R. B., MD, FRCS(C), FACS — *Surgery.*
Patel, R., LRCP SI Dublin — *Phsiology.*
Paterson, W. I., BPHE Toronto — *Physical Education (Education).*
Paton, G. A., BA, MA Michigan; PhD Illinois — *Physical Education.*
Patten, J. F., MD — *Family Medicine.*
Patterson, P. G. R., BA, MD, DCPsych; DPsych Toronto — *Psychiatry.*
Pattison, F. L. M., BA, MA, PhD, ScD Cantab; MD UWO; DipVen Liverpool — *Medicine.*
Paty, D. W., AB, MD Emory; FRCP(C) — *Clinical Neurological Science.*
Payne, N. C., BSc London; PhD Sheffield — *Chemistry.*
Peach, D. A., BSc, MBA Ohio; DBA Harvard — *Business Administration.*
Peacock, H. A., MA New Brunswick; MA London; MEd Toronto — *Philosophy (Education).*
Peacock, W. H., BASc, MASc Toronto; PhD California Berkeley; P Eng — *Engineering Science.*
Pearce, G. A., AB William & Mary — *Philosophy.*
Pearson, N., BA Durham — *Political Science.*
Pederson, D. R., BA Minnesota; MA, PhD Iowa — *Psychology.*
Peel, N. A., BA, LLB UWO; of Osgoode Hall (Bachelor-at-Law) — *Law.*
Pellow, W. R., BA Queen's; DDS Toronto — *Oral Medicine.*
Pendle, K., BA Minnesota; MM, PhD Illinois — *Music.*
Pendrill, G., BA, MA Cantab; Dip Lib London; FLA — *Library & Information Science.*
Pennington, P. W., BSc Windsor; MD Toronto — *Family Medicine.*
Pepper, D. S., BA Toronto; PhD Stanford — *Psychology.*
Percy, D. H., DVM Toronto; MSc Guelph; PhD Cornell — *Bacteriology & Immunology.*

Peterson, D., BA, MFA Utah — *Physical Education.*
Petrie, B., DPE Sydney; BPE Alberta; MA, PhD Michigan State — *Physical Education.*
Pfisterer, J., BScN, MScN — *Nursing.*
Philbrick, A. K., BA, MS, PhD Chicago — *Geography.*
Philp, R. B., DVM Toronto; PhD — *Pharmacology.*
Phipps, J. B., BSc Birmingham; PhD — *Plant Sciences.*
Pickard, H. A., MD, FRCP(C) — *Medicine.*
Piggott, G. L., BA West Indies; MA Toronto — *Anthropology.*
Piper, G. A., MD Toronto — *Family Medicine.*
Pirkle, J. C., BChE, MS, PhD Georgia Institute of Technology — *Physiology.*
Planck, R. J., BS, PhD California — *Zoology.*
Pleva, E. G., BA, MA, PhD Minnesota; LLD Waterloo Lutheran — *Geography.*
Plotkin, H. N., BA Michigan, PhD Johns Hopkins — *History of Medicine & Science SLIS.*
Plourde, C. G., BA, MA Queen's; PhD Minnesota — *Economics.*
Plunkett, E. R., MD, PhD, FRCP(C); FACOG — *Obstetrics & Gynaecology, Medicine Therapeutic Radiology.*
Pollock, E. M., BA, LLB Sask; of Osgoode Hall (Barrister-at-Law) — *Law.*
Poole, W. R., QC; BA Manitoba; of Osgoode Hall (Barrister-at-Law) — *Law.*
Porte, M. E., BA — *Psychology (Education).*
Porterfield, C. G., BHSc Guelph — *Home Economics (Education).*
Portis, B., BA, MA, PhD Harvard — *Business Administration.*
Pospielovsky, D., BA Sir George Williams; M Phil LSE — *History.*
Possmayer, F., BSc Toronto; PhD — *Obstetrics & Gynaecology, Biochemistry.*
Posthuma, B., DOT Toronto — *Occupational Therapy.*
Poucher, M. P., BSc, MSc, DIC London; P Eng — *Engineering Science.*
Pozsonyi, J., MD Pecs, Hungary — *Paediatrics.*
Pratt, G. E., BA, MD; CCFP — *Family Medicine.*
Procunier, E. R., MA Queen's; BA — *English (Education).*
Prodrick, R. G., BA, MA Toronto; MS Columbia — *Library & Information Science.*
Prueter, G. W., MD, BSc (Med) Toronto; MRCOG, FRCS(C) — *Obstetrics & Gynaecology.*
Prytulak, L. S., BA Toronto; PhD Stanford — *Psychology.*
Purdy, J. D., MA New Brunswick; PhD Toronto — *History of Education (Education).*
Purekevich, R., BA, MA, PhD — *German.*
Purkey, R., BSc Kalamazoo; PhD McGill — *Cancer Research Lab.*
Purko, J., BA, MSc, PhD — *Zoology.*
Purres, J., BSc Toronto; MD Ottawa; FRCP(C) — *Medicine.*
Pylyshyn, Z. W., *B Eng McGill; MSc, PhD Sask* — *Psychology, Computer Science.*
Quigley, R. M., BASc, MASc Toronto; PhD M I T; P Eng — *Engineering Science, Geology.*
Radcliffe, D. J., BA Cantab; MA, PhD Wisconsin — *History of Education (Education).*
Ragula, B. D., MD Louvain — *Family Medicine.*
Rai, J., MBBS, DMCW Calcutta; CRCP(C) — *Psychiatry.*
Rajan, B., BA, MA, PhD Cantab — *English.*
Rajic, D. S., MD Graz; FRCP(C) — *Paediatrics, Diagnostic Radiology; Paediatric Dentistry.*
Ralph, J. D., BA Queen's; PhD Chicago — *Classical Studies.*

Ramsay, I., LLB Edinburgh; LLM McGill — *Law.*

Ramzy, I., MB, BCh, DMScPath, MDPath Cairo; FRCP(C) — *Pathology, Dentistry, Obstetrics & Gynaecology.*

Rand, C. G., BA, Mt Allison; MDCM, Dipl Int Med McGill; CRCP(C), MPH Harvard — *Epidemiology & Preventive Medicine; Medicine.*

Randall, M. T. C., MRCS, LRCP (Eng), CRCP(C) — *Paediatrics.*

Rankin, S. A., BA, MA Sask; PhD Ottawa — *Mathematics.*

Rans, G., BA, MA Cantab; PhD Leeds — *English.*

Rao, V. S., BA Andrha; PhD Minnesota — *Economics.*

Raud, H. R., BSc, MSc, PhD McGill — *Obstetrics & Gynaecology.*

Ray, D. W., BA, MEd Alberta; PhD London — *History of Education (Education).*

Raymond, A. E., BA, MA Toronto; PhD Chicago — *Classical Studies.*

Rayner, W. B., BA, LLB UWO; LLM Yale; of Osgoode Hall (Barrister-at-Law) — *Law.*

Rayward, W. B., BA Sydney; Dip Lib NSW, MS Columbia — *Library & Information Science.*

Read, S. J., MCSP, ONC, MCPA — *Physical Therapy.*

Reaney, J. C., BA, MA, PhD Toronto — *English.*

Reavely, G. H., BA, MA, UWO; DIC Imperial College, London — *Geology.*

Reberg, D., BA, MA Western Michigan; PhD McMaster — *Psychology.*

Rechnitzer, P. A., BA, MD; MRCP (Edin); FRCP(C) — *Medicine.*

Reddon, J., DDS McGill — *Restorative Dentistry.*

Redekop, E. H., BA Manitoba; MA, PhD Toronto — *English.*

Redinger, R. N., BA, MD, FRCP(C) — *Medicine.*

Reese, L., MDCM Queen's; FRCS(C), FACS — *Surgery, Therapeutic Radiology.*

Reid, J. A., DDS Toronto — *Oral Medicine.*

Reid, W. C., DDS Toronto — *Oral Medicine.*

Reid, W. D., MD, FRCP(C) — *Paediatrics; Anaesthesia.*

Reid-Smith, E. A., BA, MB, BCh Dublin; DMRD London; CRCP(C) — *Diagnostic Radiology.*

Reilly, E. E., BSA Toronto; MS Wisconsin; FRSA — *Economics.*

Reis, C. M., BA, MA Oxon; PhD Michigan State — *Mathematics.*

Reitman, E., LèsL Paris — *Library & Information Science.*

Reitz, W. E., BS, PhD Penn State; MA Illinois — *Psychology.*

Rendall, J. A., BA Toronto; LLB Osgoode Hall; LLM Michigan; of Osgoode Hall (Barrister-at-Law) — *Law.*

Repo, R., MD Toronto; FRCS(C) — *Surgery.*

Reuber, G. L., BA, AM, PhD Harvard; FRSC — *Dean of Social Science.*

Rice, T. W., DDS Toronto; MSc London — *Oral Medicine.*

Richardson, J. R., BDHE Toronto; MSc Alberta; PhD Michigan — *Physical Education.*

Richardson, L. T., BA, McMaster, MA, PhD Toronto — *Plant Sciences.*

Richardson, R. A., BA Sir George Williams; MA McGill; PhD Wisconsin — *History of Medicine & Science, SLIS.*

Riese, R. R., BA, MA, PhD — *Psychiatry; Paediatric Psychology; Occupational Therapy.*

Rinco, S., MSc Comenius (Czechoslovakia); PhD UWO — *Mathematics.*

Rinehart, J. W., BA, MA Michigan State; PhD Ohio State — *Sociology.*

Riseling, R. A., BMEd Illinois Wesleyan; MM Texas — *Music.*

Ritcey, L. F. S., BA Mt Allison, MA Harvard; PhD Chicago; ASA, LLD Winnipeg — *Mathematics.*

Ritchie, C. S., LLB; of Osgoode Hall (Barrister-at-Law) — *Law.*

Roach, M. R., BSc New Brunswick; MDCM McGill; PhD, UWO FRCP(C) — *Biophysics, Medicine.*

Roberts, C., Reg N, BSc N; MEd Columbia — *Nursing.*

Roberts, R. J., DJur Georgetown; BESc; Member of the Bar for the District of Columbia — *Law.*

Roberts, T. R., BA — *Obstetrics and Gynaecology.*

Roberts, W. A., BS Maryland; MA, PhD Bryn Mawr — *Psychology.*

Robertson, J. M., DVM Toronto; MSc, Dipl Int Med Pennsylvania — *Epidemiology & Preventive Medicine.*

Robinow, C. F., MD Hamburg; FRSC — *Anatomy Bacteriology & Immunology.*

Robinson, H. C., MD — *Family Medicine.*

Robinson, H. M., Chem (Eng) Sweden — *Paediatrics.*

Robinson, I. J. W., BA, MSc Queen's; PhD UWO — *Mathematics.*

Robinson, J., BSA British Columbia; MSc, PhD McGill — *Bacteriology & Immunology.*

Robinson, J. B., MD Toronto — *Medicine.*

Robinson, J. B. C., MD, MSc — *Physical Medicine & Rehabilitation; Medical Ethics.*

Robinson, M. L., BA McMaster; MD; MRCOG, FRCS(C), FACS, FACOG — *Obstetrics & Gynaecology.*

Rodger, N. W., BSc, MD, BSc(Med) Manitoba; FRCP(C) — *Medicine.*

Rollman, G. B., BA Rochester; MA, PhD Pennsylvania — *Psychology.*

Romer, T., BS M I T; M Phil Yale — *Economics.*

Rosati, P. A., BA, MA Oxon; MESc — *Engineering Science.*

Rosé, A. E., BA — *Music.*

Rose, G. S., BSc, PhD Birmingham — *Physics, Faculty of Arts.*

Rosen, E., BScN McGill — *Nursing.*

Roslycky, E. B., BSc, MS Manitoba; PhD Wisconsin — *Bacteriology & Immunology.*

Rosner, S. D., BSc Toronto; AM, PhD Harvard — *Physics.*

Ross, C., BA UWO; MA Toronto — *English.*

Ross, M. H., BSc Dalhousie; LèsL Orléans-Tours; MA Dalhousie; D Ille C Orléans-Tours — *French.*

Rossiter, R. J., BSc Western Australia; BA, MA, DPhil, BM, BCh, DM Oxon; LLD York; FRIC, FCIC, FRSC — *Vice-Pres (Academic), Biochemistry.*

Rota, A. N., MD Toronto; MSc McGill; FRCP(C), FACP, FASCP — *Pathology.*

Roth, R. R., MSc Cluj; PhD Alberta — *Zoology.*

Rounthwaite, F. J., BSc, MDCM McGill; FRCS(C), FACS — *Otolaryngology, Physiology; Communicative Disorders.*

Rowbotham, B., BA, MA — *Sociology.*

Rowe, J. G., SB Harvard; BD Episcopal Theological School, College; MA PhD Toronto, DD Huron College — *Dean — Faculty of Arts, History.*

Rowland, F. H., BA — *Business Administration.*

Roy, C., BSc Laval; DIC, PhD London; P Eng — *Engineering Science.*

Rozanis, J., MSc Hebrew University Jerusalem; PhD McGill — *Bacteriology & Immunology.*

Ruby, R. R., BA, MD, FRCS(C) — *Otolaryngology.*

Ruprecht, A., DDS, MScD Toronto — *Oral Medicine; Diagnostic Radiology.*

Russell, A., MD Graz; D Psych McGill; CRCP(C) — *Psychiatry.*

Russell, E. S., BA, Dipl Med Sask; MD UWO; FRCP(C); FACA — *Anaesthesia.*

Russell, N. C., MBBS London; CRCP(C) — *Psychiatry.*

Ruttan, C. G., DDS Toronto — *Paediatric Dentistry.*

Ruud, C. A., BA Williamette; AM Harvard; PhD Berkeley — *History.*
Ryan, J. E., DDS Washington; MSc Ohio — *Restorative Dentistry.*
Ryans, A. B., BASc Waterloo; MBA Stanford — *Business Administration.*
Ryerse, S., B Mus — *Music.*
St. John, J. E., BA — *Secretarial Science.*
Sakmar, I. A., MSc Istanbul; PhD Berkeley — *Applied Mathematics.*
Sales, J. L., MD, FRCS(C) — *Surgery.*
Samuels, J. W., BA, LLB Queen's; LLM London; of Osgoode Hall (Barrister-at-Law) — *Law.*
Sanborn, C. E., BA, MA, PhD Toronto — *English.*
Sanders, J. B., BA, MA Manitoba; DU Paris — *French.*
Sanders, S., BPhil, MA, PhD Montreal — *Psychiatry.*
Sangal, S., MSc Agra; PhD Johns Hopkins — *Epidemiology & Preventive Medicine.*
Sangster, J. F., MD, CCFP — *Family Medicine.*
Sansom, T. R., BA New Brunswick; PhD London — *Political Science.*
Santosuosso, A., BA, MA, PhD Toronto — *History.*
Sanwal, B. D., BSc, MSc, PhD India; Dr. Nat Sci Zurich — *Biochemistry.*
Sapp, J. P., DDS Dalhousie; MS Michigan — *Pathology, Dentistry.*
Saraydar, A. C., BA California (L A); MA Chicago; PhD California (Berkeley) — *French.*
Saraydar, E., AB Syracuse; AM, PhD Rochester — *Economics.*
Saunders, J. T., AB Harvard; MA, PhD Ohio State — *Psychology & Sociology Althouse.*
Savage, J. F., RN Toronto, UWO; BA — *Sociology (Education).*
Scaldwell, W. A., MEd, EdD Toronto; BA — *Psychology (Education).*
Schachter, J., BA, MS CUNY; MA — *Family Medicine.*
Scheffman, D. T., BA Minnesota; PhD M I T — *Economics.*
Schincariol, A. L., BSc, MSc, Windsor PhD Toronto — *Biochemistry; Cancer Research Laboratory.*
Schloessin, H. H., BSc Zurich; PhD Cologne — *Geophysics.*
Schluetter, H. J., PhD Kiel — *German.*
Schmidt, P. K., BA, BEd, MEd Toronto — *Guidance (Education).*
Schnore, M. M., BA, MA, PhD McGill — *Psychology.*
Schofield, I. D. F., BA, DDS, Dip OS & Anaes Toronto; FRCD(C) — *Oral Surgery.*
Schulte-Albert, H. G., BA, BS Kent; MA, MS, PhD Case — *Library & Information Science.*
Schutte, R. M., BA, MA Toronto — *Library & Information Science.*
Schwartz, P. H. E., BA, LLB; of Osgoode Hall (Barrister-at-Law) — *Law.*
Scott, A., MCSP, BSc (PT) UWO; MSc Simon Fraser — *Physical Therapy.*
Scott, A. E., BSc, PhD St Andrew's — *Dean of Science, Chemistry.*
Scott, D. M., BSc, PhD McGill — *Zoology.*
Scott, G., ATCM, ACCO — *Music.*
Scott, M. S., BA Rice, Texas; MS Chicago; PhD Catholic Univ of America — *Applied Mathematics.*
Scott, R. E., BSc Durham — *Zoology.*
Scott, R. L., DDS, Dip Paed Toronto; FRCD(C) — *Paediatric Dentistry.*
Sea, T. F., BA Iowa; MA Berkeley — *History.*
Sears, G. A., MD, FRCP(C) — *Medicine.*
Sears, G. M., DDS Dalhousie — *Restorative Dentistry.*
Seder-Szabolcsi, I., MA of Music Budapest — *Music.*
Seguin, J. E., BSc Windsor; MD Ottawa — *Family Medicine.*

Seguin, J. J., BSc, MSc, PhD — *Physiology.*
Sehl, J. R., BA, MD; FRCS(C) — *Family Medicine.*
Seiffert, S. L., BM, DMA Eastman; MA Brown — *Music.*
Seldon, B., BA — *Secretarial Science.*
Sellery, G. R., MD, DA Toronto; DA England; FRCP(C) — *Anaesthesia, Physiology.*
Semotiuk, D. N., BPE, MA Alberta; PhD Ohio State — *Physical Education.*
Seneshen, M. J., BSc (Chem Eng), DDS Alberta — *Restorative Dentistry.*
Sergovich, F. R., BA McMaster; PhD — *Anatomy, Paediatrics.*
Setterington, K. R., DDS Toronto — *Restorative Dentistry.*
Sexton, G. B., MDCM Queen's — *Medicine.*
Shallenberg, R., BM, BMEd Phillips (Oklahoma); MM, DMA Illinois — *Music.*
Sharpe, J. R., BA, MD, FRCS(C) — *Surgery.*
Shaver, E. L., BSc, MSc, PhD — *Anatomy.*
Shaw, J. E., BA Toronto; MD Ottawa; CCFP — *Family Medicine.*
Shawyer, B. L. R., BSc, PhD St Andrew's — *Mathematics.*
Shea, H. L., Reg N, BSN Ed, MSN Texas — *Nursing.*
Shearer, R. S., BSc Edin; MSc New Brunswick; MD — *Family Medicine.*
Sheasby, J. S., BSc Birmingham; PhD NSW; P Eng — *Engineering Science.*
Shelstad, K. A., BE Sask; MSc Dalhousie; PhD Toronto; P Eng. — *Engineering Science.*
Shepherd, R. R., MD UWO; MSc McGill; FRCS(C) — *Surgery.*
Sherebrin, M. H., BSc (EP Eng. Phys) Manitoba; MSc, PhD UWO — *Biophysics, Engineering.*
Sherman, E. O., BSc Providence MSc PhD Illinois — *Chemistry.*
Shervill, R. N., BA, MA, PhD North Carolina — *Spanish & Italian.*
Shimeld, A. B., DOT McGill; BA Sask; OT Reg — *Occupational Therapy.*
Shivers, R. R., AB, MA, PhD Kansas — *Zoology.*
Shorten, S. J., MA Classics St Andrew's; MA Washington (St Louis) — *Philosophy.*
Shroyer, R. J., BA Yale; MA Toronto — *English.*
Siegel, J. A., BA Purdue; PhD Michigan — *Psychology.*
Siegel, W., BA Toronto; PhD Michigan — *Psychology.*
Siess, T. F., BA Valparaiso; PhD Minnesota — *Psychology.*
Silcox, J. A., MD; FRCS(C) — *Obstetrics and Gynaecology.*
Silcox, Jo Ann, MD, FRCP(C) — *Psychiatry.*
Sills, P. S., DDS Toronto — *Restorative Dentistry.*
Silverman, M. G., BA Harvard; MA, PhD Chicago — *Anthropology.*
Silverman, R. A., BA Toronto; MA, PhD Pennsylvinia — *Sociology.*
Simner, M. L., BA Syracuse; MSc North Caroline State; PhD Cincinnati — *Psychology.*
Simon, I. M., DDS — *Restorative Dentistry.*
Simpson, C. M., BA Notre Dame; MA, PhD Stanford — *History.*
Simpson, D. G., BA, MA, PhD — *Althouse — History of Education.*
Sinclair, N. R., BSc, MD, PhD Dalhousie — *Bacteriology & Immunology; Medicine.*
Singer, B. D., BA Wayne State; MA, PhD Pennsylvania — *Sociology.*
Singh, B., BA Lady Shri Ram College; MS Springfield — *Physical Education.*
Singh, R. P., BA, MSc, PhD UWO — *Anatomy, Paediatrics.*
Singhal, S. K., BSc Agra, India; PhD McGill — *Bacteriology & Immunology.*
Sinha, S. P., B Comm Poona; CWA Calcutta; MS (Bus Admin) Arizona; LLB Bombay; LLM, JSD Illinois; of Osgoode Hall (Barrister-at-Law) — *Law.*

Skelton, R. A., ARCT Toronto; Mus Bac Toronto; MM Indiana — *Music.*
Skinner, D. H., DDS Toronto — *Restorative Dentistry.*
Slan, J., BA York; MA Columbia — *English.*
Slater, P. E., MD, CRCP(C) — *Anaesthesia.*
Slemon, A. G., BA Manitoba; MA, PhD Toronto — *Psychology & Sociology (Education).*
Slinger, R. P., BA, MD Toronto; MRC Path, FRCP(C) — *Pathology, Dentistry.*
Sloan, W. G., BA, MD, FRCS(C) — *Obstetrics & Gynaecology.*
Smallbridge, J. E., BA, MA Toronto — *English (Education).*
Smeriglio, V. L., BA Brown; MA, PhD Iowa — *Psychology.*
Smet, E. F. M., BA, MA, PhD, UWO — *Mathematics.*
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Smith, B. E., B Comm Carleton — *Economics.*
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Smith, D. B., BA, MA British Columbia; PhD Toronto — *Biochemistry.*
Smith, D. M., BA, MD, CRCS(C) — *Otolaryngology.*
Smith, D. R., MD, FRCP(C) — *Medicine.*
Smith, E. A., BA, MD — *Edidemiology & Preventive Medicine.*
Smith, F., BA Mt Alison; MM UWO — *Music.*
Smith, J. M., DDS Toronto; CD — *Oral Medicine.*
Smith, M. E., BA Texas; MA Columbia; MA Yale — *English.*
Smith, P. A., BSc Liverpool; MBA — *Business Administration.*
Smith, R. J., MEd Toronto; BA — *Mathematics (Education).*
Smith, T., BA Cantab; PhD Johns Hopkins — *Geography.*
Smout, M. S., MD, MRC Path, CRCP(C), FCAP — *Pathology, Dentistry.*
Solomon, R., LLB Osgoode Hall; LLM Yale — *Law.*
Soltan, H. C., BA, PhD Toronto; MD — *Anatomy, Paediatrics.*
Somerset, J. A. B., BA Toronto; MA, PhD Birmingham — *English.*
Sommerfreund, J., BOT McGill; OTReg — *Occupational Therapy.*
Song, S. H., MD Korea; MA SUNY at Buffalo; PhD — *Biophysics.*
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Sorrentino, R. M., BA, PhD Suny at Buffalo; MA American — *Psychology.*
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Faculty of Music
Faculty of Science
Faculty of Social Science
Faculty of Physical Education
School of Business Administration
Faculty of Engineering Science
Faculty of Law
Faculty of Dentistry
Faculty of Medicine
Faculty of Nursing
Faculty of Graduate Studies
School of Library & Information Sc.
Education
Brescia College
Huron College
King's College
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