University of

Western Ontario

Arts and Science CALENDAR

University of

Western Ontario

LONDON • CANADA

University College

Middlesex College

Talbot College (1966)

The College of Science

The College of Music

and Affiliated Colleges

ARTS AND SCIENCE CALENDAR 1965-66

1965

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Academic Calendar

1965

July 5, Monday.....Summer Session begins

August 2 to 7
Monday to Saturday.....Supplemental examinations

August 18, Wednesday.....Summer Session ends

September 1, Wednesday.....Last day for receiving applications and certificates for intramural students

September 15, 16
Wednesday, Thursday.....All Freshmen enroll, Thames Hall

September 17, 18
Friday, Saturday.....All Upperclass students enroll, Thames Hall

September 20, Monday.....Lectures and laboratory work begins

September 23, 24
Thursday, Friday.....Faculty of Graduate Studies enrolls, 9.00 - 12.00 and 1.30 - 4.00 in Convocation Hall

October 5, Tuesday.....Council of the Faculty of Arts and Science

October 11, Monday.....Thanksgiving Day, Holiday

October 15, Friday.....Last day for the enrolment of full-time students. Last day for adding any subject

October 18, Monday.....Arts Educational Policy Committee of the Senate

October 27, Wednesday.....Executive Committee of the Senate

October 28, Thursday.....Meeting of the University Senate

October 29, Friday.....Autumn Convocation

November 2, Tuesday.....Council of the Faculty of Arts and Science

November 11, Thursday.....Remembrance Day Ceremony

November 15, Monday.....Arts Educational Policy Committee of the Senate

December 7, Tuesday.....Council of the Faculty of Arts and Science

December 13, Monday.....Arts Educational Policy Committee of the Senate

December 16, Thursday.....Executive Committee of the Senate

December 17, Friday.....Meeting of the University Senate

December 18, Saturday.....Christmas Vacation begins
First Term ends

The Academic Calendar

1966

January 3, Monday.....Lectures resume
Second Term begins

January 4, Tuesday.....Council of the Faculty of Arts and Science

January 6, 7
Thursday, Friday.....Summer School Supplemental Examinations

January 17, Monday.....Arts Educational Policy Committee of the Senate

February 1, Tuesday.....Last day for receiving applications for Graduation

February 1, Tuesday.....Council of the Faculty of Arts and Science

February 14, Monday.....Arts Educational Policy Committee of the Senate

February 21-26.....Conference Week

February 24, Thursday.....Executive Committee of the Senate

February 25, Friday.....Meeting of the University Senate

March 1, Tuesday.....Council of the Faculty of Arts and Science

March 7, Monday.....Founder's Day

March 14, Monday.....Arts Educational Policy Committee of the Senate

April 5, Tuesday.....Council of the Faculty of Arts and Science

April 8, Friday.....Good Friday, Holiday

April 9, Saturday.....Second term ends

April 11, Monday.....Arts Educational Policy Committee of the Senate

April 30, Saturday.....Examinations end

May 3, Tuesday.....Council of the Faculty of Arts and Science

May 16, Monday.....Arts Educational Policy Committee of the Senate

May 20, Friday.....Council of the Faculty of Arts and Science

May 24, Tuesday.....Executive Committee of the Senate

May 25, 26, 27, 28
Wed., Thur., Fri., Sat.....Spring Convocation

June 1, Wednesday.....Last day for receiving applications for Summer Session from students registering for the first time

June 15, Wednesday.....Last day for receiving applications for Summer Session from students previously registered

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The University

The University of Western Ontario is composed of The Faculty of Arts and Science, The Faculty of Medicine, The Faculty of Graduate Studies, The Faculty of Law, The School of Nursing, The School of Business Administration, The Faculty of Engineering Science and The Faculty of Dentistry. The Faculty of Arts includes the University Colleges: University College, Middlesex College, The College of Music, The College of Science and Talbot College; and the following arts colleges, affiliated with the University: Huron College, Brescia College, St. Peter's Seminary and Christ the King Colleges.

By its charter the University of Western Ontario may confer degrees, diplomas and certificates in any subject taught in the University or in theology as taught in any of the affiliated colleges.

The degrees conferred by the University are:

Honorary Degrees: Doctor of Divinity; Doctor of Science; Doctor of Laws; Doctor of Letters; Doctor of Music; Doctor of Civil Law.

Degrees by Examination: Bachelor of Arts; Bachelor of Laws; Bachelor of Science; Bachelor of Engineering Science; Bachelor of Science in Nursing; Bachelor of Divinity; Master of Arts; Master of Laws; Master of Science; Master of Clinical Science; Master of Science in Nursing; Master of Engineering Science; Master of Business Administration; Doctor of Medicine; Doctor of Divinity; Doctor of Philosophy.

The diplomas awarded by the University are:

Diploma in Business Administration; Diploma in Journalism; Diploma in Public Health Nursing; Diploma in Nursing Education; Diploma in Nursing Service Administration; Music Graduate in Paedagogy.

HISTORY

"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 in Medicine in 1883. In 1923 by Act of the Provincial Legislature, the name of the University was changed to "The University of Western Ontario". By an Act of 1955 its powers were further defined.

In 1912 control of the Medical School by a joint stock company ended and it became the Faculty of Medicine, under the direct control of the same Board of Governors as the rest of the University.

The Faculty of Arts was closed from 1885 to 1895. In 1908 its charter was amended so that it became undenominational and was permitted to receive financial assistance from the City of London and later from the Province.

In 1924 the Faculty of Arts was moved to the present campus and in 1943 was re-named the Faculty of Arts and Science. In 1958 Middlesex College was established within the Faculty of Arts and Science.

Music Teachers' College was founded in 1945 and affiliated with the University. In 1958 it became a college of the Faculty of Arts and Science. The work of the college was extended in 1961 and the name was changed to The College of Music.

The Institute of Public Health was opened in 1915 and in 1917 became the Faculty of Public Health. In 1946 one section became a Provincial Laboratory and the other section the School of Nursing which was re-located on the main campus.

A separate Faculty of Graduate Studies was created in 1947 although post-graduate degrees had been conferred for many years.

The School of Business Administration was founded in 1950. Business Administration had been an honors program offered in the Faculty of Arts from 1920 to 1950.

The Faculty of Law was established in 1958.

In 1960 the Faculty of Engineering Science was established. From 1954 to 1960 Engineering Science was an honors program in the Faculty of Arts and Science.

The Faculty of Dentistry was established in 1964.

LIBRARY

Arts and Science students have available the resources of the General Library, housed in the Lawson Memorial Library Building, and those of three reading rooms in the Physical and Chemical Sciences and Biological and Geological Sciences Buildings and Middlesex College. In addition, there are extensive collections of books and periodicals covering specific subjects in Business, Engineering, Law, Medicine, Music and Nursing. These collections are designed primarily for the use of students in these fields, but they may be consulted by any registered student.

The book collections of the University total more than 312,000 volumes. Currently the University receives annually about 3,200 periodicals in all subjects and in many languages.

Detailed information is provided in "The Students' Guide to the Library" which is given to freshmen at registration.

The Board of Governors

Officers of the Board:

Lt.-Col. D. B. Weldon, Chairman.

Mr. W. L. Duffield, Vice-Chairman.

Mr. F. H. Rowland, Secretary.

Ex officio Members:

The Chancellor, The President, The Vice-President, His Worship the Mayor of London, The Warden of the County of Middlesex.

Honorary Members:

Dr. Arthur R. Ford.

Appointed Members:

By the Lieutenant-Governor in Council—Mr. W. L. Duffield, Brig. W. H. Hemphill, Mr. J. O. Hughes, Lt.-Col. D. B. Weldon.

By the London City Council—Capt. Joseph Jeffery, Mr. Robert H. Reid, Lt.-Col. J. Gordon Thompson.

Elected Members:

By the Board of Governors—Mr. W. J. Blackburn, Mr. A. E. Shepherd, Mr. C. F. Stevens, Mr. J. H. Stevens.

By the Alumni Association—Dr. C. Y. Hauch, Mr. K. S. Murray.

The Senate

Officers of the Senate:

The President and Vice-Chancellor (Chairman), The Vice-President of the University (Vice-Chairman), The Registrar (Secretary).

Ex officio Members:

The Chancellor, the Vice-Chancellor, the Vice-President of the University; the Vice-President (Arts and Science), the Vice-President (Health Services), the Dean of University College, the Dean of Middlesex College, the Dean of the College of Music, the Dean of the College of Science, the Principal or other head of each affiliated college, the Dean of each Faculty and School of the University, the Librarian, the Chairman of the Board of Governors, the Registrar, the Director of the Summer School and Extension Department, the Director of the French Summer School, the President of the General Alumni Association (or his deputy).

Elected or Appointed Members:

Ten representatives of the General Alumni Association.

Six representatives of the City of London (three appointed by the City Council, two by the Board of Education, and one by the Separate School Board).

Four representatives, to be elected from their own number by the Principals of the Secondary Schools in the fourteen counties of Western Ontario listed below.

The following number of representatives of each Faculty and School of the University (in addition to its Dean): The Faculty of University College—three; the Faculty of Middlesex College—two; the Faculty of Medicine—two; the Faculty of the College of Science—one; the Faculty of Graduate Studies—one; the School of Nursing—one; the School of Business Administration—one; the Faculty of Engineering Science—one.

One representative of each of the following: The Board of Governors; each affiliated college which offers a degree program; each City Council and each County Council in the Counties of Brant, Bruce, Elgin, Essex, Grey, Huron, Kent, Lambton, Middlesex (except the City of London), Norfolk, Oxford, Perth, Waterloo and Wellington; the graduates of each affiliated college.

University Officers

(Unless otherwise stated, degrees are from this university)

Visitor: His Honor, the Lieutenant-Governor of Ontario.

Chancellor: Verschoyle P. Cronyn.

President and Vice-Chancellor: George Edward Hall, B.S.A., M.S.A., M.D., Ph.D., Toronto; D ès Sc., Laval; LL.D., F.R.S.C.

Vice-President of the University: Ross Baxter Willis, B.A., M.A.

Vice-President (Arts and Science): Mark Keith Inman, B.A. Acadia; M.A., Ph.D. Harvard

Vice-President (Health Sciences): Orlando Harold Warwick, B.A. Mount Allison; M.D.C.M. McGill; M.A. Oxon.; M.R.C.P., F.A.C.P.

Dean of Men: Thomas Leslie Hoskin, B.A., M.A., Northwestern.

Dean of Women: Leola Ellen Neal, B.A., M.A.; Ph.D., Toronto.

Comptroller: R. R. Glover, B.A.

Chief Librarian: James John Talman, B.A., M.A.; Ph.D., Toronto; D.Litt, Waterloo; F.R.S.C.

Physician: Richard John Bowen, B.A., M.D.

Registrar: James Keith Watson, B.A., M.A., McMaster; M.A., Ph.D., Toronto.

Administrative Departments

Alumni:

Director: George Hartwell, B.A.

Athletics:

Director of Intercollegiate Athletics: John Pius Metras.

Business Manager of Athletics: Ernest Slatter.

Buildings and Grounds Department:

Superintendent: John Shortreed, B.A.Sc., Toronto.

Assistant Superintendent: R. M. Yeo, B.Sc., Queen's.

Comptroller: R. R. Glover, B.A.

Food Services Department:

Manager: George A. Bullas.

Library:

Chief Librarian: James John Talman, B.A., M.A., Ph.D., Toronto; D.Litt., Waterloo, F.R.S.C.

Deputy Chief Librarian: John F. Macpherson, B.A., A.L.A.

Assistant Librarian-Administration: Lillian Rea Benson, B.A.

Chief, Technical Services: E. Jean Elson, B.A., B.L.S., McGill.

Museum of Indian Archaeology:

Honorary Curator: Wilfrid Jury, D. ès L., Montreal.

Honorary Assistant Curator: Elsie McLeod Jury, B.A., B.L.S., Toronto; A.M. Columbia.

Registrar's Office:

Registrar: James Keith Watson, B.A., M.A., McMaster; M.A., Ph.D., Toronto.

Assistant Registrar: Margaret P. May, B.A.

Admissions Officer: George Lionel Amyot, B.A. Manitoba

Faculty of Arts and Science

Vice-President (Arts and Science): Mark Keith Inman, B.A., M.A., Ph.D.

UNIVERSITY COLLEGE

Dean: Albert William Trueman, B.A., M.A., D.Litt., LL.D.

MIDDLESEX COLLEGE

Dean: Robert Newton Shervill, B.A., M.A., Ph.D.

TALBOT COLLEGE (1966)

Dean: Donald Gordon Grady Kerr, B.A., Ph.D.

COLLEGE OF SCIENCE

Dean: Robert James Uffen, B.A.Sc., M.A., Ph.D., P.Eng., F.R.S.C.
Assistant Dean: George Harold Reavely, M.A., D.I.C.

COLLEGE OF MUSIC

Dean: Clifford von Kuster, Mus. Bac.

AFFILIATED COLLEGES

The affiliated colleges are associated with the University Faculty of Arts and Science. See Affiliated Colleges section.

Admission Requirements

FIRST YEAR — GENERAL REQUIREMENTS

The academic requirement for admission to the first year is a minimum average of 60% on nine units of Ontario Grade 13 or equivalent standing which must include:

English, 2 units; Latin or Mathematics (two of Algebra, Analytic Geometry, Trigonometry), 2 units; a language other than English chosen from French, German, Spanish, Russian, Italian, Greek, and Latin if not already chosen above, 2 units; three other units not already chosen above from the following one-unit examinations: Algebra, Analytic Geometry, Trigonometry, Botany, Zoology, Chemistry, Physics, History, Geography, Music, Art; and the two-unit language examinations listed above, 3 units.

The following Western Ontario Conservatory of Music, or equivalent, Certificates are accepted in lieu of one unit of 1965 Ontario Grade 13 standing: Grade 8 Practical with Grade 2 Theory; or Grade 4 Theory.

The overall average for admission is calculated on the basis of nine units of Ontario Grade 13 or equivalent standing. The one-paper Ontario Grade 13 examinations in English and the languages written in June 1965 are considered to be 2-unit examinations in the calculation of the overall average for admission to this University in September, 1965. The marks obtained in the English and the language examinations are doubled.

The marks obtained in Music examinations other than Grade 13 Music are not used in the calculation of the overall average. The overall average of a student who submits Music certificates in lieu of one unit of Grade 13 standing is calculated on the basis of the other eight units.

REQUIREMENTS FOR SPECIFIC PROGRAMS

General Program 2 (Arts): Ontario Grade 13 or equivalent standing: English (2 units), a language other than English (2 units), Latin or Mathematics (2 units) and three other units. A minimum overall average of 60%.

General Program 1 (Science): Ontario Grade 13 or equivalent standing; English (2 units), a language other than English (2 units), Mathematics (3 units — Algebra, Analytic Geometry and Trigonometry), Physics (1 unit), Chemistry (1 unit). A minimum overall average of 60% and a minimum average of 60% for the Science and Mathematics units. Students who plan to take an Honors program in Biology or to qualify for admission to the Faculty of Medicine in two years may substitute Grade 13 Botany or Zoology for Trigonometry.

Pre-Business: Ontario Grade 13 or equivalent standing; English (2 units), a language other than English (2 units), Mathematics (2 units) and three other units. A minimum overall average of 60%.

General Program — Secretarial Science Options: Ontario Grade 13 or equivalent standing; English (2 units), a modern language other than English (2 units), Mathematics or Latin (2 units) and three other units. A minimum overall average of 60%.

General Program — Home Economics Options: Ontario Grade 13 or equivalent standing; English (2 units), a language other than English (2 units), Latin or Mathematics (2 units), one unit of Physics, Chemistry, Botany, Zoology and two other units. A minimum overall average of 60%.

Bachelor of Science in Nursing — Program A: Ontario Grade 13 or equivalent standing; English (2 units), a language other than English (2 units), Latin or Mathematics (2 units), two units of Botany, Zoology, Physics, Chemistry and one other unit. A minimum overall average of 60%. A minimum Science average of 60%.

Music Program — Bachelor of Music — Bachelor of Arts — Four Year Honors Programs and Three Year General Program: Ontario Grade 13 or equivalent standing; English (2 units), a language other than English (2 units), other subjects (3 units). Minimum acceptable average of 60%. The following Conservatory of Music Certificates are required: Grade 8 Practical, Grade 2 Theory and Grade 3 Harmony. Grade 2 Piano for instrumentalists and vocalists is recommended. All applicants must pass an audition test at the College of Music.

ACADEMIC STANDING ACCEPTED AS EQUIVALENT TO ONTARIO GRADE 13 STANDING FOR ADMISSION

Canada (provinces other than Ontario)

Academic standings accepted as equivalent to Ontario Grade 13 standing for admission are:

Newfoundland, First year Memorial University; Nova Scotia, Grade 12, or first year Nova Scotia Universities; New Brunswick, Grade 13 or first year New Brunswick Universities; Prince Edward Island, third year Prince of Wales College; Quebec, Grade 12 (fifth year high school), or first year McGill, Sir George Williams, Bishop's Universities or Loyola College, or Senior School Certificate McGill University; Manitoba, Grade 12; Saskatchewan, Grade 12; Alberta, Grade 12; British Columbia, Grade 13, or first year University of British Columbia, Victoria University or Notre Dame University (Nelson).

The United Kingdom and other Commonwealth Countries

Academic standings accepted as equivalent to Ontario Grade 13 standing for admission are: The General Certificate of Education (G.C.E.) showing passes in 5 subjects of which at least 2 must be at the Advanced (A) level, or passes in 4 subjects of which 3 must be at the Advanced (A) level. These subjects must include, English, a language other than English, Latin or Mathematics and other subjects appropriate to the program to which admission is sought.

School or Higher School Certificates are equated to the General Certificate of Education. On the School Certificate credits are accepted as Ordinary (O) level passes on the G.C.E. On the Higher School Certificate subsidiary passes are accepted as (O) level passes on the G.C.E. and principal or main subject passes as (A) level passes on the G.C.E.

The United States of America

Academic standings accepted as equivalent to Ontario Grade 13 standing for admission are United States high school graduation (Grade 12) diploma and at least 30 semester hours of credit at the Freshman level at an American university in subjects corresponding to the required Ontario Grade 13 papers listed above. The Freshman program should include 6 semester hours of English,

6 semester hours in Latin or Mathematics (two of Algebra, Analytic Geometry and Trigonometry), 6 semester hours in a language other than English and at least 12 semester hours in subjects appropriate to the program to which admission is sought. The language other than English must be a language studied in both high school and in the Freshman year.

Hong Kong

Academic standings accepted as equivalent to Ontario Grade 13 standing for admission are The Matriculation Certificate of the University of Hong Kong, or the General Certificate of Education, or School and Higher School Certificates with passes in at least 5 subjects of which at least 2 must be at the Advanced level while the others may be at the (O) level. These subjects must include English, a language other than English, Latin or Mathematics and other subjects appropriate to the program to which admission is sought.

ADMISSION WITH ADVANCE STANDING

Students from other universities, colleges and institutions of post-secondary education may be admitted to the Faculty of Arts and Science with advance standing if they are acceptable for admission to the institutions from which they wish to transfer.

Undergraduate credits obtained while in attendance at another university will be assessed in terms of advance credit at this University by the Admissions Committee of the Faculty of Arts and Science. The amount of advance standing that may be granted is limited by the residence requirement of the University of Western Ontario.

Each application for admission with advance standing will be dealt with individually by the Admissions Committee.

FACILITY IN ENGLISH

Students at the University of Western Ontario must have sufficient facility in the use of the English Language to understand and profit from instruction given in English. Therefore all applicants whose native language is not English are to submit with their applications evidence acceptable to this University of their proficiency in English. Normally the following evidence is acceptable:

Standing in English Composition and Literature in Ontario Grade 13 or equivalent examinations.

Pass standing at the (O) level in English Literature and English Language on the G.C.E. or the Matriculation Certificate of the University of Hong Kong.

Satisfactory standing in the University of Michigan English Language Test.

The Certificate of Proficiency in English issued by the University of Cambridge.

Other evidence of adequate facility in English will also be considered.

For information concerning the administration of the University of Michigan English Language Test in most countries of the world write to the Admissions Officer, The University of Western Ontario, London, Canada.

The Admissions Committee may permit an undergraduate student to offer English at the University level as his foreign language when he already has a mastery of another acceptable language. This regulation shall apply to the student whose native language is not English, provided he has not completed Grades 7 to 13 in Ontario Schools (or their equivalent in other provinces of Canada, or in English-speaking countries).

MATURE APPLICANTS

Adults who are at least 25 years of age and whose academic qualifications do not meet in full the published admission requirements are eligible to apply for admission to register as Adult Special Students in the first year of General Program 2 (Arts).

Mature applicants whose academic qualifications do not meet the admission requirements in full are not permitted to register in the first year of General Program (Science).

Mature applicants must submit evidence of their ability to succeed in academic courses at the university level and must obtain satisfactory scores in aptitude tests administered by the University. The fee for aptitude tests administered at the University is $5.00 a person and it is $10.00 a person for tests administered at an approved examination centre outside the University. Applicants may write the aptitude tests by appointment in Room 110, Stevenson Hall at 9:15 a.m. on any Saturday from the 3rd of April to the 28th of August, 1965.

ADMISSION OF TEACHERS (ONTARIO)

Teachers of any age, whose academic qualifications do not meet in full the normal admission requirements, but who have completed successfully the one-year course at an Ontario Teachers' College (admission requirement — 8 Ontario Grade 13 papers), have completed at least two years of employment as full-time teachers and have obtained satisfactory scores in aptitude tests, may apply for admission as Adult Special Students to register in the first year of General Program Two (Arts).

All applicants in this category must write the aptitude tests described above.

Admission Procedures

All prospective students who have not previously attended the University of Western Ontario must submit a completed Application For Admission form with the required supporting documents to the Admissions Officer before the prescribed terminal date.

TERMINAL DATES

The following are the final dates on which applications for admission will be accepted:

1965 Summer Session ..... 1 June, 1965

1965-66 Winter Session (intramural students)

Applicants from countries other than Canada, students from other Canadian Universities, Mature Applicants and Teachers .... 15 July, 1965

High School students from Canadian Provinces other than Ontario ..... 15 August, 1965

Ontario Grade 13 students ..... 1 September, 1965

Extension and Correspondence Courses 1965-66 Winter Session .... 1 September, 1965

Admission Procedures

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HOW TO APPLY

Application forms may be obtained from the principals or the head of Guidance Departments of Ontario Secondary Schools, or by writing to the Admissions Officer, The University of Western Ontario, London, Canada.

Completed application for admission forms and the required supporting documents are to be mailed to the Admissions Officer, University of Western Ontario, London, Canada as early as possible in 1965.

It is the responsibility of each applicant to insure that the following certificates, documents and information accompany his application for admission:

A regular full-time day student in Grade 13 in 1964-65 must submit the following supporting documents:

A Confidential Report of Secondary School Record mailed directly to this University by the Principal or Director of the Guidance Department.

Original Grade 13 Certificates for all Grade 13 examinations written in 1964, 1963, 1962 or previous years, and original Conservatory of Music Certificates submitted in lieu of Grade 13 standing.

An applicant who is attending or has attended institutions of post-secondary education must submit the following supporting documents:

A Confidential Report of Secondary School Record mailed directly to this University by the Principal or Director of the Guidance Department of the last secondary school attended.

Original Grade 13 Certificates for all Grade 13 examinations written in 1964, 1963, 1962 or previous years.

Official Certified Transcripts of academic record mailed directly to this University by the Registrars of the institutions attended.

An applicant whose full-time formal education has been interrupted for more than four months must submit the following supporting documents:

A Confidential Report of Secondary School Record mailed directly to this University by the Principal or Director of the Guidance Department.

Original Grade 13 Certificates for all Grade 13 examinations written in 1964, 1963, 1962 or previous years.

Official Certified Transcripts of academic record mailed directly to this University by the Registrars of the institutions of post-secondary school education attended.

A Resume of occupation or employment for all the academic years (September to June), during which the applicant has not been a full-time day student, confirmed by letters from employers.

A mature applicant for admission as an Adult Special Student must submit the following supporting documents:

A Confidential Report of Secondary School Record mailed directly to this University by the Principal or Director of the Guidance Department of the last Secondary School attended.

Original Grade 13 Certificates for all Grade 13 examinations written in 1964, 1963, 1962 or in previous years.

A Resume of occupation or employment for all the academic years (September to June) during which the applicant has not been a full-time day student, confirmed by letters from employers.

A Birth Certificate or other proof of age.

All mature applicants must obtain satisfactory scores in aptitude tests.

A married woman must submit her Marriage Certificate with her supporting documents if they bear her maiden name.

Copies of Grade 13 certificates will be made at the University and the originals will be returned promptly.

Applicants for admission in September, 1965 should note that the holding of the published minimum academic requirements for admission does not guarantee admission but means that they are eligible for selection for admission.

Fees

Fees are due and payable in full on registration day but if necessary the fees may be divided into two instalments payable on the first day of each term. The extra charge for this division is $5.00.

Students may not attend lectures or examinations, nor may they 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 or Principal of their Faculty and the Comptroller.

Students registered in a College of the University and transferring during the same year to an affiliated college will be charged by the University, on such transfer, a minimum penalty of $50.

Students transferring from an affiliated college to the University under similar circumstances will be charged by the University the full annual fee for the year regardless of the date of the transfer.

The Board of Governors reserves the right to amend fees after the printing of this list.

ANNUAL FEES

Full-time intramural undergraduate students:

The following amounts include, for full-time students Student Activity and Health Insurance fees totalling $51.50.

Arts and Science (all courses and years)	$515
If paid in two instalments	
Registration day	$300
First day of Second Term	$220
Late Registration Fee	
First day	$ 10
each day additional	$ 3
Maximum	$ 25

Part-time Intramural Students

Per Course	$100
Laboratory Fee	$ 10

Summer School, Extension and Correspondence Students

Per Course	$100
Laboratory Fee	$ 10
per Half Course	$ 50
Non-Credit	$ 50

Late Registration Fee

Applicable to all Part-time fees	$ 5

EXAMINATION FEES

Payable at time of application for any of the following:

Supplemental, each paper	$ 10
Presiding fee at an outside centre, each half-day	$ 5
Aptitude Test	$ 5
Special examination	$ 15

CERTIFICATES

Evaluation of non-Canadian certificates for admission	$ 2
Transcript of record, first two copies, each	$ 1
Additional copies, each	.25

DEGREES AND DIPLOMAS

Degree of B.D.	$ 24

(The fees for all other degrees and diplomas are included in the annual fees.)

STUDENT EXPENSES

A statement of annual expenses can, at best, be approximate; purely personal items (e.g. laundry, clothes, recreation, transportation) are not included in the summary below and in other items individual tastes may vary. The following is a suggestion only:

Tuition and incidental fees	$ 515	to	$ 550
Board (34 weeks)	$ 650	to	$ 700
Books and supplies	$ 60	to	$ 80
	$1,225		$1,330

Residence Accommodation

Accommodation for approximately 1500 students is provided in the University Residences, the affiliated Colleges and Westminster College.

UNIVERSITY RESIDENCES

Spencer Hall, for women, 551 Windermere Road, has a capacity of 104. Freshmen in the Colleges of the University are given preference. Fees are $650.00 for the academic year. For information write to: Dean of Women, University of Western Ontario.

Medway Hall and Sydenham Hall, for men, University Drive, have a combined capacity of 600. Freshmen are given preference but some accommodation is reserved for students in other years, graduates and foreign students. Fees are $700.00 for the academic year. For information write to: The Warden, Medway Hall, University of Western Ontario.

AFFILIATED COLLEGES

Brescia College, for women, Western Road, has accommodation for 120 students. Only students enrolled in Brescia College are accepted for residence. For information write to: The Dean, Brescia College.

Huron College, adjacent to the University campus on Western Road, has accommodation for 200 men and 100 women in residence halls. A few students of other colleges are accepted. For information write to: the Warden, Huron College, London, Ontario.

Christ the King College, for men, Waterloo Street North, has accommodation for 110 students. Preference is given to students enrolled in Christ the King College but students from other colleges are accepted. For information write to: Dean of Residence, Christ the King College.

WESTMINSTER COLLEGE

United Church residences for men and women on Richmond Street at the north end of the campus, has accommodation for 117 men and 113 women. Freshmen are given preference, but some accommodation is available for students in other years, graduates and foreign students. For information write to: the Bursar, Westminster College.

NEWMAN HOUSE

For Roman Catholic Students. Accommodation is available for 14 men at 76 Albert St. For information write to Rev. P. E. Crunican, College of Christ the King, Waterloo St. North.

HOUSING BUREAU

Students who will not be living in residence may apply to the Housing Bureau, Room 26, Thames Hall, between August 1st, and October 9th, for assistance in finding accommodation in private homes in the University area. Students registering in an affiliated college should apply to the Dean of Residence of their college for assistance in finding private accommodation.

As it has proved impracticable to send out lists of boarding houses in advance, students are required to inquire in person to the Housing Bureau. Freshmen, however, should not make application until they have been granted official permission to register at the University. While it is not possible to guarantee accommodation for married students the bureau does lend every assistance possible on their behalf.

The bureau office is open Monday through Saturday noon except on Civic Holiday and Labour Day week-ends when it will be closed from Friday until Tuesday morning.

Health Services

A physical examination by a practising physician is required of all students who are enrolling in this university for the first time as intramural students in the winter session. This is the responsibility of the incoming student prior to registration, the information to be submitted on the form supplied.

The Health Services operate a clinic, room 17, Thames Hall, where students may consult the university physicians for preliminary diagnosis, minor treatment or advice. A Victorian Order Nurse is in attendance. The Health Service secretary deals with inquiries and assists with insurance claims.

All students must take intracutaneous testing for tuberculosis at the time arranged during the school year. Students showing a positive reaction must have a chest x-ray, this to be repeated each year. No further skin testing will be carried out on previous known positives. Students showing a negative reaction are to have test repeated each year.

Examination results will not be sent to students who fail to observe these regulations.

Since January 1959, the Ontario Plan of Hospital Care Insurance offered by the Ontario Hospital Services Commission has been the only form of basic hospitalization permitted in Ontario. All students are expected to possess this protection as individuals or, if under 19 through their parents' policies.

Students registering for the first time from provinces which do not possess a reciprocal provincial hospital scheme, and those coming from outside Canada, are reminded that the Ontario Plan now requires a three months' waiting period before benefits may be obtained.

Medical in-hospital, surgical and diagnostic benefits are arranged by the university for all full-time students through a group of associated life insurance companies.

Conduct of Students

The Board of Governors and the Senate have established the regulations and the conditions of admission to and continuance at the University. The payment of tuition fees, which represent approximately one-third of the cost to the University of a student's education, does not alone entitle the student to membership in the University. As the Senate imposes academic standards so, too, the Board of Governors requires a standard of personal conduct in keeping with the status of a university student. The following regulations must be observed by all students:

All students are expected to conduct themselves in a manner becoming scholars and ladies and gentlemen. The University reserves the right at any time to suspend or dismiss a student whose conduct or academic standing is in its judgment unsatisfactory.

Intoxication, or disorder and bad manners arising from the use of alcoholic beverages, are particularly serious offences and may subject the student involved to the penalty of suspension or dismissal from the University.

Any student may be placed under discipline when, in the opinion of the Dean of a Faculty or the Dean or Principal of a College or School, his attitude toward his University obligations has been unsatisfactory.

All regulations relating to the conduct of students shall extend to conduct anywhere off the campus in circumstances that by any means associate the student with the University, as, for example, while going to or returning from, or attending in a group of any number, a sports contest or other activity, in which representatives of this and/or other universities participate.

A student who is suffering from any illness or physical disability is expected to report it immediately to the University Health Office even if he or she is to be treated by physicians outside the University.

The Board of Governors grants permission to students to bring car into the grounds of the University on condition that the University's traffic regulations are obeyed and that the cars are parked in parking areas designated by the Board. This general privilege may be restricted by the Board from time to time as need arises, and will be withdrawn from any student who persistently disobeys the regulations. Campus parking for students may have to be restricted very soon due to the rapidly growing enrolment of the University. Students are advised to avoid bringing cars on the campus. Bus service within the City is able to supply adequate transportation from almost any part of London to bus stops throughout the campus.

The Board of Governors reserves the right to establish regulations with respect to dress as well as conduct on the premises of the University.

"Hazing" and/or "initiation" of University students is prohibited by virtue of a 1934 resolution of the Board of Governors.

The Board of Governors collaborates fully with the University Students' Council in the interpretation and enforcement of these regulations.

STUDENT ACTIVITIES

No class or group of students may engage in any public effort as a body representing the University or any organization within the University without the permission of the Advisory Committee of the Board of Governors. Nor may the name of the University be used in any publication without the permission of the Advisory Committee.

The constitution of any proposed club or society sponsored by the University Students' Council must be approved by the Advisory Committee before such organization can be recognized.

Military Studies

Military Studies may be credited as a half course in the General Program.

THE RESERVE PLANS

The Canadian Officers' Training Corps (COTC) of the Canadian Army, and the University Reserve Training Plan (URTP) of the Royal Canadian Air Force offer undergraduates a training plan to qualify for the Queen's Commission in the service of their choice while attending University.

Winter Training is one night a week up to a maximum of 64 hours a winter for three or four academic years with pay up to a maximum of 16 days (approx. $120) a winter.

Summer Training, taken with the Regular Force, is a minimum of 12 weeks up to a maximum of 15 weeks for a minimum of two summers and, for selected cadets, a third summer. Summer pay is at the rate of $235.00 per month. Rations, quarters, transportation, uniforms, and medical and dental care are provided during the summer training period.

When the student completes the service training program and graduates from University, he will have qualified for the Queen's Commission, to serve voluntarily with the Regular Force, the Active Reserves or be transferred to the Non-active Reserves.

After registering at the University apply to: The Canadian Officers' Training Corps, Room 113, Thames Hall or, 105 University Squadron RCAF, Room 112, Thames Hall.

THE REGULAR FORCE PLANS

The Tri-Service Regular Officer Training Plan (ROTP) is a completely subsidized university plan covering tuition, books, year-round room and board, pay, and medical and dental care for up to four years of undergraduate study.

The University Medical Subsidization Plan (USMP) covers the above, with the addition of a graduated pay and rank throughout four years of undergraduate study.

Graduates of these plans are commissioned in the Regular Force and are given the option of a Permanent Commission or release after four years' Regular Service for members of the ROTP and three years' Regular Service for members of the UMSP.

Apply to ROTP or UMSP Selection Board, National Defence Headquarters, Ottawa, or to the service of your choice, as shown above, at any time after acceptance at university and prior to graduation.

Admission Scholarships

Candidates must notify the Registrar of the University of Western Ontario of their intention to compete for Admission Scholarships in the following June, by submitting a Scholarship Application Form by May 1st. For certain scholarships, "Application for Specific Scholarships" is required. Where an additional application is required it is indicated in the description of the award.

Application forms are available at the Office of the Registrar or at Secondary Schools. Information on Admission Scholarships for applicants outside the Province of Ontario may be obtained, on request, from the Registrar.

The colleges of the University are: University College, Middlesex College, The College of Music. Information concerning scholarships tenable at any of the affiliated Colleges may be obtained from the Registrar of that College.

Scholarships are awarded on the results of the Ontario Grade 13 examinations. Each candidate must write at least six units to compete for any scholarship, and must write all the units on which a specific award is based. No scholarship will be awarded unless the candidate obtains an average of First Class Honors (75%) on the units involved in the award. Aegrotat standing in cases of illness will not be considered.

Scholarships may not be deferred. Winners must register for a full year's work in the academic session following the award. In order to retain the privilege of continuing scholarships, the winners must maintain a required degree of proficiency in each year of their academic program.

Two U.W.O. Board of Governors' Scholarships (No. 1): Value $900 ($300 in the first year, $200 in each of the next three years) for the highest standing on nine Grade 13 units; (i) English (2), Mathematics (2), History (1), and two languages (4); (ii) English (2), Mathematics (3), a language (2), and either Physics (1) and Chemistry (1) or Botany (1) and Zoology (1).

Four U.W.O. Board of Governors' Scholarships (No. 2), Value: $500 ($300 in the first year, $200 in the second year for the highest standing on six Grade 13 units: (i) French (2) and two other languages (4). (ii) Mathematics (3), Physics (1), and two other units (2). (iii) Biology (2), Mathematics (2) and two other units (2). (iv) Latin, French, and German or Greek or Spanish.

U.W.O. Board of Governors' Scholarships (No. 3): Value $200 payable the first year for one student in **each regional secondary school** in the counties of Brant, Bruce, Elgin, Essex, Grey, Huron, Kent, Lambton, Middlesex, Norfolk, Oxford, Perth, Waterloo and Wellington and all the cities situated therein who obtains the highest standing in nine Grade 13 units chosen from English, French, German, Greek, History, Latin, Mathematics, Spanish, Botany, Zoology, Physics, Chemistry, and Geography.

***Nine* U.W.O. Board of Governors' Scholarships (No. 4):** Value $100 payable the first year of a minimum average of 75 per cent on six Grade 13 units and the highest standing in ONE of the following subjects Latin (2), Greek (2), English (2), Mathematics (3), French (2), German (2), Biology (2), Physics and Chemistry (2), or Geography and History (2).

Aluminum Company of Canada Limited Scholarship: Value $500 payable the first year for the highest standing on six Grade 13 units: Physics, Chemistry, Mathematics (any 2 papers) and two other units.

Harriet M. Giddens Scholarship: Value $200 payable the first year for the highest ranking student from the City of London who has not qualified for a more valuable award. The capital fund for this Scholarship was bequeathed to the University by the late Harriet M. Giddens of London.

The London Life Actuarial Scholarship: Value $2400 ($600 in each of the four years) for a student entering the Honors Mathematics or Honors Mathematics and Physics program to take the actuarial option. Based on highest standing in nine Grade 13 units, with high standing in Mathematics. Specific Scholarship Application required.

Ontario Hockey Association Scholarship: Value $150 payable the first year. The recipient of this award is selected by the University of Western Ontario Scholarship Committee, subject to the general conditions governing Admission Scholarships.

Two Queen Elizabeth Scholarships of the Corporation of the City of London: Value $1000 payable the first year. For the man and the woman with the highest standing in nine Grade 13 units 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.

Captain Jack Birnie Smith Scholarship: Value $150 payable the first year. For proficiency in single subjects to the student who enters first year pre-business.

Three George Williamson Young Memorial Scholarships: Value $500 ($300 the first year, $200 the second year). For the highest standing in (i) six Grade 13 units: English (2), History (1), and a language (2) and one other unit. (ii) English (2), Mathematics (any 2), and 2 other units. (iii) English (2), French (2), and German (2) or Greek (2) or Latin (2) or Spanish (2). The capital fund for this Scholarship was bequeathed to the University by the late George Williamson Young of Port Stanley.

SCHOLARSHIPS AWARDED ON STANDING IN NINE ONTARIO GRADE 13 UNITS OR SENIOR MATRICULATION FROM THE OTHER PROVINCES OF CANADA

The General Motors Canadian Scholarship: Value $800 to $8000 ($200 to $2000 in each of four years), the amount depending on the student's financial need. For Canadian citizens on the basis of academic record and all-round ability. Specific Scholarship application required.

Inco Scholarship: Value $300 plus tuition and incidental fees, each year for four years. For a student enrolling in an engineering, geology, geophysics or physics and mathematics program. The award is based on academic record, character, and financial need. Specific Scholarship Application required.

Union Carbide Canada Scholarship: Value $2500 ($700 the first year, $600 each of the next three years). For a male student enrolling in an Engineering Physical Science or Business Administration program with a view to entering Business, Industry or the field of Education, to be awarded on the basis of academic record and all-round ability.

SCHOLARSHIPS TENABLE AT ANY ONTARIO UNIVERSITY

H. J. Heinz Company of Canada Scholarship: Value $1200 ($300 for each of four years). For a student enrolled in the district high schools in **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, 1965.

***Imperial Leaf Tobacco* Scholarship:** Value $1000 ($600 the first year, $400 the second). For highest standing in nine Grade 13 units; 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.

Institute of Chartered Accountants of Ontario Scholarship: Value $1000. For students who register for an Honors Program in Business Administration leading to a B.A. degree. Applications are to be submitted to the Institute of Chartered Accountants of Ontario, 69 Bloor Street W., Toronto 5, before June 20, 1965.

London Board of Education Awards: Value $500 each year for four years and $1000 while attending the Ontario College of Education. For students from London Secondary Schools, who enrol in an Honors Program leading to Type A certification in the Ontario College of Education. The winners must agree to teach in the Secondary School system in Ontario for three years after graduation. Applications are to be submitted to the London Board of Education by June 1st, 1965.

National Secretaries Association Scholarship: Value $100 payable the first year. 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.

Two Ontario Department of Education and National Council on Fitness and Amateur Sport Admission Scholarships: Value $500 payable in the first year. For the man and woman recommended for competence and promise in physical education by the Heads of the Departments in physical education in their secondary schools who obtain the highest "A" averages on the nine Grade 13 units required for admission to this university. Application must be submitted by Sept. 1 on forms obtainable from the Awards Officer, U.W.O., or Department of Physical and Health Education, U.W.O. Awarded after registration.

Undergraduate Scholarships and Prizes

No applications are required. Awards are made by the Arts and Science Scholarship Committee on the basis of examination standing. Scholarships are not ordinarily awarded to students who do not obtain a first class standing.

To be eligible for an award, a student must take the prescribed subjects in his year and program. Students who take courses out of sequence or fail to write any examination due to illness or other reasons, are not eligible. Recipients of continuing scholarships must maintain a required degree of proficiency in each year of their academic program.

Except for The Governor-General's Medal and the Brescia College Prizes and Awards, scholarships and prizes will be granted only to full-time students in the colleges of the university.

No limit is placed on the number of awards a student may receive in any one year. Where a student receives more than one award, the Scholarship Committee may place a limit on the total amount of money received by the student in that year.

Awards of more than $200 will be paid in two instalments on November 1st and February 1st.

Board of Governors' Scholarships: For general proficiency in the following: General Program 1, first year: $60. General Program 2, first year: $60.

Board of Governors' Scholarships: $60 each; for highest standing in the Second and Third Year of Honors Programs when no other scholarship is awarded.

Board of Governors' Scholarship: $50 for the student from General Program 2, first year, with the highest standing who enters one of the following second year Honors Programs: English and History, History and Philosophy, Philosophy and Psychology, Philosophy and Sociology.

The Allied Chemical Canada (Limited) Scholarship: $250 and tuition fees: for an outstanding student entering the final year of Honors Chemistry or the Chemical option of Engineering Science. He must be a citizen of Canada or the United States, and must not hold other awards exceeding $250. Intellectual capabilities, scientific ability, breadth of interest and leadership qualities shall form the basis of selection, rather than financial need.

Alumnae Association Prize: $10; Third Year Canadian History (History 31); only women are eligible for competition.

William C. Benson Prize: $50; for the student with the highest standing in the Business 250 course in the second year, who is entering third year in the School of Business Administration the following fall.

The J. P. Bickell Foundation Scholarship: $1500; $500 a year for three years for a student entering the second year of the Honors Geology Program; or the Chemical option of Engineering Science; if he maintains First Class Honors standing from year to year.

The Hon. Edward Blake Scholarship, No. 1: $100; for Honors Economics, Second Year. Offered in 1965-66.

The Hon. Edward Blake Scholarship, No. 2: $100; for Honors Economics, Third Year. Offered in 1965-66. These Scholarships were endowed by the late Major Hume Cronyn, K.C., M.P., in memory of his uncle, the Hon. Edward Blake, sometime Premier of Ontario, and, later, member of the British House of Commons.

The Hon. Edward Blake Scholarship, No. 3: $100 for the student with the highest standing in General Program 2 or Pre-Business First Year who enters Second Year Honors Economics. First Class Honors standing is required in Economics 20.

The B'Nai Brith Scholarship: $50; for the highest ranking student in General Program 2, first year, who enters one of the humanities programs: English, Ancient or Modern Languages and Literatures, or Philosophy. Given each year by the London Branch of the Order.

Brescia College Home Economics Prize, No. 1: $25; for Third Year Clothing (Home Economics 30x).

Brescia College Home Economics Prize No. 2: $25; for Third Year Foods (Home Economics 32x).

Bruce County Scholarships: Two, $100 scholarships, one for the man, one for the woman, from Bruce County who stands highest in any year of any regular program in the University. These scholarships can be held only once by any student; an award won a second time reverts to the student coming next in order of merit. These scholarships were voted by the Council of Bruce County in June 1945. Application must be made to the Registrar by October 1st.

The Richard and Julia Butler Scholarship: $60; for Second Year Honors Botany. This Scholarship was bequeathed to the University by the late Mrs. Mary E. B. Moorhouse.

The Canadian Association of Geographers: Book prize to the graduating student who has demonstrated the greatest proficiency in this subject.

Chemical Institute of Canada Prize: $25; in books to be awarded to the student with the highest standing in Chemistry Courses in the Honors Chemistry with Physics option Programs of the third year.

The Gordon Dixon Memorial: Presented by the Geology class of 1957. A book to a senior student who has demonstrated interest and proficiency in Pleistocene Geology.

Elgin County Scholarships: Two, $100 scholarships, one for the man, one for the woman, 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. Application must be made to the Registrar by October 1st.

The Famous Players Canadian Corporation Scholarship: $500; to be awarded for high standing in the Journalism subjects of the penultimate year of the Honors Journalism program; the award may be augmented by a waiver of fees of the Trois Pistoles Summer School for a candidate who agrees to attend that Summer Session.

Gamma Phi Beta Alumnae Jubilee Prize: $10; Second Year Secretarial Science (Secretarial Science 30, 37, 38, 39).

The Andrew Grant Scholarship, No. 1: $100; for Honors Economics, Second Year. Offered in 1966-67.

The Andrew Grant Scholarship, No. 2: $100; for Honors Economics, Third Year. Offered in 1966-67.

The Andrew Grant Scholarship, No. 3: $100; for Honors Political Science, Second year.

The Andrew Grant Scholarship, No. 4: $100; for Honors Political Science, Third Year. These Scholarships were bequeathed to the University by Mrs. Grant as a memorial to her husband, Mr. Andrew Grant, St. Thomas.

Huron County Scholarships: Two, $100 scholarships; one for the man, one for the woman, from Huron County who stand highest in any year of any regular program in the University. These Scholarships were voted by the Council of Huron County in 1944. Application must be made to the Registrar by October 1st.

The International Nickel Company Award in Journalism: A plaque and a portable typewriter for the student completing the Graduate Diploma Program in Journalism with the highest average, provided the average is at least 66 percent. The award shall be made by the Scholarship Committee on recommendation of the Head of the Department of Journalism.

The Albert O. Jeffery Scholarship, No. 1: $60; for Honors Biology, Second Year.

The Albert O. Jeffery Scholarship, No. 2: $60; for Honors Biology, Third Year.

The Albert O. Jeffery Scholarship, No. 3: $60; for Honors Mathematics, Third Year. These three Scholarships were bequeathed to the University by the late Mrs. Jeffery as a memorial to her husband, Mr. Albert O. Jeffery, K.C., D.C.L., LL.D., former president of the London Life Insurance Company.

The F. G. Jewell Scholarship: $50; the highest ranking student in General Program 2 or Pre-Business, First Year who enters one of the professional programs: Honors Business Administration, Business Administration and Secretarial Science, Journalism or Physical and Health Education. Given in memory of the late Francis G. Jewell, C.A., former Auditor of the University.

The Johnson's Wax Scholarship: $600 a year for a period of three years; to the outstanding man in General Program 1, first year, who enters the Honors Chemistry Program or the Honors Chemistry Program with Physics option. The selection is to be made by the Scholarship Committee, who may take into consideration the financial need of the applicants; the award is to be announced in the Fall. If the successful candidate falls below First Class standing in Chemistry or fails to attain reasonably high standing in his accessory subjects, the scholarship shall revert to the top ranking First Class student in the same year provided his financial need warrants his selection.

The Kennecott Copper Corporation Minerals Exploration Scholarship: $1,000, to be awarded to a male student entering the third or the fourth year of the Honors Geology Program or Honors Geophysics Program. Application must be made to the Registrar by May 1st.

The A. N. Knowles Scholarship: $60; for Honors Chemistry, Second Year.

The J. C. Knowles Scholarship: $60; for Honors Chemistry, Third Year. The above Scholarships are donated to the University as memorials by Mrs. A. N. Knowles, London.

***Sir Wilfrid Laurier* Memorial Scholarships:** Two scholarships, one elementary ($30) and one advanced ($50); awarded annually for proficiency in French conversation: open only to Canadian-born English-speaking students, or the sons and daughters of naturalized British subjects not of French parentage. The capital fund of these Scholarships was the gift of the Women's Liberal Association.

The John McEachern Scholarship: $150; in memory of Mr. Thomas E. Carr, a graduate of this university; for the student with the highest standing in Third Year Honors English and History who enrols in the Fourth Year.

The John Gordon McIntosh Scholarship, No. 1: $60; for Honors Physics, Second Year.

The John Gordon McIntosh Scholarship, No. 2: $60; for Honors Physics, Third Year. These Scholarships were endowed by the late Mrs. John Gordon McIntosh, of Winnipeg, in memory of her husband.

The Wilhelmina and J. Gordon McIntosh Prize, No. 4: $60; for Honors Geography, Second Year, tenable in the Third Year of Honors Geography.

The Wilhelmina and J. Gordon McIntosh Prize, No. 5: $60; for Honors Geography Third Year. These prizes were bequeathed to the University by the late Wilhelmina Morris McIntosh, of Winnipeg and London.

The Joseph Henry Marshall Scholarship: $60; for Honors History, Third Year. Open only to Canadian-born students. Bequeathed to the University by Mrs. Amy Marshall as a memorial to her late husband, Joseph Henry Marshall, M.P., to commemorate his interest in all phases of Canadian History.

The Mathematics Class of 1949 Prize: $25; for the highest standing in first year Calculus.

The Midland Securities Scholarship: $100; for the student with the highest standing in Journalism 20, who registers in the Honors Journalism program.

The National Council of Jewish Women of Canada (London Section) Scholarship: $60; for a graduating student in Honors Psychology.

Benjamin Noble Scholarship, No. 1: $75; for Honors Business Administration and Secretarial Science, Second Year.

Benjamin Noble Scholarship, No. 2: $75, for Honors Business Administration and Secretarial Science, Third Year.

The Northern Electric Undergraduate Scholarships: Two, $500 each; one in Honors Business Administration and the other in Engineering Science, Radio Physics or Honors General Physics, for a student who is a Canadian citizen or landed immigrant with at least one year successfully completed at a recognized university. The award is renewable for one year and is tenable in any year except the first.

The Stan C. Reade Award: $250; for the student with the highest (at least Second Class Honors) standing in the Honors courses of the second year, who registers for the third year of the General Physics Option of the Honors Physics program.

The Stan C. Reade Essay Prize: A single reflex camera, for competition among fourth year Honors students in Physics.

The Reader's Digest Journalism Scholarships: Two at $500 each; for students entering the second, third or fourth years of the Honors Journalism Program. The candidates selected by the Scholarship Committee, on recommendation of the Head of the Department of Journalism, shall have attained an average of First Class standing in the Journalism and the other Honors courses of the previous academic year, with an average of at least Second Class standing in the remaining courses. If no undergraduate student qualifies for one of these scholarships, it will be awarded to a student entering the Graduate Diploma Program in Journalism at this University, on the basis of his academic record in his final undergraduate year, provided that his average is First Class.

No student shall hold both of these scholarships in one year, unless no other student, undergraduate or graduate, qualifies for the second scholarship.

Remington Rand Scholarship, No. 1: $100; for Computing 313.

Remington Rand Scholarship, No. 2: $100 for Computing 403.

Remington Rand Scholarship, No. 3: $100; for Computing 413.

The Rhoda Ann Rinn Scholarship in English Literature: $1,000; to be awarded on the basis of academic standing in General Program 2, first year, to a student in a College of the University who enrols 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. $500 will be payable in the second year, $300 in the third year and $200 in the final year, provided the student maintains First or Second Class Honors and remains in the Honors Program in English Language and Literature. This Scholarship was established as a memorial to his mother, by the late Lionel Harris Rinn, Honors English graduate of this University.

The W. J. Roche Scholarship: $50; for the highest ranking student in General Program 2, 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, M.D., LL.D., C.M.G., former Chancellor of the University.

The Myrtle Rowntree Memorial Scholarship: $60; for Honors English Language and Literature, Third Year. This Scholarship was established as a memorial to the late Myrtle Martindale Rowntree, a graduate in Honors English and History, by her brothers and sisters.

The Society of Chemical Industry Merit Award: A gold key and a year's subscription to the Journal of the Society (Chemistry and Industry) for the highest standing in the final year of Honors Chemistry or Honors Chemistry with Physics Options, provided that First Class Honors is obtained and the course has been completed in four years.

The Sons of Italy Italian Award, No. 1: $25 for Italian 20.

The Sons of Italy Italian Award, No. 2: $25 for Italian 30 or 40.

Legation of Switzerland: Book prizes to students in modern languages, on recommendation of the Departments of Romance Languages and German.

Summer School for French and English, Trois-Pistoles, Quebec: Applications for the following scholarships available for study at Trois-Pistoles will be received by the Registrar up to April 30th. The winners will be selected by a special committee:

Robert Simpson Company Limited Scholarships: two; $150 each.

Imperial Oil Company Limited Scholarship: $150.

Lachapelle Scholarship: $100.

Board of Governors' Scholarship: $60.

The W. Sherwood Fox Scholarship.

W. W. Tamblyn Prize: $75; 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 in this University.

The Timken International Fund Scholarship: Four at $250; two for the highest standing in the first and second years of Honors Mathematics and two for the highest standing in the first and second years of Honors Engineering Science.

The Frances M. Weir Scholarship: $100; when the winner of the Governor-General's Medal is a woman, she will receive a Scholarship in memory of Miss Frances M. Weir, who won the Governor-General's Medal when she graduated from this University in 1916; as a gift of Mr. Samuel E. Weir, Q.C. through The Weir Foundation.

Medals Awarded to Graduating Students:

These medals are competitive and are awarded through selection by the Scholarship Committee from among students with first class standing.

Students in affiliated colleges are eligible for The Governor-General's Medal only.

The Helen M. B. Allison Gold Medal: Honors English Language and Literature. (Endowed by the Undergraduate Women's Organization.)

The Alumni Gold Medals: 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.

Brescia College of Arts Award: Gold Medal: Home Economics.

The A. R. Davidson Gold Medal: the final year of the General Program, completed in the Summer School, Correspondence and Extension Department; endowed by Arthur Robert Davidson, a graduate of this University.

The Raymond Compton Dearle Gold Medal: Honors Physics and Mathematics. Endowed by former students and friends of Dr. Dearle, M.B.E., F.R.S.C., Head of the Department of Physics, 1919-1949; Research Professor of Physics, 1949-57.

The Dillon Gold Medal: Honors Applied Mathematics.

The Robert LaVerne Eagleson Gold Medal in History: Endowed by Miss Lyla Eagleson of Toronto, in memory of her brother who graduated from the University with the University Gold Medal in History in 1925.

The S. F. Glass Awards: Gold Medals: one in Honors Economics and the other in Honors Political Science. Endowed by the estate of the late S. F. Glass of London.

Governor-General's Medal: General Program.

The Joseph J. and Annie R. Kingston Gold Medal: Honors Mathematics Program I, endowed by the late Dr. H. R. Kingston in memory of his parents.

The Maude Holt Kingston Gold Medal: Honors Astronomy, endowed by the late Dr. H. R. Kingston in memory of his wife.

The R. B. Liddy Gold Medal: Honors Psychology; endowed in memory of the late Professor R. B. Liddy, Head of the Department of Psychology in this University, 1931-54, by his children, Catherine and James, both graduates of this University.

The London Life Insurance Company Gold Medal: Honors Actuarial Mathematics.

The Northern Life Gold Medal: Honors Statistical Mathematics.

The A. Dorothy Turville Gold Medal: Honors French and Spanish. (Endowed by the Undergraduate Women's Organization.)

University Gold Medals: For All Honors Programs when no other medal is awarded.

The Frances Weir Gold Medal and Scholarship: $100 in English and History: the gift of Mr. Samuel E. Weir, Q.C. 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 Course.

Admission Bursaries

To be eligible for an admission bursary, an applicant must show genuine financial need and have an average of 66% on eight units of Grade 13 examinations. It is possible to hold more than one bursary. Winners of competitive scholarships who need additional assistance may also hold bursaries.

Generally, an admission bursary is applied for before final examinations are written. Students who need assistance should, therefore, apply for admission bursaries without being concerned about their probable final marks.

The following are applied for before registration:

A.T.A. Trucking Industry Bursaries: $500 for non-residents or $250 for students from the city of London. Applications should be sent by May 1st to the Student-Aid Committee, Ontario Department of Education, Parliament Buildings, Toronto, Ontario. The Dominion-Provincial Type A application form is used for this bursary.

Atkinson Charitable Foundation Bursaries: $400 for non-residents or $200 for residents of the city of London. Applicants must be deserving students from the Province of Ontario. Apply by May 1st to the Awards Officer, the University of Western Ontario through your Secondary School Principal.

The Children of the War Dead (Education Assistance Act): Fees and monthly allowances are provided for children of veterans whose death was attributable to Military service. Applications should be submitted 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 scholarship and bursary aid to children of deceased veterans. Apply through your local branches.

Dominion-Provincial Student-Aid Bursaries, Type A: $500 for non-residents and $250 for residents of the city of London. Apply through your Secondary School Principal by June 1.

Fireco Sales Ltd. Bursary: $515 to $600 (full tuition for program of applicant). Available to a student who has worked in a grocery store during the last year of High School. Application forms, which are available at 1,500 grocery stores throughout Canada, should be forwarded to the Awards Officer not later than August 15th — awards will be announced by September 1st.

Leonard Foundation Bursaries: Up to $400 each (for from one to four years). 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 Lieut.-Colonel and Mrs. Reuben Wells of St. Catharines, Ontario. Application forms may be obtained from the Awards Officer and must be filed by February 15th of the year preceding the award.

London Free Press Printing Company Limited Award: $250 and summer employment worth $1,000 or more, renewable each year for scholarship satisfactory to the Selection Committee. Only students who have attended secondary schools in the fourteen 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.

Ontario Department of Education and National Fitness Council and Amateur Sports Awards: Up to $500. Available to students who intend to continue in the Honors P.H.E. program. Apply to the Awards Officer by September 1st.

O-Pee-Chee Company Bursaries: $500 each renewable for two additional years. Apply after publication of grade 13 marks but not later than August 15th to the Awards Officer, University of Western Ontario. Awards will be announced by September 1st.

The Steel Company of Canada Bursaries: $500 each renewable for three additional years. Apply after publication of grade 13 marks but not later than August 15th to the Awards Officer, University of Western Ontario. Awards will be announced by September 1st.

Many companies offer bursaries or scholarships for children of their employees. Applications should be submitted through the Company concerned.

Undergraduate Bursaries

These bursaries are awarded to students who have an average of B (66%) or better in their previous year's work, and who demonstrate genuine financial need. Unless otherwise stated application should be made to the Awards Officer, anytime in November.

RESTRICTED BURSARIES

Except for the Dominion-Provincial Bursary, Type B, which requires a special form, an application for any "restricted" bursary (regardless of the value shown for it in the list) is automatically considered for awards from all other bursary funds, up to the total amount of the need established in the application. It is unnecessary, therefore, to complete more than one application in addition to the application for the Dominion-Provincial Type B bursary.

The following bursaries are restricted by residence, sex, course, year, etc., as indicated:

A.T.A. Trucking Industry Bursaries: Up to $250 each. Second and third year students in any degree program are eligible. Funds are provided by the A. T. A. Trucking Industry Educational Foundation.

Canadian Bechtel Limited Bursaries: $200 each. Students in any year of a program in Engineering Science or Business Administration are eligible.

The J. P. Bickell Foundation Bursaries: Up to $500. Students registered in the Department of Geology or in the Chemical Engineering course are eligible.

The Isabel Dingman Memorial Bursary: $50. Women students entering the third or fourth year of the Honors Journalism Program are eligible for this bursary, a gift of the Canadian Women's Press Club (London Branch).

Dominion-Provincial Type B Bursaries: Up to $500 each. These bursaries are available to 2nd, 3rd and 4th year students with financial need and an academic record of grade B or better in the previous year. Apply by October 5th.

Lady Eaton Bursaries: Up to $250 each. Students registered in the College of Music or in the General Arts program with music options are eligible.

The Maude Gordon Educational Fund: Up to $500. The purpose of this bursary is to assist deserving students from the counties of Essex, Kent, Lambton, Elgin, Middlesex, Huron, Oxford and Perth. This fund was established by a bequest of the late Miss Maude E. Gordon of Wallaceburg, Ontario.

The Greek Ladies' Philoptochus Society Award: $100. For a student of Greek descent.

The Kathleen Gordon Hanna Education Fund: Up to $500 each. The purpose of this fund is to assist deserving students from the counties of Essex, Kent, Lambton, Middlesex, Huron, Oxford and Perth. This fund was established by a bequest of the late Mrs. Kathleen Gordon Hanna of Wallaceburg.

Huron County Bursaries: Up to $250 each. Available to students who have lived in Huron County for at least three years.

I.O.D.E. (London Air Force Chapter) Bursary: $100. Third year students in any branch of Honors Physics, or any allied program are eligible.

I.O.D.E. (Grace Blackburn Chapter) Bursary: $100. Students enrolled in the second Pre-medical year are eligible, with the idea of subsequent awards to the same student throughout the program.

I.O.D.E. (Dr. John Dearness Chapter) Bursary: $100. Students in Honors Biology, preferably in a Mycology course, are eligible.

I.O.D.E. (The Colonel William Gartshore Chapter) Bursary: $100. Available to a student in any year in the Humanities.

I.O.D.E. (Nina Moore Jamieson Chapter) Bursary: $100. Students in the third year of the Honors program in English and French are eligible.

I.O.D.E. (Municipal Chapter) Bursary: $100. Students in any year of a degree program in Honors Science are eligible.

I.O.D.E. (Overseas Chapter) Bursary: $100. Students in the final year of any degree program are eligible.

I.O.D.E. (The Sir George Ross Chapter) Bursary: $100. Available to a student in the third or fourth year of a program in the Humanities or Social Sciences.

I.O.D.E. (William E. Saunders Chapter) Bursary: $100. Students registered in the Botany option of Honors Biology during the preceding session are eligible. This bursary may be awarded, under special circumstances, to a student registered in a program other than Botany.

I.O.D.E. (Dr. W. J. Stevenson Chapter) Bursary: $100. Students enrolled in the second Pre-medical year are eligible.

I.O.D.E. (Nicholas Wilson Chapter) Bursary: $100. Students enrolled in the final year of any honors or Professional course are eligible.

The Joseph Kerbel Student-Aid Bursary: $100. Available to a student, preferably from a new Canadian family, registered in any year of any course in the Faculty of Arts and Science.

Leonard Foundation Bursaries: Up to $400 each (for from one to four years). Available to selected students in any year of any course. Preference is given to sons and daughters of Clergymen, School Teachers, Members (active or re-

tired) 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 Lieut.-Colonel and Mrs. Reuben Wells of St. Catharines, Ontario. Application forms may be obtained from the Awards Officer and must be filed by Feb. 15th of the year preceding the award.

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 is endowed by Dr. Walton McKibbon of Wingham, a medical graduate of this university, in memory of his son.

The Olga Alice Miller Bursary: $100. Available to a woman in any year of any program. The Selection Committee shall be the Dean of Women and the Awards Officer. 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.

Ontario Department of Education and National Fitness Council and Amateur Sports Awards: Up to $500 each. Available to students in the Honors P.H.E. program. Apply after registration but not later than September 30th.

Oxford County Bursaries: Up to $250 each. Students from Oxford County excluding Ingersoll and Woodstock are eligible.

Perth County Bursaries: Up to $250 each. Students from Perth County excluding St. Marys and Stratford are eligible.

***The Melvin Vernon* Raynor Memorial Bursaries:** Up to $250 each. Students registered in the College of Music are eligible.

Royal Canadian Legion (London) Student-Aid Fund: Up to $200 each. Deserving undergraduates who are veterans or dependents of veterans are eligible.

The London Centennial Chapter, National Secretaries Association (International) Bursary: $100. Available to a woman in a senior year of the Secretarial Science or Honors Business Administration and Secretarial Science Program. It is awarded by a committee consisting of the Dean of Women, the Head of the Department of Secretarial Science, the Awards Officer, and a member of the Executive of the London Centennial Chapter of the National Secretaries Association (International).

The Undergraduate Women's Organization Bursary: $100. Available to a woman in any year of any program selected by a Committee composed of the Dean of Women, the Awards Officer, and the President and Chairman of the Undergraduate Women's Organization.

The University Women's Club Bursaries: $100 each. These bursaries are available to women in the third or preferably the fourth year in any Faculty. They are awarded on the basis of academic standing and some financial need, by a committee consisting of the Dean of Women, the Awards Officer and, from the University Women's Club of London, a Convener and the President *or her representative.*

Wellington County Bursaries: Up to $250 each. Students from Wellington County, excluding Guelph, are eligible.

UNRESTRICTED BURSARIES

Unrestricted bursaries are available to students in any year of any degree program. An application for any unrestricted bursary (regardless of the value shown for it in the list) is automatically considered for awards from other unrestricted funds, up to the total of the need established in the application. It is unnecessary, therefore, to apply for more than one unrestricted bursary.

The following bursaries are unrestricted:

Atkinson Charitable Foundation Student-Aid Funds: Up to $200 each. Students who are residents of Ontario are eligible.

The Circle "K" Club Award: $100.

H.M.C.S. Prevost Student Aid Fund: $75.

The IBM - 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: $100.

I.O.D.E. (Nicholas Wilson Chapter) Bursary: $100.

The Interprovincial Pipe Line Company Bursaries: Up to $250 each.

The Gilbert A. Labine Bursaries: Up to $500 each.

The Local 27 U.A.W. Bursary: $250.

The Proctor and Gamble Company of Canada Bursaries: Up to $250 each.

The W. F. Thomas Student-Aid Fund: Up to $300. Preference is given to applicants whose residence is in St. Thomas or Elgin County.

The U.W.O. Alumni Association Bursary: $400.

Wellington Square Purple Spur Society Student-Aid Fund: $100.

Walter Wright Scholarships: Up to $250 each.

GRANTS

A "grant" is an award to a student who demonstrates financial need and who has a satisfactory academic standing.

Application should be made to the Awards Officer anytime in November.

Grants up to $200 each may be made from the following funds, which are described in the preceding bursary sections:

A.T.A. Trucking Industry 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

Wellington Square Purple Spur Society Student-Aid Fund.

Decisions on Applications

Decisions on applications for restricted bursaries, unrestricted bursaries and grants are promulgated by letter on the first day following the Christmas vacation.

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. Applications should be made through the Awards Officer before February 15.

Canada Student Loans: Up to a maximum of $1,000 a year depending on the applicant's financial need. Detailed information is available in a brochure which may be obtained from the Awards Office, banks and other institutions.

University Loan Funds: Up to $400. Available to full-time students in any 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.

Academic Regulations

RESIDENCE REQUIREMENT FOR A DEGREE

A candidate for a degree must have attended intramural classes of this University for two academic years, or for one academic year and two summer sessions, or for five summer sessions. This requirement may be reduced to one year of intramural classes, or three summer sessions, if other courses for degree have been obtained through attendance at Extension classes of this University, or by transfer of credits from an approved college or university. A minimum of five senior courses must be taken at this University.

CLASS AND LABORATORY ATTENDANCE

Freshmen and sophomore students are required to attend eighty percent of their lecture and laboratory classes. Any student who, in the opinion of his instructor, is absenting himself too frequently from class or laboratory periods will be reported to the Principal of his College. On recommendation of the Department concerned, and after due warning has been given him by the Principal, the student may be debarred from taking the regular examinations in that course.

CREDIT FOR FOREIGN LANGUAGE BEGUN AT UNIVERSITY

When a student begins a foreign language in the University, one course numbered 1 to 9 may be credited towards a general program degree. To gain credit for an additional course numbered 1 to 9, the student must complete successfully a second course in the same subject. This rule applies only to the student who meets the normal admission requirements.

EXTRA COURSES

Permission to take an extra course must be obtained in writing from the principal or his designate either prior to registration or at the time of registration.

ADDING AND DROPPING COURSES

Following registration, a student may add a course only with the joint approval of the Principal of the College, or his designate, and the Head of the Department of his Honors or Major program. A course cannot be added after October 15.

A student may drop a course only with the joint approval of the Principal of the College or his designate, and the Head of the Department of his Honors or Major Program. A course cannot be dropped without penalty after November 15.

SUBSTITUTING COURSES

A student may substitute a course only with the consent of the Head of the Department of his Honors or Major Program and cannot do so without penalty after October 15. All substitutions must conform to the basic requirements as laid down by the Senate.

UNSATISFACTORY KNOWLEDGE OF ENGLISH

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

Examinations

REGULAR

Examinations for students registered in intramural, extension and correspondence courses are conducted in April and May, and for those in the Summer School in August.

SUPPLEMENTAL

Supplemental Examinations are conducted in August, for students conditioned in the regular examinations, and in January for students of the Summer School (subject to Regulations concerning Supplementals, see below).

All supplemental examinations must be written at the University of Western Ontario or at another Canadian university more than 150 miles from London. This rule does not apply to students serving in the Armed Forces.

SPECIAL

A special examination is any examination other than the regular or supplemental examination and it may be offered only with consent of the Department concerned and with the permission of the Academic Standing Committee.

A Special Examination may be written only at this University or at one of its Affiliated Colleges.

COMPREHENSIVE EXAMINATIONS

Various departments of the Faculty of Arts and Science require comprehensive examinations for Honors students.

These examinations, partly oral and partly written, are given at the end of the senior year to cover the broad aspects of the student's Honors Program. and are additional to the course examinations.

DEFERRED EXAMINATIONS

Permission to defer an examination is given by the Academic Standing Committee only on compassionate grounds. A student must petition the Academic Standing Committee for this privilege. A deferred examination is written normally during the supplemental examination period. No supplementals will be allowed for a student who is permitted to defer examinations. No examination fee is charged for deferred examinations.

A Deferred Examination may be written only at this University or at one of its Affiliated Colleges.

FAILURE TO APPEAR AT EXAMINATION

A student who fails to appear for an examination at the time set in the timetable will not be allowed to write on the examination paper thus missed.

He may, with the approval of the Head of the Department concerned, petition the Academic Standing Committee for permission to write a special examination. Petitions will be entertained only when they are submitted on compassionate grounds with supporting documents.

AEGROTAT STANDING IN THE GENERAL PROGRAMS

Aegrotat Standing (academic standing without examination) is given only to students in the third and final year of the General Programs. On compassionate grounds, and with supporting documents, a student may petition the Academic Standing Committee for:

(a) the privilege of writing deferred examinations
or
(b) Aegrotat Standing which would be 50% in non-major courses and 60% in major courses.

ELIGIBILITY FOR SUPPLEMENTAL EXAMINATIONS

A student is allowed two supplemental examinations in his first year and only one in each succeeding year. A student who is granted a supplemental privilege must write the supplemental the first time it is offered. A supplemental thus missed is recorded as a failure.

To be eligible for a supplemental examination a student must:

In the General Program:

Pass two-thirds of his year's work.

Obtain grade E (40% to 49%) in the course in which a supplemental may be written.

Formally apply to the Registrar for the privilege of taking the examination.

In an Honors Program:

Pass two-thirds of his year's work.

Obtain grade E or V (40% to 49%) in the course in which a supplemental may be written.

Obtain the consent of the Department in which he takes his honors work.

Formally apply to the Registrar for the privilege of taking the examination.

EXAMINATION TIMETABLE

Each course offered in the Faculty of Arts and Science has an examination code number. This will be found in the course description following the designation of the number of class hours. (e.g. 3 hours—11).

Final examinations in 1966 will be held according to the following schedule:

First Week		Second Week		Third Week	
Monday	9 a.m. —25	Monday	9 a.m. — 1	Monday	9 a.m. —13
	2 p.m. —26		2 p.m. — 2		2 p.m. —14
Tuesday	9 a.m. —27	Tuesday	9 a.m. — 3	Tuesday	9 a.m. —15
	2 p.m. —28		2 p.m. — 4		2 p.m. —16
Wednesday	9 a.m. —29	Wednesday	9 a.m. — 5	Wednesday	9 a.m. —17
	2 p.m. —30		2 p.m. — 6		2 p.m. —18
Thursday	9 a.m. —31	Thursday	9 a.m. — 7	Thursday	9 a.m. —19
	2 p.m. —32		2 p.m. — 8		2 p.m. —20
Friday	9 a.m. —33	Friday	9 a.m. — 9	Friday	9 a.m. —21
	2 p.m. —34		2 p.m. —10		2 p.m. —22
Saturday	9 a.m. —35	Saturday	9 a.m. —11	Saturday	9 a.m. —23
	2 p.m. —36		2 p.m. —12		2 p.m. —24

Grades

TABLE OF GRADES

The marking system of examinations allows for six grades or classes as follows:

Courses numbered 1-99;

A	indicating	a	grade	of	75	percent	or	higher		
B	"	"	"	"	66	"	to	74	percent	inclusive
C	"	"	"	"	60	"	to	65	"	"
D	"	"	"	"	50	"	to	59	"	"
E	"	"	"	"	40	"	to	49	"	"
F	"	"	"	"	less	than	40	percent.		

Courses numbered between 100 and 499;

I	indicating	a	grade	of	75	percent	or	higher		
II	"	"	"	"	66	"	to	74	percent	inclusive
III	"	"	"	"	60	"	to	65	"	"
IV	"	"	"	"	50	"	to	59	"	"
V	"	"	"	"	40	"	to	49	"	"
F	"	"	"	"	less	than	40	percent.		

ACADEMIC AVERAGE

The academic average is compiled from the marks for all courses, taken in an academic year, in which a mark of 40% or higher has been attained. No average will be compiled for a student who has failed a course.

SUPPLEMENTAL EXAMINATION GRADES

A student will receive either a "pass" or "failed" grade for a course after a supplemental examination. A "pass" will give the student credit for the course but will not change his average for the year.

GENERAL PROGRAM

For students in General Programs with majors:

The passing grade in all courses is 50 percent, but a student must obtain at least 60 percent in each course of his major subject in order to retain his standing as a major in that subject.

For students in General Programs with Options:

No student will be admitted to the degree of Bachelor of Arts in the General Program with Home Economics, Secretarial Science or Music Options who has not obtained a minimum of 50 percent on all the prescribed and elective work of his program, and a minimum of 60 percent in half the courses of his senior year.

HONORS PROGRAMS

A student will be automatically accepted if he has an average of at least 66% with no grade of less than 60% 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 65% 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.

A student who passes all courses in his Honors Program in the Third Year but who has failed to obtain the requisite average for honors (60%) must meet the requirements of the General Program to qualify for the General B.A. degree.

A candidate in an Honors Program for the degree of Bachelor of Arts who has obtained 50% in each course of his final year, but has failed to obtain the requisite average for honors (60%), may be awarded a B.A. degree without designation. The candidate may write a subsequent examination for an Honors degree.

A candidate in an Honors Program for the degree of Bachelor of Science who has obtained 50% in each course of his final year, but has failed to obtain the requisite average for honors (60%), may, on the recommendation of the Academic Standing Committee, be awarded a Bachelor of Science degree without designation. The candidate may write a subsequent examination for an Honors degree.

TERM WORK

A student may be debarred from writing the final examination because of failure to maintain satisfactory academic standing throughout the year.

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

FAILED YEAR

A failed year is:

(a) A normal year in which the student fails to pass at the Spring examinations two-thirds of the courses in which he is registered after the last date for change of program;

(b) A repeated year in which, regardless of the program taken, the student fails to pass all courses at the Spring examinations.

A first-year student who has failed his year may apply to the Admissions Committee for permission to re-enter the first year.

If a student fails in his second or third year and wishes to repeat his year, he may, upon application to the Admissions Committee, be given permission to re-enter the University immediately, or be requested to stay out a year, or be required to withdraw.

A student who has failed his year and is given permission to repeat his year's work shall not be allowed to hold credit for any course of that failed year. Courses passed with a minimum of 66% in a failed year will not be repeated but the student shall substitute for such a course another course of equivalent weight approved by his Dean or Principal. When the course passed with 66% or higher standing is a required course in a student's program, he will be credited with meeting this requirement when he has successfully completed the courses substituted for it in his repeated year.

FAILED COURSES

If a student is carrying a first year course into his second year, regardless of the time-table, he must take that course and not carry it into the third year.

Only one failed course may be carried into the second or third year.

A student who is permitted by the Admissions Committee to enter a program with one condition must remove that condition by September 1st of the following year.

A copy of the Senate regulations governing appeals by students may be consulted in the Registrar's Office.

A student who wishes to petition the Academic Standing Committee for special consideration on medical, compassionate or other grounds, should submit his petition in writing to the secretary of the Committee (the Registrar).

Teachers' Courses and Certificates

PROGRAMS FOR TEACHERS:

The Faculty of Arts and Science through the Summer School and Extension Department offers general program courses leading to a General B.A. degree for students unable to attend the intramural winter sessions. These subjects are available in three ways: (1) at the Summer Session in London, (2) during the Winter Session in London and 10 other centres in Western Ontario and (3) by correspondence.

HIGH SCHOOL ASSISTANTS' CERTIFICATES:

Type B: The academic standing for admission to the course in the Ontario College of Education leading to a High School Assistant's Certificate, Type B, is a degree in Arts or in Science from a British University, based upon programs approved by the Minister of Education.

The University program should include a minimum of seven full university courses in at least three subjects that provide background for Secondary School teaching.

Type A: Subject to the conditions specified below, an Honors Degree in Arts or in Science (66 per cent) is the academic standing required for admission to the courses leading to High School Assistant's Certificate, Type A, in Biology, Chemistry, Classics, Economics and Sociology, English, English and French, English and German, English and History, English and Latin, French and German or Spanish, French Language and Literature, Geography, Geology, History, Latin and French, Latin and Greek, Mathematics, Mathematics and Physics, Music, Physical Education, Physics, Political Science.

For the University of Western Ontario, the courses specified above shall be the corresponding Honors Programs as defined in the current Calendar of the Faculty of Arts and Science, and shall extend over four years from Grade 13 standing in nine papers.

Candidates shall attend for at least the complete third and fourth academic years.

The Minister of Education shall have authority to deal with any case not already covered. The University shall submit to the Minister a recommendation on any case whose merits justify special consideration.

Graduates in General Programs who wish to obtain Type A standing should submit formal transcripts of their University records to the Ontario College of Education for evaluation.

PUBLIC SCHOOL INSPECTORS' CERTIFICATES

By agreement with the Minister of Education the work described below satisfies the academic requirements for a Public School Inspector's Certificate:

An Honors Degree in Arts or Science in accordance with the present agreement prescribed for Type A qualifications; or a General Program Degree in Arts and Science with a standing of 66 per cent on the work of the final year of the program; and including English in any three of the first, second, third and fourth year courses of study. For professional requirements, candidates should consult the Ontario Department of Education, Toronto 5, Ontario.

Programs

The Faculty of Arts and Science offers:

Three-year general program leading to a B.A. degree with concentration in a major subject.

Four-year honors programs leading to a B.A. or B.Sc. or Mus.B. degree.

Programs leading to admission to other Faculties and Schools; Business, two years; Law, two years; Medicine, two years; Nursing, one year.

First Year students will register in one of the following programs:

General Program 1: Mathematics, Natural Sciences, including Anatomy, Bacteriology and Immunology, Biochemistry, Biophysics, Physiology; preparation for admission to Faculty of Medicine.

General Program 2: Humanities, Social Sciences, Mathematics, Journalism, Physical and Health Education, preparation for admission to Faculty of Law.

General Program: Secretarial Science Options

General Program: Home Economics Options

Degree Programs in Music: (see College of Music)

Pre-Nursing.

Pre-Business.

Pre-Medical Programs.

COURSE-NUMBERING SYSTEM

Courses 1-9 are equivalent to corresponding subjects of Secondary School Grade 12 (Ontario).

Courses 10-19 are equivalent to corresponding subjects of Secondary School Grade 13 (Ontario).

Courses 20-29 are First year General Courses.

Courses 30-39 are Second year General Courses.

Courses 40-49 are Third year General Courses.

Courses 200-299 are Second year Honors Courses.

Courses 300-399 are Third year Honors Courses.

Courses 400-499 are Fourth year Honors Courses.

A course-number followed by "a" is offered in the first term only; followed by "b" in the second term only; followed by "x" in an affiliated college only.

A half course is one which meets less than two hours a week throughout the academic year or less than four hours a week in one term.

Unless otherwise indicated, lecture and laboratory hours are listed on a weekly basis throughout the academic year.

General Programs 1 and 2

GENERAL REGULATIONS FOR B.A. DEGREE

The courses offered are grouped into four divisions: see page 44.

Division A — The Humanities
Division B — The Social Sciences
Division C — The Natural Sciences, Mathematics and Astronomy
Division D — Other Subjects.

For a General Program B.A. a student must:

Pass sixteen courses, which must include; one laboratory course from Division C, English 20, one other language at the 20 level.

Select, before he enters the 2nd year, a major subject consisting of four senior courses (numbered 30 or higher) in a particular subject, e.g., English, Psychology, Chemistry, etc.

Obtain a minimum of C (60%) in each course of the major subject and a minimum passing grade of D (50%) in every other course.

No more than six courses in any one subject may be counted towards a degree.

No more than two courses from Division D may be counted towards a degree.

Out of the 10 courses required in the last two years of the program, at least seven must be senior courses.

The purpose of the First Year General Program is to offer one year of basic general education and to postpone the selection of a specific program until the beginning of the second year. Thus the student can make a final decision as to his future program on the basis of university work which will 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 the General Program, or the second year of one of the Honors Programs.

The General Program requires two more years for completion and leads to the B.A. degree. Honors Programs require three more years and lead to an Honors B.A. or an Honors B.Sc. degree, and permit specialization in one or two subjects.

GENERAL PROGRAM 1: FIRST YEAR SCIENCE

This program leads to Honors Programs in Mathematics, the Natural Sciences, some of the Social Sciences and fulfills the first year requirements for admission to the Faculty of Medicine.

Requirements for Admission

Grade 13 standing in English, another language, Mathematics (Algebra, Geometry, Trigonometry and Statics), Physics and Chemistry, with an average of 60 percent. (If a student plans to specialize in Anatomy, Bacteriology and Immunology, Biochemistry, Biology, Biophysics or Physiology or apply for admission to Faculty of Medicine, he may substitute Botany or Zoology for Trigonometry and Statics.)

General Programs

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First Year

Chemistry 20 or 22

English 20

Physics 20 or 22

Either Biology 22, Geology 20 and Mathematics 20 or 24

Or Three of: Botany 20, Geology 20, Mathematics 20 or 24, Zoology 20.

Chemistry 20 and Physics 20 may only be taken with Mathematics 24 (Calculus).

Second Year

Two courses in major subject.

Three courses from at least two Divisions, with no more than one from the Division of the Major and no more than one from Division D.

or

Third Year

Two courses in major subject.

Three courses from at least two Divisions, with no more than one from the Division of the Major. One Division D course may be included unless two Division D courses have been completed in Years I and II.

Required Courses

In either the 2nd or 3rd year at least one course must be chosen from Division B, and one language course at the 20 level from Division A.

GENERAL PROGRAM 2: FIRST YEAR ARTS

This program leads to Honors Programs in the Humanities, Social Sciences, Mathematics, Journalism, Physical and Health Education, and fulfills admission requirements for Faculty of Law.

Requirements for Admission

Grade 13 standing in English, another language, Latin or Mathematics(two of Algebra, Geometry, Trigonometry and Statics), and three additional papers, with an average of 60 percent.

First Year

English 20

French 20 or another language at the 20 level.

Two of: Economics 20, Geography 20, History 20, Philosophy 20, Politics 20, Psychology 20, Sociology 20.

One of: Mathematics 20, 24, Natural Science at the 21 to 29 level, another language at the 20 level.

One of: Business 20, Economics 20, Geography 20, History 20, Journalism 20, Mathematics 20 or 24, Music 20 - 20Y, Philosophy 20, Physical Education 20, Politics 20, Psychology 20, Sociology 20, another language, Astronomy 29, Biology 21, Chemistry 21, Geology 21, Physics 21.

Second Year

Two courses in major subject.

Three courses from at least two Divisions, with no more than one from the Division of the Major and no more than one from Division D.

Third Year

Two courses in major subject.

Three courses from at least two Divisions, with no more than one from the Division of the Major. One Division D course may be included unless two Division D courses have been completed in Years I and II.

THE DIVISIONS

DIVISION A (The Humanities)

Junior Courses

(numbered 1-29)
Classics: Greek 1, 10, 20
Latin 1, 10, 20
English 20
German 1, 10, 20, 22; 5, 35
Hebrew 1 - 10 (or 1 and 10), 20
Music 10, 20, 20y
Philosophy 20
Romance Languages:
French 10, 20, 22
Italian 1, 10, 20
Spanish 1, 10, 20
Russian 1, 10, 20, 22

Senior Courses

(numbered 30-499)
Classics: Greek 30, 40
Latin 30, 34, 40, 44
English 32, 34, 36, 37, 38, 44, 45, 49
German 30, 40, 42, 44
Hebrew 30
Music 30, 30y, 40
Philosophy 30, 31, 32, 34, 35, 36, 42, 43, 44, 47, 48, etc. and in affiliated colleges 30x-36x, 42x-47x
Romance Languages:
French 30, 31, 34, 38, 41, 45
Italian 30, 40
Spanish 30, 31, 35, 40, 41, 48
Russian 30, 35, 37, 40, 45, 281, 337, 391

DIVISION B (The Social Sciences)

Junior Courses

(number 1-29)
Economics 20
Geography 20
History 20
Political Science 20
Psychology 20, 21
Sociology 20

Senior Courses

(numbered 30-499)
Economics 30, 31, 32, 33, 35, 36, 37, 38, 39
Geography 32, 39, 45, 46, other courses with permission
History, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 44, 46
Political Science 31, 37, 42, 44, 48, 350, other courses with permission
Psychology 31, 32, 36, 39, 46, 48, 49
Sociology 30, 31, 32, 34, 35, 38, 40, 46

DIVISION C (The Natural Sciences, Mathematics, and Astronomy)

Junior Courses

(numbered 1-29)
Astronomy 29
Biology 21, 22
Botany 20
Chemistry 20, 21 ,22
Geology 20, 21
Mathematics 20, 24
Physics 20, 21, 22
Zoology 20

Senior Courses

(numbered 30-499)
Botany 33, 35, 36, 37, 42
Chemistry 32, 33, 44, 46
Mathematics 30, 32, 34, 35, 40, 230, 351
Physics 34, 35, 38, 39, 43, 46
Zoology 30, 34, 37, 41, 43, 44, 45, 47

DIVISION D (Other Subjects)

These subjects may not be used as major subjects and not more than two courses may be counted toward a General Program degree.

Junior Courses

(numbered 1-29)

Business Administration 20

Home Economics 23, 25

Journalism 20

Military Studies

Physical Education 20

Religious Knowledge (in the affiliated colleges) 10x, 20x, 21x

Secretarial Science (not available for General Program 1 or 2 students; those who have transferred from the General Program with Secretarial Science options to General Programs 1 or 2 may count two of Secretarial Science 28, 29, 30, 36, 37, 38, 39)

Senior Courses

(numbered 30-499)

Business Administration 250

English 39 (speech), 46 (Dramatics)

Journalism courses with permission

Physical Education 30, 253, 352, 366

Religious Knowledge (in the affiliated colleges) 30x, 31x, 32x, 37x, 40x, 41x, 42x, 44x, 47x

GENERAL PROGRAM: SECRETARIAL SCIENCE OPTIONS

Requirements for Admission: Grade 13 standing (with an average of 60%) in English, another language (French preferred), Latin or Mathematics (two papers), and three papers from Biology, Geography, History, Music, Physics, Chemistry, another language, another mathematics.

The Department of Education of Ontario accepts a degree in this program as the academic qualification for High School Assistant's Certificate, Type B, for teaching in the elementary or secondary schools of Ontario.

Enrolment is limited and students are admitted on the quality of their secondary school certificates.

Students must obtain credit for all of the first year before beginning any second year work.

First Year

Business 20

English 20

A survey course in Science

One of: French 20; German 10, 20; Spanish 20

Secretarial Science 28, 29

Second Year

Economics 20

English 32

Philosophy 30 or Politics 20 or Psychology 21

One of: French 31; German 20, 30; Spanish 31

Secretarial Science 30, 37, 38, 39

Third Year

One of: English 36, 38, 44, 45, 49
History 31
Secretarial Science 47, 48, 49
One of: French 43; German 30, 40; Spanish 30, 40, 41

GENERAL PROGRAM: HOME ECONOMICS OPTIONS

Requirements for Admission: Grade 13 standing (with an average of 60%) in English, another language, Latin or Mathematics (any two) and three papers of which at least one, preferably two, must be Science. (Chemistry and Biology preferred.)

This program, which leads to the B.A. degree in Home Economics, is offered jointly by University College and Brescia College. University College students in the course will take all their classes at University College except in Home Economics; Brescia College students will take all their science courses in University College. Home Economics and Chemistry courses must be taken in the order and year designated.

On graduation, students may take dietetic interne training in institutions approved by the Canadian Dietetic Association for professional standing. Students who have obtained 60% or more in the work of the final year, may attend College of Education and obtain the High School Assistant's Certificate, Type B, for teaching in the Elementary and Secondary schools of Ontario.

First Year

Biology 21
Chemistry 21
English 20
French 20 or language at 20 level
Home Economics 23x, 25x
Psychology 20 or Economics 20

Second Year

Botany 36
Chemistry 33
Senior English course
Home Economics 30x, 31x, 32x, 33x

Third Year

Chemistry 46
Home Economics 40x, 41x, 42x, 45bx, 46x, 47x, 48x

GENERAL PROGRAM: MUSIC OPTIONS

This three year general music program is offered at the College of Music. A student may major in piano, voice, organ, or one of the orchestral instruments. All students must reach the minimum of the Associate level in performance in their major practical music subject before graduation.

Requirements for Admission:

Academic requirements: Grade 13 standing (or the equivalent) with an average of 60% in English, another language and three other papers (exclusive of music).

Musical requirements: Satisfactory results in an audition to be held at the College of Music before July 15th or between August 20th and September 1st, by appointment.

And either of the following:

(a) Grade VIII piano; Grade II Theory; Grade III Harmony

(b) Grade VIII voice, organ or orchestral instrument; Grade II Theory; Grade III Harmony; Grade VI piano. (Students may be admitted conditioned in piano but must clear this requirement before the end of second year.)

Grade 13 Music of the Ontario Department of Education may be substituted for Grade II Theory and Grade III Harmony in either of the above categories.

First Year

Music 21, 21A (except for piano majors), 24, 25, 26, 27

English 20

One of: French 20; German 1, 10, 20

One of: History 20; Mathematics 20; Philosophy 20; Psychology 20; a second language

Second Year

Music 31, 31A (except for piano majors), 35, 36, 37, 38

English 32

One of: French 30, 31; German 10, 20, 30

One of: History 36; a senior course in mathematics; Philosophy 30; Psychology 21, 36; French; German; another language

Third Year

Music 41, 45, 47, 48

One music elective approved by the College of Music

Three courses in Arts or Science

Students entering the Third Year of the General Program with Music Options in September, 1965 will continue with the following program.

Third Year (1965-66 only)

Music 41, 44, 45, 46, 47, 48

English 38

One of: French 34; German, 20, 30, 40

For voice majors one of, and for all others two of: History 32, 44; Italian 20; French; German; another language; Philosophy 35, 48; Psychology 21, 49.

PRE-NURSING

Leading to the program for the degree of Bachelor of Science in Nursing (B.Sc.N.). Candidates for degrees must attend the University of Western Ontario for one full academic year.

Requirements for Admission: Grade 13 (or equivalent) standing in English, another language, Latin or Mathematics (any two papers), and two of Physics, Chemistry, Biology (Botany and Zoology), and one other paper, if necessary, to make a total of nine, with an average of 60% and with 60% in each Science course.

Two of: Biology 21; Physics 21; Chemistry 21 (Chemistry 20 if Grade 13 Chemistry, Physics, Algebra, Geometry have been completed)
English 20
A second language at the 20 level
Psychology 20
Sociology 20

Candidates for the B. Sc. N. degree should consult the Announcement of the School of Nursing for details of the programs.

PRE-BUSINESS

Requirements for Admission: Grade 13 standing in English, Mathematics (two papers), one other language, and three other subjects, with an average of 60%.

First Year

Business 20
Economics 20
English 20
Foreign Language 20
Mathematics 20
Psychology 20

Second Year

Business 250
A Senior English
One of: History 20, 31, 33, 36; Philosophy 30; Politics 20
One of: Biology 21; Chemistry 21; Geology 21; Physics 21
Two courses in Arts and Sciences leading to filling the concentration requirement, the option requirement, or both. See Announcement of the School of Business Administration.

Admission to third year is granted by the School of Business Administration on the courses of the first two years with an overall average of 60%.

PRE-MEDICAL PROGRAMS

For graduates

Students holding a B.A. or B.Sc. degree are eligible to apply for admission to the Faculty of Medicine. Further details are given in the Announcement of the Faculty of Medicine.

For undergraduates

All students preparing to study medicine must register in the College of Science. Undergraduates are eligible for admission to the Faculty of Medicine after completing two years of study in one of the following programs provided that it includes a *minimum* of one course in Biology, two courses in Chemistry, including Organic Chemistry and one course in Physics:

First Year

General Program 1 **(see page 41).** The elective courses should be chosen only after consideration has been given to the program for the Second Year.

Second Year

One of the following programs provided that a course in Organic Chemistry is included and that prerequisites are met:

1. Second Year of a 4-year Honors Program in Science (Anatomy, Bacteriology and Immunology, Biochemistry, Biology, Biophysics, Chemistry, Computer Science, Mathematics, Physiology). Entrance into Second Year Honors Biology includes requirement for either Biology 22 or both Botany 20 and Zoology 20.
2. Second Year of the 3-year General Program 1.
3. Second Year of a 4-year Honors Program in Arts (Economics, Mathematics, Philosophy, Psychology).

On the completion of these two years of study a student accepted by the Admission Committee of the Faculty of Medicine must be prepared to register with the College of Physicians and Surgeons. Consult the Announcement of the Faculty of Medicine for the details of the four years of Medicine leading to the M.D. degree.

The student should bear in mind that the number of qualified applicants for admission to Medicine may exceed the number that can be admitted. Therefore he should select a course of study for his second year which would provide an alternative training acceptable to him if he were not admitted to the Faculty of Medicine.

A student who is not admitted to Medicine may continue either in an Honors or in a General Program if his record is satisfactory. On completion of either program he may again apply for admission to Medicine.

Honors Programs

The first year of an Honors Program is First Year General Program 1 or 2.

The first year of an Honors Program in Chemistry or Physics may also be Engineering Science 1.

The length of an Honors Program is four years past Grade 13 or equivalent standing.

The Honors Programs in Anatomy, Bacteriology and Immunology, Biochemistry, Biology, Biophysics, Chemistry, Geology, Geophysics, Physics, Physics and Mathematics, Physiology, Physiology and Pharmacology, lead to an Honors Bachelor of Science degree (B.Sc.). All other Honors Programs lead to an Honors Bachelor of Arts degree (B.A.).

The Department of Education accepts a degree in an Honors Program as the academic qualification for a High School Assistant's Certificate, Type B, for teaching in the elementary and secondary schools of Ontario. Some Honors Programs lead to Type A Certificates for High School Specialists, and these are indicated at the top of the respective programs.

A student expecting to enter an Honors Program should consult that program before selecting his options in Program 1 or 2.

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

ADMISSION TO AND PROGRESS IN HONORS PROGRAMS

A student will be automatically accepted if he has an average of at least 66% with no grade of less than 60% 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 65% 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.

ANATOMY

Requirements for Admission: First Year General Program 1, with (a) Biology 22, (b) both of Botany 20 and Zoology 20, or (c) all three of Chemistry 20, Mathematics 24 and Physics 20, as principal courses. For grades required for admission and progression see above.

The admission requirements are determined by the prerequisites of the program selected for the Second Year.

Second Year

One of:

(a) **Second Year of Program in Honors Biology**
For prerequisites and courses see page 55.

(b) **Second Year of Program in Honors Chemistry**
For prerequisites and courses see page 58.

(c) **Second Year of other Honors Programs**

With permission of the Department of Anatomy, a student who has completed First Year General Program I may petition the Vice-President (Arts and Science) for recognition of the Second Year of such other Honors Programs as permit inclusion of a course in Organic Chemistry.

Students who wish to take the First Year of the Faculty of Medicine as the Third Year of this program must obtain acceptance from the Admissions Committee, Faculty of Medicine, and written approval of the Vice-President (Arts and Science) and the Vice-President (Health Sciences).

Third Year

(to be offered in 1966-67 and subsequent years)

Either

THIRD YEAR ANATOMY

Principal Courses

Anatomy 300

Two of: Bacteriology 300; Biochemistry 300; Biophysics 300; Physiology 300

One of: Botany 255; Physiology and Pharmacology 301; Zoology 255, 270, 352, 354

Subsidiary Courses

One of: French 20; German 5; Russian 1; Spanish 1

One of: Economics 20; English 32; Mathematics 20, 24, 277, 377; Philosophy 20, 31, 34; Politics 20; Psychology 21; Sociology 20

Mathematics 20 or 24 is required for students who have not previously taken a University course in Mathematics. Students who have completed a Social Sciences or Humanities Option in Second Year may, with permission of the Department of Anatomy, substitute another course in Honors Science.

Or

FIRST YEAR, FACULTY OF MEDICINE

For students planning to register for the degree of M.D. after completing the degree of B.Sc.

Fourth Year

(to be offered in 1967-68 and subsequent years)

Principal Courses

Anatomy 440a, 440b, 480, 481

Two of: Anatomy 460-468

One of: Bacteriology 460-471; Biochemistry 460-468; Biophysics 460-463b; Botany 454; Pharmacology 460-463; Physiology 460-469; Zoology 454, 456, 470

Subsidiary Courses

One of: French 31; German 15, 35; Russian 35; Spanish 45

ASTRONOMY

Requirements for Admission: First Year General Program I, with Mathematics 24, and Physics 20, as principal courses. For grades required for admission and progression see page 50.

Students who plan to continue into graduate studies are advised to commence German or Russian in the second year.

This Program is accepted by the Department of Education of Ontario as academic qualification for the High School Assistant's Certificate, Type A, Mathematics and Physics, provided that Algebra, Geometry, Trigonometry and Statics have been completed in Grade 13.

Second Year

Principal Courses

Astronomy 229
Mathematics 230, 256
Physics 250, 257

Third Year

Principal Courses

Astronomy 359
Mathematics 378P.
Physics 350
Two additional Mathematics or Physics courses at the 300 or 400 level

Subsidiary Course

One senior course from Division A or B

Fourth Year

Principal Courses

Astronomy 459
Two of: Physics 454, 455, 457
Two additional courses at the 300 or 400 level, from Mathematics, Physics, Geophysics or Chemistry

Subsidiary Course

One senior course from Division A or B

BACTERIOLOGY AND IMMUNOLOGY

Requirements for Admission: First Year General Program I, with one of (a) Biology 22, or (b) both of Botany 20 and Zoology 20, or (c) all three of Chemistry 20, Mathematics 24 and Physics 20 as principal courses. For grades required for admission and progression see page 50.

The admission requirements are determined by the prerequisites of the Program selected for the Second Year.

Second Year

Either

(a) **Second Year of Program in Honors Biology**

For prerequisites and courses see page 55.

Or

(b) **Second Year of other Honors Programs**

With permission of the Department of Bacteriology and Immunology, a student who has completed First Year General Program I, may petition the Vice-President (Arts and Science) for recognition of the Second Year of such other Honors Programs as permit inclusion of a course in Organic Chemistry.

Students who wish to take the First Year of the Faculty of Medicine as the Third Year of this Program must obtain acceptance from the Admissions Committee of the Faculty of Medicine, and written approval of the Vice-President (Arts and Science) and the Vice-President (Health Sciences).

Students who wish to enter the Fourth Year of this Program after completion of First Year Medicine may be required to show evidence of having some previous experience of this field, either as a completed course or as practical experience, and they may be required to pass an appropriate examination in the first week of the Fourth Year.

Third Year

(to be offered in 1966-67 and subsequent years)

Either

Third Year Bacteriology

Principal Courses

Bacteriology 300

Two of: Anatomy 300; Biochemistry 300; Biophysics 300; Physiology 300

One of: Botany 352, 361; Physiology and Pharmacology 301; Chemistry 353, 354; Zoology 352, 370

Subsidiary Courses

One of: French 20; German 5; Russian 1; Spanish 1

One of: Economics 20; English 32; Mathematics 20, 24, 277; Philosophy 20, 31, 34; Politics 20; Psychology 21; Sociology 20

Mathematics 20 or 24 is required for students who have not previously taken a University course in Mathematics. Students who have completed a Social Sciences or Humanities Option in Second Year may, with permission of the Department of Bacteriology and Immunology, substitute another course in Honors Science.

Or

First Year, Faculty of Medicine

For students planning to register for the degree of M.D. after completing the degree of B.Sc.

Fourth Year

(to be offered in 1967-68 and subsequent years)

Principal Courses

Bacteriology 440a, 440b, 460, 480, 481

Two of Bacteriology 461-471

Two of: Anatomy 460-468; Biochemistry 460-468; Biophysics 400-463b; Botany 460a and 461b; Chemistry 453, 454; Pharmacology 460-463; Physiology 460-469; Zoology 471

Subsidiary Courses

One of: French 31; German 15; Russian 35; Spanish 45

BIOCHEMISTRY

Requirements for Admission: First Year General Program I, with one of (a) Biology 22, or (b) both of Botany 20 and Zoology 20, or (c) all three of Chemistry 20, Mathematics 24 and Physics 20 as principal courses. For grades required for admission and progression see page 50.

The admission requirements are determined by the prerequisites of the Program selected for the Second Year.

Second Year

One of:

(a) **Second Year of Program in Honors Biology**
For prerequisites and courses see page 55.

(b) **Second Year of Program in Honors Chemistry**
For prerequisites and courses see page 58.

(c) **Second Year of other Honors Programs**
With permission of the Department of Biochemistry, a student who has completed First Year General Program I may petition the Vice-President (Arts and Science) for recognition of the Second Year of such other Honors Programs as permit inclusion of a course in Organic Chemistry.

Students who wish to take the First Year of the Faculty of Medicine as the Third Year of this program must obtain acceptance from the Admissions Committee, Faculty of Medicine, and written approval of the Vice-President (Arts and Science) and the Vice-President (Health Sciences).

Third Year

(to be offered in 1966-67 and subsequent years)

Either

Third Year Biochemistry

Principal Courses

Biochemistry 300

Two of: Anatomy 300; Bacteriology 300; Biophysics 300; Physiology 300

One of: Botany 352; Chemistry 351, 353, 354, 374; Physiology and Pharmacology 301; Zoology 352

Subsidiary Courses

One of: French 20; German 5; Russian 1; Spanish 1

One of: Economics 20; English 32; Mathematics 20, 24, 277, 377; Philosophy 20, 31, 34; Politics 20; Psychology 21; Sociology 20

Mathematics 20 or 24 is required for students who have not previously taken a University course in Mathematics. Students who have completed a Social Sciences or Humanities Option in Second Year may, with permission of the Department of Biochemistry, substitute another course in Honors Science.

Or

First Year, Faculty of Medicine

For students planning to register for the degree of M.D. after completing the degree of B.Sc.

Fourth Year

(to be offered in 1967-68 and subsequent years)

Principal Courses

Biochemistry 440a, 440b, 480, 481

Two of: Biochemistry 460-468

One of: Anatomy 460-468; Bacteriology 460-471; Biophysics 460-463b; Botany 255; Chemistry 451, 453, 454, 474; Pharmacology 460-463; Physiology 460-469; Zoology 255; any Third Year Principal Course not previously taken.

Subsidiary Courses

One of: French 31; German 15, 45; Russian 35; Spanish 45

BIOLOGY

Requirements for Admission: First Year General Program I, including **either** Biology 22 **or** both Botany 20 and Zoology 20 as principal courses. For grades required for admission and progression see page 50.

This program is accepted by the Department of Education of Ontario as Academic qualification for the High School Assistant's Certificate, Type A, Biology.

Second Year

Principal Courses

Botany 250

Botany or Zoology 255

Zoology 270

Subsidiary Courses

Chemistry 203, 204

One of: Mathematics 20, 24; Geology 20; Physics 204; one course from Division A or B

All students entering Third and Fourth Years are required to participate in the Field Courses conducted by their respective Departments.

All Third and Fourth year students must consult the head of the Department of Botany or the head of the Department of Zoology before registering in any of the courses prescribed for third and fourth years.

Third Year

(a) Botany Option

Principal Courses	Subsidiary Courses
Botany 300, 342, 351, 353, 357	Chemistry 406 or an Honors Course other than Botany from Division C One of: French 20; German 5; Russian 1

(b) Zoology Option

Principal Courses	Subsidiary Course
Zoology 352, 354, 370, 454 Chemistry 406 One of: Zoology 453, 456, 460, 470, 471, 473; Botany 357, 452, 453, 454, 466, 471; Geology 20, 363, 367; Mathematics 35	One of: French 20; German 5; Russian 1

Fourth Year

(a) Botany Option

Principal Courses	Subsidiary Courses
Botany 499 Four of: Botany 442, 452, 453, 454, 455, 457, 459, 460, 461, 466, 471	One Honors Course other than Botany from Division C One of: French 31; German 35; Russian 35

(b) Zoology Option

Either

Principal Courses	Subsidiary Courses
Zoology 437 Five of: Zoology 453, 456, 460, 465, 470, 471, 473, 480	One of: French 31; German 35; Russian 35

Or

Principal Courses	Subsidiary Courses
Zoology 437 Four of the above Zoology courses One of: Botany 357, 452, 453, 454, 466, 471; Geology 20, 363, 367; Mathematics 35; Chemistry 402	One of: French 31; German 35; Russian 35

BIOPHYSICS

Requirements for Admission: First Year General Program I including Mathematics 24 and Physics 20, with one of (a) Biology 22 or (b) both of Botany 20 and Zoology 20, or (c) all three of Chemistry 20, Mathematics 24 and Physics 20 as principal courses. For grades required for admission and progression see page 50.

The admission requirements are determined by the prerequisites of the program selected for the Second Year.

Second Year

One of:

(a) **Second Year of Program in Honors Physics**
For prerequisites and courses see page 90.

(b) **Second Year of Program in Honors Biology**
For prerequisites and courses see page 55.

(c) **Second Year of Program in Honors Chemistry**
For prerequisites and courses see page 58.

(d) **Second Year of other Honors Programs**
With permission of the Department of Biophysics, a student who has completed First Year General Program I may petition the Vice-President (Arts and Science) for recognition of the Second Year of such other Honors Programs as permit inclusion of a course in Organic Chemistry.

Students who wish to take the First Year of the Faculty of Medicine as the Third Year of this Program must obtain acceptance from the Admissions Committee, Faculty of Medicine, and written approval of the Vice-President (Arts and Science) and the Vice-President (Health Sciences).

Third Year

(to be offered in 1966-67 and subsequent years)

Either

Third Year Biophysics

Principal Courses

Biophysics 300

Anatomy 300

One of: Physiology 300; Bacteriology 300; Biochemistry 300; Physiology and Pharmacology 301

One of: Botany 352; Physics 366; Physics 250; Zoology 352; Chemistry 204

Subsidiary Courses

One of: French 20; German 5; Russian 1; Spanish 1; Chemistry 203

One of: Economics 20; English 32; Mathematics 20, 24, 277, 377; Philosophy 20, 31, 34; Politics 20; Psychology 21; Sociology 20

Chemistry 203 is permitted only for students from Second Year of the Honors Physics Program. Chemistry 204 is compulsory for students who have not previously taken Chemistry 204 or 254.

Students who have completed a Social Sciences or Humanities option in Second Year may, with permission of the Department of Biophysics, substitute another course in Honors Science.

Or

First Year, Faculty of Medicine

For students planning to register for the degree of M.D. after completing the degree of B.Sc.

Fourth Year

(to be offered in 1967-68 and subsequent years)

Principal Courses	Subsidiary courses
Biophysics 440a, 440b, 460, 480, 481	One of: French 31; German 15, 35; Russian 35; Spanish 45
Two of: Biophysics 461, 462, 463	
One of: Anatomy 460-468; Bacteriology 460-471; Biochemistry 460-468; Botany 255; Pharmacology 460-463; Physics 250, 350, 377; Physiology 460-469; Zoology 255	
Any Third Year Principal Course not previously taken.	

A student who has not previously taken Physics 250 must do so in his Fourth Year.

BUSINESS ADMINISTRATION AND SECRETARIAL SCIENCE

Requirements for Admission: First Year General Program 2, with Economics 20 and Business 20 as principal courses. For grades required for admission and progression see page 50.

Second Year

Principal Courses	Subsidiary Course
Business 250 (Accounting)	Geography 39
Economics 237, 33	
Secretarial Science 28, 29, 36	

Third Year

Principal Courses	Subsidiary Course
Business 351 (Marketing) and 357 (Control)	English 32
Secretarial Science 37, 38, 39	

Fourth Year

Principal Courses	Subsidiary Courses
Business 456 (Commercial Law and Documents of Commerce)	Two of: Economics 36; English 36, 37, 38, 44, 45, 49; History 36, 31, 44; Philosophy 30
One of: Business 460b Auditing); 461 (Retailing); 471 (Advertising)	
Secretarial Science 47	

CHEMISTRY

Requirements for Admission: First Year General Program I with Chemistry 20 or 22, Mathematics 24, and Physics 20 or 22 with all courses as principal courses, or Engineering Science I with all courses as principal courses. For grades required for admission and progression see page 50.

Students may elect either the Honors Chemistry or the Honors Chemistry with Physics options.

Both the Honors Chemistry option and the Honors Chemistry with Physics option are accepted by the Department of Education of Ontario as academic qualifications for the High School Assistant's Certificate, Type A, Physics and Chemistry.

Second Year

Principal Courses

Chemistry 253, 254, 261
Mathematics 277
Physics 250, 256

Third Year

(a) **Honors Chemistry option**

Principal Courses

Chemistry 351, 353, 354, 374
Mathematics 377c; (Under certain circumstances another course may be elected in consultation with the Chemistry Department.)

Subsidiary Courses

One of: French 20; German 5; Russian I
One of: Economics 20; Politics 20; Sociology 20

(b) **Honors Chemistry with Physics option**

Principal Courses

Chemistry 351, 353, 354, 374
Mathematics 377c
Physics 350

Subsidiary Course

One of: French 20; German 5; Russian I

Fourth Year

(a) **Honors Chemistry option**

Principal Courses

Chemistry 409, 452, 459, 474
Three of: Chemistry 451, 453, 454, 456

Subsidiary Courses

One of: French 31; German 35; Russian 35

(b) Honors Chemistry with Physics option

Principal Courses	Subsidiary Courses
Chemistry 409, 452, 454, 459, 474	One of: French 31; German 35; Russian 35
One of: Chemistry 451, 453; Physics 355, 366, 450	One of: Economics 20; Politics 20; Sociology 20

CLASSICS

Requirements for Admission: First Year, General Program 2 with a modern language other than English, and with Greek and Latin 20 as principal courses. This program is accepted by the Department of Education of Ontario as academic qualification for the High School Assistant's Certificate, Type A, Classics. For grades required for admission and progression see page 50.

Second Year

Principal Courses	Subsidiary Course
Greek 230, 250, 251	English 32
Latin 230, 250, 251	
Greek and Latin 257	

Third Year

Principal Courses	Subsidiary Course
Greek 340, 350, 351, 352	English 45
Latin 340, 350, 351, 352	

Fourth Year

Principal Courses

Greek 450, 451, 452, 453
Latin, 450, 451, 452, 453
Greek and Latin 457

COMPARATIVE LITERATURE

Requirements for Admission: First Year, General Program 2, with History 20, Philosophy 20 and Russian 20 as principal courses. Students beginning Russian at the University, who register for this program, will take Russian 20 in the second year. For grades required for admission and progression see page 50.

Second Year

Principal Courses	Subsidiary Course
English 253, 270	History 236
French 270	
German 290	
Russian 280	

Third Year

Principal Courses	Subsidiary Course
English 380	Politics 348 or History 337
French 380	
German 390	
Russian 390	

Fourth Year

Principal Courses	Subsidiary Course
English 480	History 460
French 490	
German 480	
Russian 420	

COMPUTER SCIENCE

Requirements for Admission: First Year General Program 1 or 2 with Mathematics 24 as a principal course. For grades required for admission and progression see page 50.

Second Year

Principal Courses	Subsidiary Courses
Computer Science 200, 206	Two options from the Natural Sciences or Social Sciences
Mathematics 250 or 230 and 256	One option from the Humanities

Third Year

Principal Courses	Subsidiary Courses
Computer Science 306, 313	One course in Mechanics or Thermodynamics
Mathematics 363	One course in Physiology
Mathematics 355 or Economics 355	One option from the Humanities

Fourth Year

Principal Courses	Subsidiary Courses
Computer Science 404, 405	Two courses at the 300 or 400 level from Natural Sciences or Social Sciences
Mathematics 453	One option from the Humanities, preferably a course in the history of development of scientific ideas.

ECONOMICS

Requirements for Admission: First Year General Program 1 or 2 or Pre-business with Economics 20 as a principal course. Students may be allowed to enter the honors program without Economics 20 if they have an average of 70% in all courses taken in First Year. For grades required for admission and progression see page 50. It is recommended that an option in Mathematics be taken as early as possible.

Second Year

Principal Courses	Subsidiary Courses
Economics 230, 237, 255 Business 250 or Mathematics 20 or 24	Two options other than Economics

Third Year

Principal Courses	Subsidiary Courses
Economics 333, 351 Two of: Economics 434, 447, 450, 455, 463	Two options other than Economics

Fourth Year

Principal Courses	Subsidiary Courses
Economics 440, 460 Two of: Economics 434, 447, 450, 451, 455, 463, 480, 495, 497	One option

ECONOMICS WITH HISTORY OPTIONS

Requirements for Admission: First Year General Program 2 with Economics 20 and History 20 as principal courses. For grades required for admission and progression see page 50. It is recommended that an option in Mathematics be taken as early as possible.

Second Year

Principal Courses	Subsidiary Course
Economics 230, 255, 237 2 options in Honors History	1 option

Third Year

Principal Courses	Subsidiary Course
Economics 333, 351, 447 2 options in Honors History	1 option

Fourth Year

Principal Courses	Subsidiary Course
Economics 497 Two Honors Economics courses One Honors History course	1 option

ECONOMICS WITH MATHEMATICS OPTIONS

Requirements for Admission: First Year General Program 1 or 2 with Economics 20 and Mathematics 24 as principal courses. For grades required for admission and progression, see page 50.

Second Year

Principal Courses	Subsidiary Courses
Economics 230, 255, 237 Mathematics 250, 256	

Third Year

Principal Courses	Subsidiary Course
Economics 333, 351 Mathematics 355, 378 One Honors Economics course	1 option

Fourth Year

Principal Courses	Subsidiary Course
Economics 440, 460 Mathematics 453 One Honors Economics course	1 option

ENGLISH AND FRENCH

Requirements for Admission: First Year, General Program 2, with English 20 and French 20 as principal courses. For grades required for admission and progression see page 50.

This program is accepted by the Department of Education of Ontario as academic qualification for the High School Assistant's Certificate, Type A, English and French.

Second Year

Principal Courses	Subsidiary Course
English 237, 256, 270 French 270, 271	One of: German 290, Latin 230 and 250, Spanish 231 and 230

Students who begin Spanish in the University will take Spanish 20 in the second year and defer Spanish 231 until the third year.

Third Year

Principal Courses	Subsidiary Course
English 360, 354 or 373, 380 French 380, 381 One of: French 338, 350	One of: History 35, 36, Philosophy 31, 35, Psychology 21, 49

Fourth Year

(not offered after 1965-66)

Principal Courses

English 459, 480
One of: English 436, 438
French 490, 491, 499

Fourth Year

(not offered until 1966-67)

Principal Courses

English 459, 480
One of: English 436, 438, 444
French 490, 491, 499

ENGLISH AND GERMAN

Requirements for Admission: First Year, General Program 2, with English 20 and German 20 as principal courses. History 20 must be chosen as an option in First Year. For grades required for admission and progression see page 50.

This program is accepted by the Department of Education of Ontario as academic qualification for the High School Assistant's Certificate, Type A, English and German.

Second Year

Principal Courses	Subsidiary Courses
English 237, 256, 270 German 290, 291	One of: French 270, Greek 20, Latin 230, 250, Politics 31, 37, Russian 10, Spanish 20, 230 History 36

Third Year

Principal Courses	Subsidiary Course
English 360, 380, 354 or 373 German 333, 390, 391	One of: Economics 20, French 380, Latin 340, 350 and 352, Greek 30, Philosophy 30, Russian 20, Spanish 230, 340

Fourth Year

(not offered after 1965-66)

Principal Courses

English 459, 480
One of: English 436, 438
German 420, 480, 481

Fourth Year

(not offered after 1965-66)

Principal Courses

English 459, 480
One of: English 436, 438, 444, 263
German 420, 480, 481

ENGLISH AND HISTORY

Requirements for Admission: First Year, General Program 2, with English 20 and History 20 as principal courses. For grades required for admission and progression see page 50.

This program is accepted by the Department of Education of Ontario as academic qualification for the High School Assistant's Certificate, Type A, English and History, provided that the student takes English 237 and two courses in Geography. Geography 20 should be taken in first year and another Geography course in third year. English 237 should be taken in second year.

Second Year

Principal Courses	Subsidiary Courses
English 256, 270	One foreign language option
History 236	Another option
History 231 or 244	

Third Year

Principal Courses	Subsidiary Courses
English 380, 354 or 373	A foreign language option
History 335	Another option, preferably an honors course
One of: History 333, 337, 338, 339, 357	

Fourth Year

(not offered after 1965-66)

Principal Courses

English 480
One or two of: English 436, 438, 459, 463
Two or three of: History 420, 431, 432, 433, 444, 452, 456, 460
Five courses constitute a normal load in Fourth Year.

Fourth Year

(not offered until 1966-67)

Principal Courses

English 480
English 438 or 459
A third honours English course if chosen.
Two or three of: History 420, 431, 432, 433, 444, 452, 456, 460
Five courses constitute a normal load in Fourth Year.

ENGLISH AND LATIN

Requirements for Admission: First Year, General Program 2, with English 20 and Latin 20 as principal courses. For grades required for admission and progression see page 50.

This program is accepted by the Department of Education of Ontario as academic qualification for the High School Assistant's Certificate, Type A, English and Latin.

Second Year

Principal Courses

English 237, 256, 270
Latin 257
Latin 230, 250, 251

Subsidiary Courses

One of: French 270, Greek 20, 230 and 250, German 20, 290

Third Year

Principal Courses

English 360, 380, 354 or 373
Latin 340, 350, 351, 352

Subsidiary Course

History 35

Fourth Year

(not offered after 1965-66)

Principal Courses

English 459, 480, and 436 or 438
Latin 450, 451, 452, 453

Fourth Year

(not offered until 1966-67)

Principal Courses

English 459, 480
One of: English 436, 438, 444
Latin 450, 451, 452, 453

ENGLISH AND PHILOSOPHY

Requirements for Admission: First Year General Program 2, with English 20, History 20 and French 20 or German 20 or Latin 20 as principal courses. For grades required for admission and progression see page 50.

Sequence B is accepted by the Department of Education of Ontario as academic qualification for the High School Assistant's Certificate, Type A, English, provided that the student takes three courses in English in the final year. For this certificate, French is the language preferred by the Department of Education.

Sequence A

Second Year

Principal Courses	**Subsidiary Courses**
English 256, 270	*Two options*
Philosophy 254, 257	

Third Year

(for 1965-66 only)

Principal Courses	**Subsidiary Courses**
English 354, 380	Two options
Philosophy 256, 257	

Fourth Year

Principal Courses

Two or three of: English 360, 459, 480, and 436 or 438 or 444
One of: Philosophy 456, 458, 466, 467, 477
One of: Philosophy 450, 454, 464, 474
If an additional Philosophy course is required, one of 338, 456, 458, 466, 467, 477

Sequence B

Second Year

Principal Courses	**Subsidiary Course**
English 237, 256, 270	One of: French 270 and 271, German 290 and 291, Latin 230 and 251
Philosophy 254, 257	

Third Year

(for 1965-66 only)

Principal Courses

English 360, 380
One of: English 354, 373
One of: Philosophy 256, 257

Subsidiary Course

One of: French 380, German 390, Latin 340

Fourth Year

Principal Courses

English 480, and 438 or 459
Two of: Philosophy 357, 456, 458, 466, 467, 477
An additional honors English course or an additional honors Philosophy course.

ENGLISH AND RUSSIAN

Requirements for Admission: First Year General Program 2, with English 20 and Russian 20 as principal courses. Students who begin Russian at the university will take Russian 20 in the second year. For grades required for admission and progression see page 50.

This program is accepted by the Department of Education of Ontario as academic qualification for the High School Assistant's Certificate, Type A, English and Russian.

Second Year

Principal Courses

English 237, 256, 270
Russian 280, 281

Subsidiary Courses

History 37
One option

Students who begin Russian at the University will take Russian 20 in the second year.

Third Year

Principal Courses

English 360, 380 and 354 or 373
Russian 390, 391

Subsidiary Course

One option

Fourth Year

Principal Courses

English 459, 480
One of: English 436, 438
Russian 420, 490, 491, 493

ENGLISH LANGUAGE AND LITERATURE

Requirements for Admission: Sequence A: First year, General Program 2, with English 20, History 20 and a foreign language as principal courses; **Sequence B:** First year, General Program 2, with English 20 and two foreign languages as principal courses. Latin 20 and Philosophy 20 are preferred as First Year options. For grades required for admission and progression see page 50.

This program is accepted by the Department of Education of Ontario as academic qualification for the High School Assistant's Certificate, Type A, English.

Second Year

Principal Courses

English 256, 263, 270, 280

Subsidiary Courses

Sequence A:

History 35

One of: French 30, German 30, Latin 30, Greek 30

Sequence B:

Two of: French 270, German 290, Latin 230, Greek 230, History 35

Third Year

Principal Courses

English 354, 360, 370, 373, 380

Subsidiary Courses

Sequence A:

Two of: History 36 or another history, a Philosophy course, a foreign language course, English 366.

Sequence B:

One of: French 380, German 390, Latin 340, Greek 352

One of: History 35 or another history, a Philosophy course, French 38, an Honors course in a second foreign language, English 366.

Fourth Year

(not offered after 1965-66)

Principal Courses

English 438, 459, 463, 480

Sudsidiary Courses

Sequence A:

History 460

Sequence B:

One of: French 490; German 480; Latin 452; Greek 452

Fourth Year

(not offered until 1966-67)

Principal Courses	Subsidiary Courses
English 438, 459, 480	Sequences A and B:
One of: English 400, 401, 436, 444	One of: English 237, 263; French 490; German 480; Latin 452; Greek 452; an honors course in History; an honors course in Philosophy

FRENCH LANGUAGE AND LITERATURE

Requirements for Admission: First Year, General Program 2, with French 20 and English 20 as principal courses, a Natural Science 21 or Latin 20, History 20, Philosophy 20 and one of Politics 20, Psychology 20, Sociology 20 or Economics 20. For grades required for admission and progression see page 50.

Candidates for the High School Assistant's Certificate, Type A, French Language and Literature, are required to attend a French-speaking university for one year. This year may be substituted for the Third Year of this program if comparable courses are available; otherwise a fifth year will be needed to complete the requirements laid down by the Department of Education of Ontario.

Second Year

Principal Courses	Subsidiary Courses
French 22, 270, 271	History 36
English 256 or 280	One of: Philosophy 31, 35, 230, Psychology 21, Politics 20, Sociology 20, a Natural Science 21.

Third Year

Principal Courses	Subsidiary Course
French 338, 350, 380, 381	One of: Philosophy 47, Politics 37, Psychology 49, Sociology 30.
English 480	

Fourth Year

Principal Courses	Subsidiary Courses
French 490, 491, 499	Two of: Philosophy 48, History 460, Politics 434, Economics 447.
One of: English 270, 360, 459	

FRENCH AND LATIN

Requirements for Admission: First Year, General Program 2, with French 20 and Latin 20, as principal courses. For grades required for admission and progression see page 50.

This program is accepted by the Department of Education of Ontario as academic qualification for the High School Assistant's Certificate, Type A, French and Latin. Three years, or the equivalent, of Greek or German must be taken.

Second Year

Principal Courses	***Subsidiary Courses***
French 270, 271	One of: English 32, 34, 44
Latin 230, 250, 251, 257	German 20 or Greek 20

Third Year

Principal Courses	**Subsidiary Courses**
French 350, 380, 381	German 30 or Greek 30
Latin 340, 350, 351, 352	One of: English 49, History 35, 36, Philosophy 31, 35, Psychology 21, 49.

Fourth Year

Principal Courses

French 490, 491, 499
Latin 450, 451, 452, 453

GEOGRAPHY

Requirements for Admission: First year General Program 1 or 2 with Geography 20 as a principal course. A student who wishes to enter Second Year and has not taken Geography 20 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 20 during the academic year and write the Geography 20 Spring* examination. For grades required for admission and progression see page 50.

Second class honors standing in this program is accepted by the Department of Education of Ontario as academic qualification for the High School Assistant's Certificate, Type A, Geography, provided that five approved courses are selected in the following subjects: Astronomy, Economics, Geology, History, Mathematics, Sociology.

Second Year

Principal Courses	**Subsidiary Courses**
Geography 200, 230, 232, 241	Two options

During the first two years the following courses must be completed: Economics 20, Mathematics 20 or 24, Geology 21.

Third Year

Principal Courses	Subsidiary Courses
Geography 339, 345, 346 Geology 367	Two options other than Geography courses.

Students who intend to continue into Graduate studies are advised to begin work in a second foreign language not later than Third Year.

Fourth Year

Principal Courses	Subsidiary Courses
Geography 443 (half course), 448 (half course), 450 (one and a half courses) One of: Geography 430, 431, 432, 433, 434, 435, 439, 440, 447. One of: Geography 460, 461, 462, 463, 464, 465, 466, 467, 468.	One of: French 45, German 45, Russian 45, Spanish 45 (half course) One option

GEOLOGY

Requirements for Admission: First Year, General Program I, with Geology 20 as a principal course. The student is strongly advised to have credit in Mathematics 24. For grades required for admission and progression see page 50.

This program is accepted by the Department of Education of Ontario as academic qualification for the High School Assistant's Certificate, Type A, Geology.

Second Year

Principal Courses	Subsidiary Courses
Chemistry 204 Engineering Science 256 Geology 200, 251, 263 Physics 254, 259	German 5 or Russian 1 or French 20 One of: Botany 20, Mathematics 277, Zoology 370, Physics 251, Computer Science 200

Immediately following the final examinations, the department will conduct a field camp of ten day's duration in which second and third year are required to participate. The cost of this will not exceed $50.00 per student.

Third Year

Principal Courses	Subsidiary Courses
Geology 300, 351, 354, 355, 363, 365, 367	One course from the Humanities or Social Science Divisions One of: German 15, Russian 35, French 31

Fourth Year

Principal Courses	Subsidiary Courses
Geology 458, 460 Three of: Geology 452, 454, 462, 463, 470, Geophysics 465	One course from the Humanities or Social Science Divisions

GEOPHYSICS

Requirements for Admission: First year General Program 1 with Geology 20 as a principal course. For grades required for admission or progression see page 50.

Second Year
(Identical with Second Year Honors Physics)

Principal Courses	Subsidiary Courses
Physics 250, 251, 254, 255, 259	Mathematics 230, 256
	One of: French 20, German 5, Russian 1.

If Geology 20 has not been taken in First Year it must be taken as an additional course in Second Year.

Third Year

Principal Courses	Subsidiary Courses
Geology 251, 355	Mathematics 378P
Geophysics 366	
Physics 350, 355	

Fourth Year

Principal Courses	Subsidiary Courses
Geology 452	Geophysics 458
Geophysics 465	Two options from Division A or Division B
Three of: Astronomy 459, Geology 462, Mathematics 478, Physics 450, 451, 453, 457, 466	

A student intending to enter graduate school should elect as one of the fourth year options a course in the language taken in second year.

GERMAN LANGUAGE AND LITERATURE

Requirements for Admission: First Year General Program 2 with German 20 and English 20 as principal courses, a Natural Science 21 or Latin 20, Sociology 20 or Economics 20. For grades required for admission and progression see page 50.

This program is accepted by the Department of Education of Ontario as the academic qualification for the High School Assistant's Certificate, Type A, English and German, provided that three of the five options are honors courses in English.

Second Year

Principal Courses	Subsidiary Courses
German 290, 291	History 236
English 254 or 270	Two options

Third Year

Principal Courses	Subsidiary Courses
German 333, 390, 391 English 356 or 360	Two options

Fourth Year

Principal Courses	Subsidiary Course
German 420, 444, 480, 481 One of: English 356, 373, 459, 480	One option

HISTORY

Requirements for Admission: First Year, General Program 2, with History 20 as a principal course and one foreign language. For grades required for admission and progression see page 50.

This program is accepted by the Department of Education of Ontario as the academic qualification for the High School Assistant's Certificate, Type A, History, if the following options are taken: Economics 20 or Politics 20, Geography 20, Geography 345 or 346, and an English course in the third or fourth year.

Second Year

Principal Courses	Subsidiary Courses
History 231, 236, 244	One of: Philosophy 20, Economics 20, Geography 20, Politics 20, 231, 244, English 32, 36, 38 or 44 One of: French 30, 34, German 30, Greek 30, Latin 30, Spanish 30, 40, Russian 1, 10 One option

Third Year

Principal Courses	Subsidiary Courses
History 335 Two of: History 333, 337, 338, 339, 357	One of: Geography 345, 346; Politics 231, 244, 337, 362; Philosophy 257, 357; Economics 237, 333 One of: English 32, 36, 38, 44, 45, 49, or a literature course in another language One option

Fourth Year

Principal Courses	Subsidiary Courses
Three of: History 400, 420, 431, 432, 433, 444, 452, 456, 460 (A third-year honors history course may be included with permission of the History Department.)	Two of: Philosophy 357, 477; Politics 337, 348, 362, 434, 451, 462; Economics 237, 447, 450; Geography 345, 346; literature course in English; literature course in another language.

HISTORY AND GERMAN

Requirements for Admission: First Year General Program 2 with History 20 and German 20 as principal courses. For grades required for admission and progression see page 50.

Second Year

Principal Courses	Subsidiary Courses
History 231, 236	Two options
German 290, 291	

Third Year

Principal Courses	Subsidiary Courses
History 335, 357	Two options
German 333, 390, 391	

Fourth Year

Principal Courses	Subsidiary Course
History 456, 460	One option
German 420, 480, 481	

HISTORY AND PHILOSOPHY

Requirements for Admission: First Year, General Program 2, with History 20 and Philosophy 20 as principal courses. For grades required for admission or progression see page 50.

Second Year

Principal Courses	Subsidiary Courses
History 231, 236	One course in English
Philosophy 254, 257	One option (History 20 if not taken previously)

Third Year

Principal Courses	Subsidiary Courses
History 335, 357	Two options
Philosophy 256	
One of: Philosophy 357, 362	

Fourth Year

Principal Courses

Two or three of: History 337, 421, 431, 452, 456, 460
One of: Philosophy 456, 458, 466, 467, 477
One of: Philosophy 450, 454, 464, 474
If an additional Philosophy course is required: One of: 456, 458, 466, 467, 477

JOURNALISM

Requirements for Admission: First Year, General Program 2 with Journalism 20 as a principal course. Transfer students from other Colleges or programs must include Journalism 20 in Second Year if it has not been completed and delay Journalism 250 until Third Year. For grades required for admission and progression see page 50.

Second Year

Principal Courses	Subsidiary Courses
Journalism 250, 260, 270	A senior English or a senior Foreign Language
Politics 20	One option
One of: Economics 20, Psychology 21, Sociology 20	

Third Year

Principal Courses	Subsidiary Courses
Journalism 351, 355, 365, 375	Politics 362
History 31	One option
A senior English or a senior Foreign Language	

Fourth Year

Principal Courses	Subsidiary Courses
Journalism 451, 455	History 44 or Politics 44
	An Honors Social Science Course
	One of: a senior English or a senior Foreign Language
	One option

JOURNALISM - PUBLIC RELATIONS OPTIONS

Requirements for Admission: First year General Program 2 with Economics 20 and Journalism 20 as principal courses. For grades required for admission and progression see page 50.

Second Year

Principal Courses	Subsidiary Courses
Journalism 250	One of: English 32, 34, 36, 38, 39, 44, 45, 49
Economics 36	One option (non Journalism)
Politics 20	
Psychology 21 or Sociology 20	

Third Year

Principal Courses	Subsidiary Courses
Journalism 352	History 31
Journalism 365	One option (non Journalism)
Journalism 375	
An Honors course in one of: Economics, Politics, Psychology, Sociology	
Business 20	

Fourth Year

Principal Courses	Subsidiary Courses
Journalism 452	History 44 or Politics 44
Journalism 455	A Business course
An Honors course in one of: Economics, Politics, Psychology, Sociology (must be in the same subject as the Honors course in third year)	One option

DIPLOMA PROGRAM IN JOURNALISM

Requirements for Admission: Graduation from a recognized college with a degree in some field other than Journalism.

Candidates for the Diploma in Journalism will take the prescribed courses and complete special assignments in reporting, writing and editing.

An average of 60% in this one-year program is required for the Diploma.

Principal Courses

Journalism 260, 351, 355, 365, 375, 400, 455.

LATIN WITH GREEK

Requirements for Admission: First Year, General Program 2 with Latin 20 and Greek as principal courses, and a modern language other than English. For grades required for admission and progression see page 50.

This program, available only to candidates not having Grade 13 standing in Greek on admission is accepted by the Department of Education of Ontario as academic qualification for the High School Assistant's Certificate, Type A, Latin and Greek.

Second Year

Principal Courses	Subsidiary Course
Greek 20, 257	English 32
Latin 230, 250, 251	

Third Year

Principal Courses
Greek 230, 250, 251
Latin 340, 350, 351, 352

Subsidiary Course
English 45

Fourth Year

Principal Courses
Greek 340, 350, 351, 352
Greek and Latin 457
Latin 450, 451, 452, 453

MATHEMATICS

Requirements for Admission: First year, General Program 1 or 2 with Mathematics 24 as a principal course and Physics 20 as a principal course for admission to the Physics Option of Applied Mathematics. For grades required for admission and progression see page 50. For requirements concerning joint honors programs in Philosophy and Mathematics see page 88.

Second Year

Principal Courses
Mathematics 250, 256

Subsidiary Courses
Three options, at least one of which must be from Division A or B. If Honors Physics courses are elected they will be considered principal courses.

Third and Fourth Years

In the third and fourth years, a student may select one of four Programs. Each Program fulfills the academic requirements for the Ontario High School Assistant's Certificate, Type A, Mathematics. Programs 1 and 4 are accepted as academic qualifications for the Type A Certificate, Mathematics and Physics, if the following courses have been completed: (i) Grade 13 Algebra, Geometry, Trigonometry and Statics; (ii) Physics 250, 257; 350 or 356; 357; (iii) at least one university course in Chemistry.

A student who has completed the Second Year of the Computer Science Program may be permitted to enter one of Programs 1, 2, or 3 provided Mathematics 250 has been taken in the second year. If Mathematics 250, Physics 250, Physics 257 have been taken in the second year of Computer Science, a student may enter the Physics Option of Applied Mathematics.

Students who plan to continue into graduate studies are advised to commence a foreign language in their Second Year.

MATHEMATICS (PROGRAM 1)

Third Year

Principal Courses

Mathematics 350, 356
One of: Mathematics 351, Physics 350, 356
One Mathematics course at the 300 or 400 level

Subsidiary Course

One senior course from Division A or B

Fourth Year

Principal Courses

Mathematics 456
One of: Mathematics 450, 452, 470, Physics 357
Three Mathematics courses at the 300 or 400 level

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. In 1965 these examinations will be held in May and November. They may be written in London. 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
One Mathematics course at the 300 or 400 level

Subsidiary Course

One senior course from Division A or B

Fourth Year

Principal Courses

Mathematics 463
Two of: Mathematics 450, 452, 455, 456, 460
Two Mathematics courses at the 300 or 400 level, one of which must be Mathematics 363 if not previously taken.

MATHEMATICAL STATISTICS (PROGRAM 3)

Third Year

Principal Courses

Mathematics 355, 356
Two Mathematics courses at the 300 or 400 level

Subsidiary Course

One senior course from Division A or B

Fourth Year

Principal Courses

Mathematics 445, 455
One of: Mathematics 450, 456, 460
Two Mathematics courses
at the 300 or 400 level

APPLIED MATHEMATICS (PROGRAM 4)

Third Year

Principal Courses

Mathematics 356, 378
One Mathematics course
at the 300 or 400 level
Two options at the 300 or 400 level

Subsidiary Courses

One senior course from Division A or B

Fourth Year (1965-66)

Principal Courses

Mathematics 478
One of: Mathematics 450, 456, 464, 468
Two Mathematics courses
at the 300 or 400 level
Two options at the 300 or 400 level

Fourth Year (1966-67 and after)

Principal Courses

Mathematics 453 or 478
Three Mathematics courses
at the 400 level
One option at the 300 or 400 level

In Program 4, a department other than the Department of Mathematics may prescribe the options in each year, subject to the approval of the Department of Mathematics. In this case, Program 4 will be called "Applied Mathematics, ...Option" where the blank space is to contain the name of the field in which the non-mathematics options are selected. For "Applied Mathematics, Physics Option" and "Applied Mathematics, Economics Option", see below:

PHYSICS OPTION, APPLIED MATHEMATICS

Requirements for Admission: First Year General Program I with Mathematics 24 and Physics 20 as principal courses.

Second Year

Principal Courses

Mathematics 230 or 250, 256
Physics 250, 257

Subsidiary Courses

One course from Division A or B

Third Year

Principal Courses

Mathematics 356, 358, 378
Physics 355
One of: Mathematics 350, 355, 363, Physics 357

Subsidiary Courses

One senior course from Division A or B

Fourth Year

(not offered after 1965-66)

Principal Courses

Mathematics 363, 458, 478, 498
Physics 455
One of: Mathematics 450, 456, 464, 468

Fourth Year

(not offered until 1966-67)

Principal Courses

Mathematics 458, 478, 488, 498
One of: Mathematics 350, 363, 456, Physics 453

ECONOMICS OPTION, APPLIED MATHEMATICS

Requirements for Admission: First Year General Program 1 with Mathematics 24 as a principal course and permission of the Department of Economics and Sociology or First Year General Program 2 with Mathematics 24 and Economics 20 as principal courses.

Second Year

Principal Courses

Economics 230, 255
Mathematics 250, 256

Subsidiary Courses

One senior course from Division A or B

Third Year

Principal Courses

Economics 333
Mathematics 355, 356, 378
One of: Economics 237, 351

Subsidiary Course

One senior course from Division A or B

Fourth Year

Principal Courses

Economics 440
Mathematics 350, 445, 453, 455

For Honors Program in Economics, Mathematics option, see page 63.

MODERN LANGUAGES AND LITERATURES

Requirements for Admission: First Year General Program 2 with two of French, German, Russian, Spanish as principal courses.

The following combinations of Honors subjects are permitted: French and German, German and Russian, French and Spanish, German and Spanish, French and Russian, Russian and Spanish.

A student must continue in the third and fourth years of the Honors Program the combination of Honors subjects selected at the beginning of the second year.

The French and German and the French and Spanish Honors Programs are accepted by the Department of Education of Ontario as the academic qualification for the High School Assistant's Certificate, Type A, French and German, or French and Spanish.

Students who begin Spanish in the University and who wish to major in Spanish will take Spanish 20 in the Second Year and will defer Spanish 231 until the Third Year.

Students who begin Russian in the University and who wish to major in Russian will take Russian 20 in the Second Year.

For grades required for admission and progression see page 50.

Second Year

Principal Courses

French 270, 271
German 290, 291
Spanish 230, 231, 260
Russian 280, 281

Subsidiary Courses

One of: English 32, 34, 44
One course in a modern foreign language not chosen as a major.

Third Year

Principal Courses

French 380, 381
One of: French 338, 350 (students intending to undertake graduate studies in French should elect French 350)
German 333, 390, 391
Spanish 340, 341
One of: Spanish 348, 365
Russian 390, 391

Subsidiary Courses

One of: English 49, History 35, 36, 37, Philosophy 31, 35, Psychology 21, 49
One course in the minor foreign language of the Second Year.

Fourth Year

Principal Courses

French 490, 491, 499
German 420, 480, 481
Spanish 455, 460, 461, 465
Russian 420, 490, 491, 493

Subsidiary Course

One course in the minor foreign language continued from the Third Year

BACHELOR OF MUSIC

This four year program is offered at the College of Music. All students will be enrolled in a common first year. At the beginning of second year each student will choose an area of concentration and will enrol in one of the four honors programs outlined below.

Requirements for Admission:

Academic requirements: Grade 13 standing (or the equivalent) with an average of 60% in English, another language and three other papers (exclusive of music). Students who plan to enrol in the Music Education program should include one mathematics paper.

Musical requirements: Satisfactory results in an audition to be held at the College of Music before July 15th or between August 20th and September 1st, by appointment; and either (a) Grade VIII piano; Grade II Theory; Grade III Harmony, or (b) Grade VIII voice, organ or orchestral instrument; Grade II Theory; Grade III Harmony; Grade VI piano. (Students may be admitted conditioned in piano but must clear this requirement before the end of second year.) Grade 13 Music of the Ontario Department of Education may be substituted for Grade II Theory and Grade III Harmony in any of the above categories.

For admission to the Honors in Performance program, a Grade X in piano, voice, organ or orchestral instrument, as well as evidence of exceptional performing ability, will be required.

Students planning to teach music in the schools should enrol in the Honors Music Education program in second year. This program is accepted by the Department of Education of Ontario as academic qualification for the High School Assistant's certificate, Type "A" in Instrumental and Vocal music. The other Bachelor of Music programs will be accepted as qualification for Type "A" certificates in Vocal Music only.

All students must reach the minimum of the Associate level in performance in their major practical music subject before graduation.

BACHELOR OF MUSIC

First Year

Music 21, 21A (except for piano majors) 24, 25, 26, 27, 28, 117 (for prospective Music Education students only)

English 20

French 20 or German 1, 10 or 20

HONORS MUSIC EDUCATION

Second Year

Music 217, 231, 231A (except for piano majors), 232, 235, 236, 237, 238, 247

English 32

One course in Arts or Science (German 10 must be taken if German 1 was chosen in first year)

Third Year

Music 317, 332, 337, 341, 345, 347, 348, 350

One music elective approved by the College of Music

Physics 33

One course in Arts or Science

Fourth Year

Music 417, 432, 437, 442, 447, 447A, 450, 451, 455, 458, 467 — One course in Arts or Science

HONORS IN PERFORMANCE (With major in Piano)

Second Year

Music 231, 235, 236, 237, 238 — English 32
One course in Arts or Science

Third Year

Music 337, 341, 345, 348, 351, 354 — Two courses in Arts or Science
One music elective approved by the College of Music

Fourth Year

Music 437, 451P, 453, 458, 461 — One course in Arts or Science
One music elective approved by the College of Music

HONORS IN PERFORMANCE (With major in Voice)

Second Year

Music 231, 231A, 235, 236, 237, 238 — English 32
One course in Arts or Science

Third Year

Music 337, 341, 345, 348, 352 — Two courses in Arts or Science
One music elective approved by the College of Music

Fourth Year

Music 437, 451P, 452, 453, 458 — One course in Arts or Science
One music elective approved by the College of Music

HONORS IN PERFORMANCE (With major in Organ and Church Music)

Second Year

Music 231, 231A, 235, 236, 237, 238 — English 32
One course in Arts or Science

Third Year

Music 337, 341, 345, 348, 353, 354 — Two courses in Arts or Science
One music elective approved by the College of Music

Fourth Year

Music 437, 451P, 453, 458, 463	One course in Arts or Science
One music elective approved by the College of Music	

HONORS IN PERFORMANCE (With major in Orchestral Instrument)

Second Year

Music 231, 231A, 235, 236, 237, 238	English 32
	One course in Arts or Science

Third Year

Music 337, 341, 345, 348, 351	Two courses in Arts or Science
One music elective approved by the College of Music	

Fourth Year

Music 437, 451P, 453, 458, 461	One course in Arts or Science
One music elective approved by the College of Music	

HONORS IN THEORY AND COMPOSITION

Second Year

Music 231, 231A (except for piano majors), 235, 236, 237, 238, 239	English 32
	One course in Arts or Science

Third Year

Music 337, 341, 342, 345, 348, 349	Two courses in Arts or Science

Fourth Year

Music 437, 451, 455, 458, 459	One course in Arts or Science
One music elective from the Music History area	

HONORS IN MUSIC HISTORY

Second Year

Music 231, 231A (except for piano majors), 235, 236, 237, 238, 252	English 32
	French 30 or 31, or German 10, 20 or 30

Third Year

Music 337, 341, 345, 348	Two courses in Arts or Science (One of which should be general political and economic history)
Two music history electives	

Fourth Year

Music 437, 451, 452
Two music history electives
One other music elective

Two courses in Arts or Science

BACHELOR OF ARTS WITH HONORS MUSIC

Requirements for Admission: First Year General Program with Music Options with an average of at least 60%. All students must reach the minimum of the Associate level in performance in their practical music subject before graduation.

This program is accepted by the Department of Education of Ontario as academic qualification for the High School Assistant's Certificate, Type "A", in Vocal Music.

Second Year

Music 231, 231A (except for piano majors), 235, 236, 237, 238

English 32
One of: French 30 or 31, German 10, 20 or 30
One of: History 36, a second course in French or German or another language, Mathematics 24, Philosophy 30, Psychology 36

Third Year

Music 337, 341, 345, 348
Two music electives from Theory or Music History areas

Two courses in Arts or Science

Fourth Year

Music 437, 451, 458
Two music electives

Two courses in Arts or Science

Students entering the third and fourth years of the B.A. with Honors Music Education Program will continue with the following:

Third Year
(1965-66 only)

Music 307, 317, 327, 337, 341, 344, 345, 346, 347, 357
English 38
Physics 33

Fourth Year
(1965-66 only)

Music 407, 417, 417R, 427, 437, 447, 447R, 451, 454, 455, 456, 457, 467
Two courses in Arts or Science

MUSIC GRADUATE IN PAEDAGOGY

This two year course leading to the Diploma (Mus. G. Paed.) is offered at the College of Music.

Requirements for Admission: Grade 13 standing (or the equivalent) in English, another language, and three other papers exclusive of music with an average of at least 60%; Grade IX in piano, voice, organ or orchestral instrument; Grade II Theory; Grade III Harmony. (Grade 13 Music of the Ontario Department of Education may be substituted for Grade II Theory and Grade III Harmony.)

First Year

Music 21, 21A (except for piano majors), 22 (for piano and organ majors), 23, 24, 25, 26, 27, 28

English 20

One of: French 20; German 1; Italian 1; History 20; Mathematics 20; Philosophy 20; Psychology 20

Second Year

Music 31, 31A (except for piano majors), 33, 34, 35, 36, 37, 38

English 32

One of: French 30, 31; German 10; Italian 10; History 36; Mathematics 24; Philosophy 36; Psychology 36

PHILOSOPHY

(This program is offered in the Colleges of the University only.)

Requirements for Admission: First Year, General Program 1 or 2 or first year General Program: Pre-Theological Options with English 20 and two other courses approved by the Department as principal courses. For grades required for admission and progression see page 50.

Second Year

Principal Courses	Subsidiary Courses
Philosophy 254, 256, 257	A senior course from Division A or Division B
	One course from Division C unless previously taken
	One option

Third Year

Principal Courses	Subsidiary Courses
Philosophy 357, 362	A senior course from Division B (if not taken in second year)
Two of: Philosophy 338, 350, 351, 353, 355 (351 must be taken if not elected in second year)	One senior option

Fourth Year

Principal Courses	Subsidiary Courses
Two of: Philosophy 456, 458, 466, 467, 477	One senior option
Two of: Philosophy 450, 454, 464, 474	

PHILOSOPHY AND GERMAN

Requirements for Admission: First Year General Program 2, English 20 and German 20 as principal courses and History 20. For grades required for admission and progression see page 50.

Second Year

Principal Courses	Subsidiary Courses
German 290, 291	Two options
Philosophy 254, 257	

Third Year

Principal Courses	Subsidiary Courses
German 333, 390, 391	Two options
Philosophy 256, 357	

Fourth Year

Principal Courses

German 420, 480, 481

Two of: Philosophy 456, 458, 466, 467, 477

One of: Philosophy 450, 454, 464, 474

PHILOSOPHY AND MATHEMATICS

Requirements for Admission: First year General Program 1 or first year General Program 2, with Mathematics 24 as principal course.

This program is accepted by the Department of Education of Ontario as the academic qualification for the High School Assistant's Certificate, Type A, Mathematics, if the student completes a course in Physics, a course in Chemistry, Philosophy 351, 454 and 464 and selects the additional course in fourth year from the Mathematics options.

Second Year

Principal Courses	Subsidiary Courses
Philosophy 254, 257	One course from Division A, B, or C
Mathematics 250, 256	

Third Year

Principal Courses	Subsidiary Courses
Philosophy 256, 351	One senior course from Division A or B
Mathematics 350, 356	
One of: Mathematics 340, 351	

Fourth Year

Principal Courses

Two of: Philosophy 450, 454, 464, 474
Mathematics 470
One of: Mathematics 450, 456, 460
One additional Mathematics or Philosophy course at 300 or 400 level, subject to approval of the Departments

PHILOSOPHY AND PSYCHOLOGY

Requirements for Admission: First Year, General Program 2, with Psychology 20 and Philosophy 20 as principal courses. If Psychology 20 was not taken in the First Year, Psychology 21 must be selected as an option in the Second Year. For grades required for admission and progression see page 50.

Second Year

Principal Courses	Subsidiary Course
Philosophy 254, 257	One option
Psychology 235, 236, 255	

Third Year

Principal Courses	Subsidiary Courses
Philosophy 256	One option
One of: Philosophy 351, 357, 362	
Psychology 338, 349	
One of: Psychology 337, 343	

Fourth Year

Principal Courses

One of: Philosophy 456, 458, 466, 467, 477
Two of: Philosophy 450, 454, 464, 474
Psychology 445, 459
One of: Psychology 446, 450

PHILOSOPHY AND SOCIOLOGY

Requirements for Admission: First year, General Program 2, with Philosophy 20 and Sociology 20 as principal courses. For grades required for admission and progression see page 50.

Second Year

Principal Courses	Subsidiary Courses
Philosophy 254, 257	Economics 237
Sociology 330	Politics 20
	One option

Third Year

Principal Courses	Subsidiary Courses
Philosophy 256	Politics 434
One of: Philosophy 351, 357, 362	History 36
Sociology 331	Psychology 21

Fourth Year

Principal Courses	Subsidiary Courses
Two of: Philosophy 450, 454, 464, 474	Psychology 49
One of: Philosophy 456, 458, 466, 467, 477	
Two of: Sociology 332, 334, 338	

PHYSICAL AND HEALTH EDUCATION

Requirements for Admission: First Year, General Program 2, with Physical Education 20 as the principal course, and Biology 21. For grades required for admission and progression see page 50.

This program is accepted by the Department of Education of Ontario as academic qualification for the High School Assistant's Certificate, Type A, Physical Education.

Second Year

Principal Courses	Subsidiary Courses
P.H.E. 251, 253, 254, 258	Zoology 30
	One course from the Humanities
	One option beginning a field of concentration in the Humanities, Social Sciences or Natural Sciences.

Third Year

Principal Courses	
P.H.E. 342, 351, 352, 353	One senior course from the Social Sciences
	2 options.

Fourth Year

Principal Courses	Subsidiary Courses
P.H.E. 442, 451, 456, 457	2 options.

PHYSICS

Requirements for Admission: First Year, General Program 1 with Physics 20 and Mathematics 24 as principal courses or First Year Engineering. For grades required for admission and progression see page 50.

This program is accepted by the Department of Education of Ontario as the academic qualification for the High School Assistant's Certificate, Type A, Mathematics and Physics.

Students who are primarily interested in the application of Mathematics to the Physical Sciences are referred to the Honors Applied Mathematics (Program 4) with Physics options. Admission to the Third Year of this program is open to students who have completed the Second Year of Physics.

Second Year

Principal Courses	Subsidiary Courses
Mathematics 230, 256 Physics 250, 251, 254, 255, 259	One of: French 20, German 5, Russian 1

Third Year

Principal Courses	Subsidiary Courses
Mathematics 378 P Physics 350, 355, 356, 357, 359	One of: French 31, German 15, Russian 35

Fourth Year

(to be offered in 1966-67 and subsequent years)

Principal Courses	Subsidiary Courses
Physics 450, 451, 453, 457, 458, 459 One of: Physics 464, 466, a senior option	One of: Economics 20, Philosophy 31, Philosophy 34, Psychology 21

PHYSICS AND MATHEMATICS

Students who are primarily interested in the application of Mathematics to the Physical Sciences are referred to the Honors Applied Mathematics (Program 4) with Physics options. Admission to the Third Year of this program is open to students who have completed the Second Year of Physics and Mathematics. For grades required for admission and progression see page 50.

This program is accepted by the Department of Education of Ontario as the academic qualification for the High School Assistant's Certificate, Type A, Mathematics and Physics.

Fourth Year

(to be offered only in 1965-66)

Principal Courses	Subsidiary Course
Physics 455, 456, 457, 458	
General Physics Option	
Physics 454, 459	One of: Economics 20, English 32 or 35, Psychology 21, Philosophy 31 or 34
Radio Physics Option	
Physics 477, 479 One of: Mathematics 478 or Physics 476	

PHYSIOLOGY

Requirements for Admission: First Year General Program 1, with one of (a) Biology 22, or (b) both of Botany 20 and Zoology 20, or (c) all three of Chemistry 20, Mathematics 24 and Physics 20 as principal courses. For grades required for admission and progression see page 50.

The admission requirements are determined by the prerequisites of the Program selected for the Second Year. (See below.)

Second Year

(offered in 1965-66 and subsequent years)

One of: (a) **Second Year of Program in Honors Biology.** For prerequisites and courses see page 55. (b) **Second Year of Program in Honors Chemistry.** For prerequisites and courses see page 58. (c) **Second Year of Program in Honors Physics.** For prerequisites and courses see page 90. (d) **Second Year of other Honors Programs.** With permission of the Department of Physiology, a student who has completed the First Year of General Program I may petition the Vice-President (Arts and Science) for recognition of the Second Year of such other Honors Programs as permit inclusion of a course in Organic Chemistry.

Students who wish to take the First Year of the Faculty of Medicine as the Third Year of this Program must obtain acceptance from the Admissions Committee, Faculty of Medicine, and written approval of the Vice-President (Arts and Science) and the Vice-President (Health Sciences).

Third Year

(to be offered in 1966-67 and subsequent years)

Either

(a) **Third Year Physiology**

Principal Courses	**Subsidiary Courses**
Physiology 300	One of: French 20; German 5; Russian 1; Spanish 1; Chemistry 203
Physiology and Pharmacology 301	
Two of: Anatomy 300; Bacteriology 300; Biochemistry 300; Biophysics 300; Botany 352; Zoology 352.	One of: Economics 20; English 32; Mathematics 20, 24, 277, 377; Philosophy 20, 31, 34; Politics 20; Psychology 21; Sociology 20.

Chemistry 203 is permitted only for students from Second Year of Physics Program.

Mathematics 20 or 24 is required for students who have not previously taken a University course in Mathematics. Students who have completed a Social Sciences or Humanities option, or a foreign language course in Second Year may, with permission of the Department of Physiology, substitute other courses in Honors Science.

Or

(b) **First Year, Faculty of Medicine**

For students planning to register for the degree of M.D. after completing the degree of B.Sc.

Fourth Year

(to be offered in 1967-68 and subsequent years)

Students may choose either the Physiology or Physiology and Pharmacology option in the last year of this program.

Principal Courses	**Subsidiary Courses**
Physiology 440a, 440b, 460	One of: French 31; German 15 or 35; Russian 15; Spanish 45

And

Physiology Option

Physiology 480, 481

Two of: Physiology 462 - 469 (as available)

One of: Anatomy 460-468; Bacteriology 460-471; Biochemistry 460-468; Biophysics 460-463b; Botany 255, 352, 454; Pharmacology 460-463; Psychology 343; Zoology 255, 352, 453, 473; any Third Year Principal Course not previously taken.

Or

Physiology and Pharmacology Option

Pharmacology 480, 481

Two of: Pharmacology 460-467 (as available)

One of: Anatomy 460-468; Bacteriology 460-471; Biochemistry 460-468; Biophysics 460-463b; Botany 255, 352, 354; Physiology 462-469; Psychology 343; Zoology 255, 352, 453, 473; any Third Year Principal Course *not* previously taken.

POLITICAL SCIENCE

Requirements for Admission: First Year General Program 1 or 2, with Politics 20 as a principal course. For grades required for admission and progression see page 50.

Students will normally be expected to take a diversified selection of options from the Social Sciences and Humanities, such as History, Philosophy, Economics, Mathematics and Geography. Students who wish to specialize in another subject in conjunction with Politics should take 5 senior options in that subject. Students wishing to stress International Politics are advised to carry a foreign language, preferably French, German, Spanish or Russian, and the following courses: Politics 231, 348, 451, History 36, 456.

With the addition of one further course in Politics, this program is accepted by the Department of Education of Ontario as the academic qualification for the High School Assistant's Certificate, Type A.

Second Year

Principal Courses	Subsidiary Courses
Two of: Politics 231, 242, 244	Four options

Third Year

Principal Courses	Subsidiary Courses
Politics 337	Four options
One of: Politics 346, 348, 350, 362; a second year course not previously taken; a fourth year course.	

Fourth Year

Principal Courses	Subsidiary Courses
Politics 480	Two options
Two of: Politics 434, 451; a senior course not previously taken	

PSYCHOLOGY

(This program is offered in the Colleges of the University only.)

Requirements for Admission: First year, General Program 1 or 2, with Psychology 20 as a principal course. If Psychology 20 is not taken in the First Year, Psychology 21 must be selected as an option in Second Year. For grades required for admission and progression see page 50.

Second Year

Principal Courses	Subsidiary Courses
Psychology 234, 235, 236, 255	One of: Mathematics 20, 24, or 35, Philosophy 30, 34, Physics 21, Sociology 20, Zoology 21 or 30
	One option

Third Year

Principal Courses	Subsidiary Courses
Psychology 337, 338, 343, 349	Two options

Fourth Year

Principal Courses	Subsidiary Courses
Psychology 445, 446, 450, 459	Two options

University and Middlesex Colleges and the College of Science

Faculties and Courses

ANATOMY

College of Science

Professors:

Murray Llewellyn Barr, B.A., M.Sc., M.D.; L.L.D. Queen's and Toronto; F.R.S.C., F.R.C.P.(C), F.A.C.P., Head of the Department
Robert Crawford Buck, M.Sc., M.D.; Ph.D. London
Arthur Herbert Christian von Hochstetter, M.D. Vienna

Associate Professors:

David Harvey Carr, M.B.Ch.B. Liverpool
Guy Sainte-Marie, B.A. Saint Marie; M.D. Montreal; Ph.D. McGill

Assistant Professors:

Martin Hollenberg, B.Sc.(Med.), M.D. Manitoba; M.Sc. Wayne
Kazumasa Hoshino, M.D., D. Med. Sci. Tokyo

Assistant Professor of Human Genetics:

Hubert Constantine Soltan, B.A., Ph.D. *Toronto*

Lecturers:

Aileen Cline, M.D. (Part-time)
Eric Werner Karl Fritz Donisch, M.D. Bonn
Paul Philip Hauch, M.D. (Part-time)

Honorary Lecturer:

Carl Franz Robinow, M.D. Hamburg; F.R.S.C.

Instructors (Part-time):

Albert Charles Deadman, M.D.
Thomas Arthur Jory, M.D., F.R.C.S.(C)
Thomas Donald McLarty, B.A., M.D., F.R.C.S.(C)
Martin Lyle Robinson, B.A., M.D., M.R.C.O.G., F.R.C.S.(C), F.A.C.S., F.A.C.O.G.
Frederick Raymond Sergovich, B.A. McMaster; Ph.D.

Fellows:

James Laird, M.D.; Maureen Burke Sass, M.D.; M.Sc. Australian National University

Research Assistant:

Rajan P. Nayyar, B.Sc., M.Sc. Panjab; Ph.D. Delhi

Demonstrators:

Shiu H. Kung, Dip. Sci. Hong Kong; M.Sc. McGill; Peter G. Price, B.Sc. McMaster; M.D.C.M. McGill; Evelyn P. Shaver, B.Sc., M.Sc.; Roderick P. Singh, B.Sc., M.Sc.

Courses

254. Functional Human Anatomy: For students in the Physical, Health and Recreation Education Program.

1 lecture, 1 laboratory hour

Honors Courses

300. Cytology and Histology: Survey for Honors students.

2 lectures, 3 laboratory hours

440a. Statistical Methods in Biology: An interdepartmental course given in co-operation with the Department of Psychiatry and Preventive Medicine, and Biophysics.

1 lecture (one term, half-course)

440b. History of Science: An interdepartmental course.

1 lecture (one term, half-course)

460. Advanced Histology: Cytology and Histology, with emphasis on electron microscopy and ultrastructure.

1 lecture

461. Gross Anatomy: A study of human anatomy, including practical dissection.

2 lectures

462. Neuroanatomy: A course in the anatomy of the mammalian central nervous system, especially the brain of man.

1 lecture

463. Embryology: The principles of development as seen in the mammalian embryo.

1 lecture

464. Cytogenetics: An examination of chromosome morphology and behaviour, including chromosome abnormalities in man as causes of disease.

1 lecture

465. Tissue Culture and Cytology: The methodology and uses of cell culture.

1 lecture

466. Hematology: The natural history of blood cells and their precursors, especially in man, and an introduction to blood dyscrasias.

1 lecture

467. Experimental Embryology and Teratology: An examination of natural and experimentally produced abnormalities of development.

1 lecture

468. Histochemistry and Cytochemistry: The location of various compounds in tissues and cells, including autoradiography.

1 lecture

480. Laboratory: The major laboratory course in various aspects of Anatomy for students in the Fourth Year of the Program. Maximum time available.

481. Research and Seminar. 2 hours.

BACTERIOLOGY AND IMMUNOLOGY

College of Science

Professors:

Robert George Everitt Murray, B.A., M.A. Cantab.; M.D., C.M. McGill; F.R.S.C., Head of the Department
Carl Franz Robinow, M.D. Hamburg; F.R.S.C.

Associate Professor:

Philip Chester Fitz-James, B.S.A., British Columbia; M.S.A. Toronto; M.D., Ph.D.

Clinical Associate Professor:

Ian Bonthrone Rae Duncan, M.B., Ch.B., M.D. Glasgow; F.R.C.F.(C)

Assistant Professors:

Alexander Bakerspigel, B.A., M.A. McMaster; Ph.D.
Earl Wilson Robert Campsall, B.A. Queen's; M.D., C.M. McGill
Edward Lionel Medzon, B.Sc., M.Sc. Manitoba; Ph.D. McGill

Honorary Lecturers:

Christopher Lynton Hannay, B.S.A. Toronto; D.I.C., Ph.D. London
James Charteris Paterson, O.B.E.; M.D. Toronto

Research Fellow:

Bijun Kumar Ghosh, B.Sc., M.Sc., D.Sc. Calcutta

Instructor:

Ernest Eben Brown, B.Sc. Harvard; B.Sc. McGill
Ruth Bernstein-Ziv, B.Sc., M.Sc., Ph.D. Hebrew University, Israel

Demonstrator:

Pamela Dawn Steed, B.Sc. Queensland

Honors Courses

300. Microbiology: A comparative study of the morphology, biology and relationships of algae, bacteria, fungi and viruses. Given in collaboration with the Department of Botany.

2 lectures, 3 laboratory hours

440a. Statistical Methods in Biology: An interdepartmental course given in co-operation with the Departments of Psychiatry and Preventive Medicine, and Biophysics.

1 lecture (one term, half-course)

440b. History of Science: An interdepartmental course.

1 lecture (one term, half-course)

460. Advanced Bacteriology: Selected topics to accompany the laboratory course.

Prerequisites: Bacteriology 300 or equivalent, Biochemistry 300, 406 or 456.

2 lectures

461. Microbial Anatomy and Methods of Morphology: A survey of cytological methods and knowledge.

Prerequisites: Bacteriology 300 or equivalent; or Anatomy 300 and Biochemistry 300, 406 or 456.

1 lecture

462. Advanced Virology: General Virology illustrated by detailed consideration of specific examples.

Prerequisites: Bacteriology 300 or equivalent course.

1 lecture

463. Immunology: An advanced course concerned with immunological theory and the interpretation of immune phenomena.

Prerequisites: Bacteriology 300 or equivalent, Biochemistry 300, 406 or 456.

1 lecture

464. Immunochemistry: The application of immunological techniques to chemical problems. (Given in collaboration with the Department of Biochemistry).

Prerequisites: Bacteriology 300 or equivalent, Biochemistry 300, 406 or 456.

1 lecture

465. Microbial Biochemistry: A course to be given in collaboration with the Department of Biochemistry.

Prerequisites: Bacteriology 300 and Biochemistry 300, 406 or 456.

1 lecture

466. Bacterial Ecology: A course concerned with biological associations in nature and with laboratory model systems.

Prerequisites: Bacteriology 300 or equivalent.

1 lecture

467. Microbial Genetics: Aspects of genetics applying to micro-organisms. (Given in collaboration with the Department of Botany).

Prerequisites: Bacteriology 300 or equivalent.

1 lecture

468. Medical Bacteriology: A course concerned with pathogenesis and exemplary problems in diagnostic and determinative medical bacteriology.

Prerequisites: Bacteriology 300.

1 lecture

469. Medical Mycology: A consideration of fungi pathogenic for man and animals.

Prerequisites: Bacteriology 300, Botany 361 or equivalents.

1 lecture

470. Bacterial Taxonomy and Classification: An examination of old and new approaches to systematic arrangements of procaryotic organisms, and the code of nomenclature.

Prerequisite: Bacteriology 300 or equivalent.

1 lecture

471. Current Topics:

Prerequisites: Bacteriology 300 or equivalent.

1 lecture

480. Laboratory: A laboratory course in Experimental Bacteriology, Virology and Immunology to accompany the lecture courses taken in Fourth years Honors Bacteriology. Maximum time available.

481. Research and Seminar: 1 hour.

BIOCHEMISTRY

College of Science

Professors:

Harold Brown Stewart, M.D., Ph.D. Toronto; Ph.D. Cantab.; Head of the Department
Roger James Rossiter, B.Sc. West Australia; B.A., M.A., D.Phil., B.M., B.Ch. D.M. Oxon.; F.R.S.C.

Associate Professors:

Charles Cross Bigelow, B.A.Sc. Toronto; M.Sc., Ph.D. McMaster
Kenneth Percy Strickland, B.Sc., M.Sc., Ph.D.

Assistant Professors:

Fred Clark Heagy, M.D., M.Sc., Ph.D.
William Lovell Magee, B.Sc., M.Sc., Ph.D.
William Colin Cameron McMurray, B.Sc., Ph.D.
Ian Gardner Walker, B.A. Saskatchewan; M.A., Ph.D. Toronto

Lecturer:

Philip Chester Fitz-James, B.S.A. British Columbia; M.S.A. Toronto; M.D., Ph.D.

Honorary Lecturers:

Kenneth Kitchener Carroll, B.Sc., M.Sc. New Brunswick; M.A. Toronto; Ph.D.
Arthur James Hudson, M.D., B.Sc., Toronto; F.R.C.P.(C)
Elvins Yuill Spencer, B.Sc., M.Sc. Alberta; Ph.D. Toronto

Instructor:

Paul David Gatfield, M.D. Queen's

Fellows:

Valentine Donisch, M.D. Bonn; Robert J. Gardiner, B.A., M.D.; John W. David McDonald, M.D.; Francis A. McElroy, B.A. Toronto; Robert M. Reid, M.D., C.M. Dalhousie

Demonstrators:

Shirley M. Bayer, B.A. Alberta; M.Sc.; Judith B. Coulthart, B.A.; Leonard P. Kalutich, B.A. Toronto; Scott C. McClure, B.Sc.; Fred Possmayer, B.A. Toronto; Brian D. Reid, B.Sc.Phm. Toronto

Courses

46. General Biochemistry: A survey for General Program students.
Prerequisites: Chemistry 33 or 203.

2 lectures, 3 laboratory hours

Honors Courses

300. General Biochemistry: A survey for Honors students.
Prerequisites: Chemistry 203 or 253; Chemistry 204 or 254.

3 lectures, 4 laboratory hours (every second week)

440a. Statistical Methods in Biology: An interdepartmental course given in co-operation with the Departments of Psychiatry and Preventive Medicine, and Biophysics.

1 lecture (one term, half-course)

440b. History of Science: An interdepartmental course.
1 lecture (one term, half-course)

406. General Biochemistry: A survey for students in Honors Biology.
2 lectures, 3 laboratory hours

456. General Biochemistry: A survey for students in Honors Chemistry (given in conjunction with the Department of Chemistry).
1 lecture

460. Enzymology:
Prerequisites: Biochemistry 300, 406 or 456.
1 lecture

461. Macromolecules and Biochemical Genetics:
Prerequisites: Biochemistry 300, 406 or 456.
1 lecture

462. Intermediary Metabolism:
Prerequisites: Biochemistry 300, 406 or 456.
1 lecture

463. Current Topics:
Prerequisites: Biochemistry 300, 406 or 456.
1 lecture

464. Immunochemistry: Given in collaboration with the Department of Bacteriology.
Prerequisites: Bacteriology 300; Biochemistry 300, 406 or 456.
1 lecture

465. Microbial Biochemistry: Given in collaboration with the Department of Bacteriology.
Prerequisites: Bacteriology 300; Biochemistry 300, 406 or 456.
1 lecture

466. Comparative Biochemistry: Given in collaboration with the Department of Zoology.
Prerequisites: Biochemistry 300, 406 or 456.
1 lecture

467. Plant Biochemistry: Given in collaboration with the Department of Botany.
Prerequisites: Biochemistry 300, 406 or 456.
1 lecture

468. Physical Biochemistry:
Prerequisites: Biochemistry 300, 406 or 456.
1 lecture

480. Laboratory: A laboratory course in Experimental Biochemistry designed to accompany the lecture work of Fourth Year Honors Biochemistry.
Maximum time available.

481. Research and Seminar: 1 hour.

BIOPHYSICS

College of Science

Professor:

Alan Chadburn Burton, M.B.E., B.Sc. London; M.A., Ph.D. Toronto; LL.D. Alberta; F.R.C.S., F.R.S.A.; Head of the Department

Associate Professor:

Robert Andrew Snyder, B.Sc., Ph.D.

Assistant Professors:

William Rodger Inch, B.Sc., Queens; Ph.D.
Margot Ruth Roach, B.Sc., New Brunswick; M.D., C.M., McGill; Ph.D.

Lecturer:

Ronald I. Duncan, B.S., M.S., Ph.D. Oklahoma

Post-Doctoral Research Assistants:

Ross C. Gilman, M.D.
Virginia Carolyn Graham, B.Sc., M.D.

Research Assistants:

Peter B. Canham, B.A.Sc. Toronto; M.Sc. Waterloo; Rafael L. Kosan, B.Sc., Queen's; Jack Kruuv, B.A.Sc., M.Sc., Waterloo; Marvin H. Sherebrin, B.Sc. Eng. Phys., Manitoba, M.Sc., P.Eng.; Brig. B. Shrivastava, B.Sc., M.Sc., Vikram, India

Honors Courses

300. General Biophysics: A survey of the Physics of living things.
3 lectures, 4 laboratory hours (every second week)

440a. Statistical Methods in Biology: An interdepartmental course given in co-operation with the Departments of Psychiatry and preventive Medicine.
1 lecture (one term, half-course)

440b. History of Science: An interdepartment course.
1 lecture (one term, half-course)

460. Advanced General Biophysics: Selected topics illustrating the application of physical and mathematical analysis to the behavior of living systems.
1 lecture

461a. Principals of Radiobiology: The effects of radiation of different wavelengths on living cells and organisms.
1 lecture (one term, half-course)

461b. Cellular Biophysics. The Physics of cell size, shape, physical properties of cellular membranes, mobility, diffusion and transport.
1 lecture (one term, half-course)

462a. Biological Transducers and Cybernetics: Study of physiological receptors and homeostatic mechanics. Psycho-Physics.
1 lecture (one term, half-course)

462b. Medical Electronics and Instrumentation: The principles and possibilities of precise measurements in biological research.

1 lecture (one term, half-course)

463a. Bioenergetics: Historical and modern aspects of living systems as illustrating the laws of thermodynamics; the steady state.

1 lecture (one term, half-course)

463b. Bioelectricity: Physical aspects of excitation, conduction and electrical activity of living cells.

1 lecture (one term, half-course)

480. Laboratory: This is the major laboratory course in experimental Biophysics for students in the Fourth Year Program of Honors Biophysics.

Maximum time available.

481. Research and Seminars: 1 hour.

BOTANY

College of Science

Professors:

Clarence James Hickman, B.Sc., M.Sc., Ph.D. Birmingham, Head of the Department
Bruce Gordon Cumming, B.Sc. Reading; Ph.D.
Wilbert Ezekiel McKeen, B.Sc., M.Sc., Ph.D. Toronto
Duncan Archibald McLarty, B.A.; Ph.D. Columbia
David George Wilson, B.A. Toronto and Queen's; M.A. Queen's; Ph.D. Wisconsin

Associate Professors:

Frankland Shaw Cook, B.A., Ph.D. Toronto
David Burton Walden, B.A. Wesleyan; M.Sc., Ph.D. Cornell

Assistant Professors:

Paul Brethen Cavers, B.S.A., Ont. Agr. Coll., Ph.D. Bangor
Richard I. Greyson, B.A. British Columbia; M.Sc., Ph.D. Oregon
Christopher Ernest Laten, B.Sc. Reading; Ph.D. Birmingham
Lazlo Orloci, B.S.F. Sopron; M.Sc., Ph.D. British Columbia
James Bird Phipps, B.Sc. Birmingham
Angela Myra Wellman, B.Sc., Ph.D. Bristol

Honorary Lecturers (Part-time):

Wolfgang Albert Andreae, M.Sc., Ph.D. McGill
K. Lakshminarayanan, B.Sc., M.Sc., Ph.D. Madras
William Harold Minshall, B.S.A. Toronto; M.Sc., Ph.D. McGill
Lloyd Thomas Richardson, B.A. McMaster; M.A., Ph.D. Toronto
Edward William Beswick Ward, B.Sc. Wales, M.Sc., Ph.D. Alberta

Instructor:

John K. Johannesen, Diploma, Royal Agricultural College, Copenhagen (Curator)

Postdoctoral Fellow:

Peter Edward Brandham, B.Sc., Ph.D. London

John Labatt Fellow (Post-doctoral):

Sylvia B. Walkden, B.Sc., Ph.D. Liverpool

Demonstrators:

Vincent J. Bellis, B.Sc., M.S., North Carolina State College; Richard Bland, B.Sc. London; Rosalind M. Brown, B.A.; Hon H. Ho, B.Sc. Hong Kong; Marguerite A. Kane, B.Sc. Nottingham; Yew H. Lee, B.Sc. Nanyang (Singapore); R. A. Lubke, B.Sc. Rhodes; Paul B. Marriage, B.Sc. Western; Margaret Masters, B.A. Bishop's; Norman L. Mitchell, B.Sc. London; Ronald M. Rosher, B.A., M.A. Saskatchewan; Elizabeth M. Turbayne, B.Sc. Manchester

Courses

20. Introductory Botany: For students of General Program I; the general principles of Botany. 2 lectures, 3 laboratory hours—34

21. 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 applications of biology to social and economic problems. This course is given both in the Department of Botany and in the Department of Zoology. 2 lectures, 2 laboratory hours— 7

22. Biology: For students of General Program I; the fundamental principles of biology stressing the features common to all living organisms. This course is given both in the Department of Botany and in the Department of Zoology. 2 lectures, 3 laboratory hours—23

33. Plant Ecology: Interrelationships of biological communities and their non-living environment; environmental factors (physical and biological) that influence plant growth and distribution; organization and distribution of plant communities 1 lecture, 3 laboratory hours— 6

Prerequisite: Botany 20, Biology 21, or Biology 22.

35. 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.

Prerequisite: Botany 20, Biology 21, or Biology 22. 2 lectures—13

36. Microbiology: Morphology, biology, classification and economic importance of micro-organisms.

Prerequisites: Botany 20, Biology 21, or Biology 22.

1 lecture, 3 laboratory hours— 3

37. Taxonomy and Phylogeny: Taxonomy and evolution with special references to flowering plants.

Prerequisite: Botany 20, Biology 21, or Biology 22.

1 lecture, 3 laboratory hours—28

42. Plant Physiology: Aspects of the physiology of growth and development including growth regulation, reproduction and dormancy.

1 lecture, 3 laboratory hours—19

Prerequisite: Botany 20, Biology 21, or Biology 22.

Honors Courses

Prerequisites for Second (250, 255), Third (300-363) and Fourth (442-499) Year courses: successful completion of previous year's program or permission of the Head of the Department.

250. Vascular Plants: Comparative morphology and anatomy of vascular plants with emphasis on the experimental approach to the study of growth and morphogenesis.

2 lectures, 3 laboratory hours—10

255. 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.

2 lectures, 3 laboratory hours—13

300. Biometrics: Study of statistical methods and their application to biological data.

1 lecture—31

342. Cell Biology: Structure and function of cells, with emphasis on cell types, organelles, and the biochemical and physiological processes occurring within them.

2 lectures, 3 laboratory hours—11

351. Microbiology: A comparative study of the morphology, biology and relationships of algae, bacteria, fungi and viruses. Given in collaboration with the Department of Bacteriology.

2 lectures, 3 laboratory hours—15

353. Ecology and Developmental Physiology: Ecological and Physiological considerations of plant survival, growth and development.

2 lectures, 3 laboratory hours—20

357. Plant Taxonomy: Theory of taxonomy. Numerical taxonomy with emphasis on Q-techniques. Study of selected genus. History of taxonomic practice and theory.

1 lecture, 3 laboratory hours—28

363. Field Course: A course of study of plants in their natural environment for students entering Third Year. Students should be prepared to meet part of the expenses for travel and subsistence.

442. Plant Biochemistry: Selected topics in plant biochemistry, including photosynthesis and nitrogen metabolism. Given in collaboration with the Department of Biochemistry.

1 lecture, 1 laboratory hour—27

452. Plant Physiology: Selected topics in plant physiology, with emphasis on translocation, water relations and mineral nutrition.

1 lecture, 1 laboratory hour—33

453. Experimental Plant Ecology: Plant competition. Evolutionary aspects of ecology, theories of development and classification of plant communities. Ecosystems.

1 lecture, 1 laboratory hour— 6

454. Cytogenetics: The study of chromosomes and the genetic consequences of meiosis.

1 lecture, 1 laboratory hour— 1

455. Microbial Genetics: Aspects of genetics applying to micro-organisms. Given in collaboration with the Department of Bacteriology.

1 lecture, 1 laboratory hour—14

457. Evolution of Plants: Micro-evolution - gene flow; differentiation of populations; isolation of populations - with particular reference to cultivated plants. Macro-evolution - problems of homology; reliability of the fossil record; semilogical techniques of deriving phylogenies. Geographical-chronological evidences. Biochemical and physiological evolution.

1 lecture, 1 laboratory hour—36

459. Radiobiology: Nature and effects of nuclear radiations on living cells and organisms. Radioecology. Methodology.

1 lecture, 1 laboratory hour—30

460. Algae and Limnology: Morphology and biology of fresh water algae with particular reference to their significance in natural waters.

1 lecture, 1 laboratory hour—21

461. Principles of Plant Pathology: Nature of plant diseases and of plant pathogens; relationships between host and pathogen; epidemiology of plant diseases; plant disease control.

1 lecture, 1 laboratory hour—10

463. Field Course: A course of study of plants in their natural environment for students entering Fourth Year. Students should be prepared to meet part of the expenses for travel and subsistence.

466. Bacteriology and Virology: Selected topics in bacteriology and virology with emphasis on current developments.

1 lecture, 1 laboratory hour—19

471. Mycology: Selected topics in mycology with emphasis on current developments.
1 lecture, 1 laboratory hour—25

499. Laboratory: A laboratory investigation in a selected field with presentation of a seminar and thesis. 9 laboratory hours

BUSINESS ADMINISTRATION

University College

(Members of the Faculty of the School of Business Administration)

Assistant Professor:

Robert E. Sproule, B.Comm., M.B.A., Ph.D.

Lecturers:

Norman B. MacIntosh, B.Comm., M.B.A., C.A.
James R. Nininger, B.Comm., M.B.A.
Rein Peterson, B.Eng., M.B.A.

Instructor:

George Forsyth, B.I.E., M.B.A.

Courses

20. Introduction to Business Organization: 3 hours— 5.

250. Fundamental of Accounting: 3 hours—21.

CHEMISTRY

College of Science

Professors:

Frederick Lewis Maitland Pattison, B.A., M.A., Ph.D. Cantab., Head of the Department
Howard Charles Clark, B.Sc., M.Sc., Ph.D. Auckland; Ph.D. Cantab., Senior Professor
Patrick William McCarthy Jacobs, B.Sc., M.Sc. Natal; Ph.D., D.Sc. London, Senior Professor
Paul de Mayo, B.Sc., M.Sc., Ph.D. London, Senior Professor
James Wendel Burns, B.A.Sc. New Brunswick, M.Sc. Queen's (Honorary part-time)
Elvins Y. Spencer, M.Sc. Alberta; Ph.D. Toronto (Honorary part-time)
James Keith Watson, B.A., M.A. McMaster; M.A., Ph.D. Toronto (Honorary part-time)

Associate Professors:

Walter Colston Howell, B.Sc., M.Sc., Ph.D. (Administrative Assistant)
James Frederick King, B.Sc., Ph.D. New Brunswick
Andrew Edington Scott, B.Sc., Ph.D. St. Andrews
John Bailie Stothers, B.Sc., M.Sc.; Ph.D. McMaster
Armas John Sukava, B.Sc., M.Sc. Manitoba; Ph.D. McGill
Edgar William Warnhoff, A.B. Washington U.; Ph.D. Wisconsin

Assistant Professors:

Howard Wesley Baldwin, B.A., M.A. Saskatchewan; Ph.D. Chicago
Dino Ronald Bidinosti, B.Sc., M.Sc. Manitoba; Ph.D. McMaster
Raymond Kai-Chow Chan, B.A., Ph.D. Toronto
Donald McLean Graham, B.Sc., M.Sc.; Ph.D. Brooklyn Poly. Inst.
Roland Arthur Haines, B.Sc., M.Sc. Dalhousie; Ph.D. Pittsburgh
Robert Garth Kidd, B.Sc., M.Sc. Manitoba; Ph.D. London
John William Lorimer, B.A., M.A., Ph.D. Toronto
Thomas Chung-Wai Mak, B.Sc., Ph.D. British Columbia
William J. Meath, B.Sc. Carleton; Ph.D. Wisconsin
Patricia Reynolds Warnhoff, A.B. Trinity College, Washington, D.C.; M.Sc. M.I.T.; Ph.D. Southern California
Christopher John Willis, M.A., Ph.D. Cantab.

Sessional Lecturer:

Calliope Prevedorou-Demas, B.Sc., Ph.D. Athens

Honorary Lecturers (part-time):

Charles Cross Bigelow, B.A.Sc. Toronto; M.Sc., Ph.D. McMaster
Kenneth K. Carroll, B.Sc. New Brunswick; M.Sc. Toronto; Ph.D.
William Lovell Magee, B.Sc., M.Sc., Ph.D.
David Milroy Miller, B.Sc., M.Sc. Alberta; Ph.D. McGill
James Russell Robinson, B.S.A., M.S.A. Toronto; Ph.D.
Albert Stoessl, B.Sc., Ph.D. London
Kenneth Percy Strickland, B.Sc., M.Sc., Ph.D.
George Denis Thorn, B.Sc. Alberta; M.A. Queen's; Ph.D. McGill

Laboratory Supervisor:

Duncan Archibald MacRae, B.A.

Postdoctoral Fellows:

Jayramdas H. Amin, B.Sc., M.Sc. Bombay; Ph.D. Gujarat; Alan Cox, B.Sc., M.A. (Oxon); Ph.D. (Lond.); Hiroshi Hikino, B.Sc., M.Sc., Ph.D. Osaka; Michael Hancock, B.Sc., Ph.D. London; Michael Howarth, B.Sc. Leeds; Ph.D. London; Sumer C. Jain, B.Sc., M.Sc. Lucknow; Ph.D. Montreal; Gabriel Kornis, B.Sc., Ph.D. New South Wales; David A. V. Peters, B.Sc., Ph.D. St. Andrews; Wun-ten Tai, B.S. Taiwan; M.S. S Carolina; Ph.D. Florida.

Predoctoral Fellows and Scholars:

D. John Aberhart, B.Sc.; Elmer C. Alyea, B.Sc. Queens; Thomas G. Brydges, B.Sc.; William L. Clayton, B.Sc.; John J. Dugan, B.Sc.; Melvin H. Gitlitz, B.Sc. McGill; T. Ralph Hollands, B.Sc.; Beverley L. Huston, B.Sc.; C. Harold

Jackson, B.Sc.; Alexander F. Janzen, B.Sc. McMaster; David E. G. Jones, B.Sc.; Girish C. Joshi, B.Sc. Allahabad; M.Sc. Agra; David H. Marr, B.Sc.; Colin L. McIntosh, B.Sc.; N. Stewart McIntyre, B.Sc.; Anthony J. McNamara, B.Sc., M.Sc.; Donald J. Poulton, B.Sc. Sask.; David S. Sheppard, B.Sc.; Takao Tabata, B.Sc., M.Sc. British Columbia; Ping S. Tham, B.A. McMaster; D. Rodney Truax, B.Sc.; John S. Wasson, B.Sc. New Brunswick; Ross E. Williams, B.Sc.

Demonstrators and Research Assistants:

Kushalappa Abikar, B.Sc. Madras; M.Sc. Banaras; Alan D. Allbutt, A.R.I.C. Bristol; Donald E. Bracken, B.A. Hofstra Coll.; M.S. Holy Cross; Jan Bron, M.C.I.C.; Bernard D. Challand, B.Sc. London; Selwyn S. Chan, B.Sc., M.Sc. McMaster; Kai Pang Chu, B.Sc. National Taiwan; M.Sc. Ottawa; John Cooper B.Sc. Southampton; Vinod Dave, B.Sc. Bombay; Keith J. Fisher, G.R.I.C. Birmingham; Anne Gabriel, B.Sc. St. Andrews; Gurudata, B.Sc. St. Andrews; Charles M. M. Halls, B.Sc. Manchester; Takumi Hikida, B.Sc. Tokyo Inst. of Tech.; Clive E. Holloway, A.R.I.C. Bristol; M.Sc.; Nalini K. Hota, B.Sc. Utkal; M.Sc. British Columbia; Scotty Y. C. Mak, B.Sc. British Columbia; M.Sc. Iowa State; Ronald R. Martin, B.Sc. St. Francis Xavier; David R. Marshall, B.Sc. Oxford; M. Mathew, B.Sc. Agra; Wilfred J. Newby, B.Sc. McGill; Yuh-Hsu Pan, B.S. National Taiwan; Hari S. Prasad, B.Sc. Bihar; M.Sc. Ranchi; Ross F. Randall, B.Sc.; Michael E. Redwood, B.Sc.; Paul F. Rodesiler, B.S. Capital U. Columbus; Deryck A. Ross, B.Sc. Bishop's; John J. M. Ryan, B.Sc. Toronto; David J. H. Smith, G.R.I.C. Birmingham; Joseph Soltys, B.Sc.; V. Srinivasan, B.Sc. Madras; M.Sc. Annamalai; Choon Moi Wong, B.Sc. Nanyang U., Singapore; Siu Tzyy Wu, B.S. Tamkang Coll., Taiwan.

Courses

20. General Chemistry: For students in General Program I who have taken, or are taking concurrently, Mathematics 24. 2 lectures, 3 laboratory hours—25

21. General Chemistry. For students not intending to specialize in Science. 2 lectures, 1½ laboratory hours—25

22. General Chemistry: For students in General Program I. 2 lectures, 3 laboratory hours—25

24. General Chemistry: For students in Engineering Science. 2 lectures, 3 laboratory hours—25

32. Inorganic and Analytical Chemistry: For General Program students. Prerequisite: One of — Chemistry 20, 21, 22, 24 2 lectures, 3 laboratory hours—32

33. Organic Chemistry: For Home Economics and General Program students. Prerequisite: One of — Chemistry 20, 21, 22, 24 2 lectures, 3 laboratory hours—25

44. Physical Chemistry: For General Program students. Prerequisites: Mathematics 20 or 24 and one of Chemistry 20, 22 or 24 2 lectures, 1½ laboratory hours— 4

46. Biochemistry: For Home Economics and General Program students.
Prerequisite: Chemistry 33 or 203 2 lectures, 3 laboratory hours— 3

Honors Courses

203. Organic Chemistry: For prospective Medical students and students in Honors Biology.
Prerequisite: One of — Chemistry 20, 22, 24
2 lectures, 1 ½ laboratory hours—23

204. Physical Chemistry: For students in Honors Biology and Geology. (Familiarity with calculus is desirable for this course.)
Prerequisite: One of — Chemistry 20, 22, 24
2 lectures, 1 ½ laboratory hours— 4

211. Principles of Inorganic Chemistry: For students in Engineering Science.
2 lecture hours, 3 laboratory hours— 6

214. Elementary Physical Chemistry: For students in Engineering Science.
3 lecture hours—25

253. Elementary Organic Chemistry: For students in Honors Chemistry.
2 lectures, 3 laboratory hours— 2

254. Elementary Physical Chemistry: Kinetic theory and elementary thermodynamics: For students in Honors Chemistry. 3 lecture hours— 8

261. Principles of Inorganic and Analytical Chemistry: For students in Honors Chemistry. 2 lectures, 6 laboratory hours—13

313. Elementary Organic Chemistry: For Chemical Engineering students. Content similar to Chemistry 253 but without the laboratory work.
2 lecture hours— 2

314. Intermediate Physical Chemistry: For Chemical Engineering students. Content similar to Chemistry 354 but without the laboratory work.
3 lecture hours— 7

351. Intermediate Inorganic Chemistry: For students in Honors Chemistry.
2 lectures, 3 laboratory hours— 4

353. Intermediate Organic Chemistry: For students in Honors Chemistry.
3 lectures, 4 laboratory hours—20

354. Intermediate Physical Chemistry: Chemical thermodynamics, phase equilibria, electromotive force, and chemical kinetics. For students in Honors Chemistry. 3 lectures, 3 laboratory hours— 7

374. Theoretical Chemistry: Atomic structure, atomic spectra, introduction to quantum chemistry: For students in Honors Chemistry.
2 lecture hours—34

402. Inorganic and Analytical Chemistry: For students in Honors Biology.
Prerequisite: One of — Chemistry 20, 22, 24
2 lectures, 3 laboratory hours—32

406. Biochemistry: For students in Honors Biology.
Prerequisite: Chemistry 33 or 203. 2 lectures, 3 laboratory hours— 3

409. Laboratory: Designed to accompany the lecture work of the 4th Year Honors Chemistry. 6 laboratory hours.

413. Intermediate Organic Chemistry: For Chemical Engineering students. Content similar to Chemistry 353 but without laboratory work.
3 lecture hours—20

451. Advanced Inorganic Chemistry: Selected Topics. 2 lecture hours— 3

452. Instrumental Analysis: 1 lecture hour, half course—26

453. Advanced Organic Chemistry: Selected topics 2 lecture hours—36

454. Advanced Physical Chemistry: Statistical thermodynamics.
2 lecture hours—19

456. Biochemistry: Given in conjunction with the Department of Biochemistry.
1 lecture hour, half course—13

459. Research and Seminar: 6 hours.

474. Molecular structure: 2 lecture hours—12

CLASSICS

University College

Professors:

Alfred Ernest Raymond, B.A.; M.A. Toronto; Ph.D. Chicago, Head of the Department; W. Sherwood Fox Professor of Classics
John Danby Ralph, B.A. Queen's; Ph.D. Chicago

Associate Professor:

Douglas Earl Gerber, B.A., M.A.; Ph.D. Toronto

Assistant Professor:

Hamilton Baird Timothy, M.A., B.D. Glasgow; B.A. London; Ph.D. Edinburgh

Lecturers:

Ivars Avotins, B.A. Toronto; M.A. Harvard
Donald Edward Hill, M.A. Cantab.; M.A. Washington (St. Louis)
Antony Robert Littlewood, B.A. Leeds
Charles Leslie Murison, M.A. Edinburgh; B.A. Cantab.

Teaching Fellows (1964-65):

Rory Bernard Egan, B.A. Assumption
Frank Joseph Gorman, B.A. (First term)

GREEK COURSES

1. Elementary Greek: A preparatory course for those who wish to begin the study of Greek at the University. 3 hours—28

10. Plato, Selected Dialogues; Colson's "Greek Reader", Part VIII; composition, sight translation. 3 hours—28

Prerequisite: Grade 12 Greek or Greek I

20. Plato, "Crito"; Menander, "Dyscolus"; Demosthenes, "In Cononem"; composition, sight translation. 3 hours— 5

Prerequisite: Grade 13 Greek or Greek 10

30. Plato, "Apology"; Aristophanes, "Clouds"; lectures on the social religious, and political life of Athens in the fifth century B.C.; composition, sight translation. 3 hours— 6

Prerequisite: Greek 20

40. Greek Tragedy: One play each of Aeschylus, Sophocles, Euripides; lectures on the theatre and the development of the drama; composition, sight translation. 3 hours—12

Prerequisite: Greek 30

Honors Courses

230. Plato, "Apology"; Aristophanes, "Clouds"; public, social, and political life of Athens in the fifth century B.C. 2 hours— 6

Prerequisite: First Year, General Program 2, including Greek 20

250. The Greek Epic: Selections from the "Iliad" and the "Odyssey". I hour: half course—17

Prerequisite: First Year, General Program 2, including Greek 20

251. Composition and Sight Translation.

Prerequisite: First Year, General Program 2, including Greek 20 2 hours—21

257. Ancient Civilizations: the Near East, Greece, and Rome. Identical with Latin 257 and History 357 3 hours—24

340. Greek Tragedy: One play each of Aeschylus, Sophocles, Euripides; lectures on the theatre and the drama.

Prerequisite: Greek 230 2 hours—12

350. I. Introduction to the Greek Historians: Herodotus.
II. The Attic Orators: Lysias and Demosthenes.

Prerequisite: Greek 230 2 hours—23

351. Composition and Sight Translation

Prerequisite: Greek 251 I hour: half course—18

352. Introduction to Greek Philosophy: Plato, "Republic", I-IV.

Prerequisite: Greek 230 2 hours—34

450. The Greek Historians: Thucydides.

Prerequisites: Greek 340, 350 2 hours—24

451. Composition and Sight Translation.

Prerequisite: Greek 351 I hour: half course—25

452. Greek Philosophy: Plato, "Republic" V-X; Aristotle, "Ethics" I, II, IV, V
Prerequisite: Greek 352 3 hours—35

453. Greek Lyric Poetry: selections from the early elegiac, iambic, and lyric poets.
Prerequisites: Greek 340, 350 3 hours, one term: half course—12

457. Greek and Roman History: lectures, readings, and reports. Prescribed for students in Honors Classics or Latin with Greek, optional with the consent of the instructor for other qualified students. Identical with Latin 457.
2 hours— 1

LATIN COURSES

20. Pliny, "Letters"; Virgil, "Aeneid" IV; composition and sight translation.
Prerequisite: Grade 13 Latin or Latin 10 3 hours—26

30. Selections from Catullus and Horace, "Odes".
Prerequisite: Latin 20 2 hours—25

34. Cicero; composition and sight translation.
Prerequisite: Latin 20 2 hours— 4

40. Selections from Virgil, "Aeneid" I-VI; Horace, "Satires"; Juvenal, "Satires".
Prerequisite: Latin 30 2 hours—14

44. Livy; composition and sight translation.
Prerequisite: Latin 34 2 hours—34

Honors Courses

230. Selections from Catullus and Horace, "Odes".
Prerequisite: First Year, General Program 2, including Latin 20. 2 hours—25

250. Cicero. "Pro Caelio".
1 hour: half course— 1
Prerequisite: First Year General Program 2, including Latin 20.

251. Composition and Sight Translation.
Prerequisite: First Year, General Program 2, including Latin 20. 2 hours—34

257. Ancient Civilizations: the Near East, Greece and Rome. Identical with Greek 257 and History 357. 3 hours—24

340. Virgil; His life and work; "Eclogues", "Georgics", "Aeneid" (partly in translation).
Prerequisite: Latin 230 2 hours—14

350. Cicero: the history of his life and times; 'Philippic" II, "Letters".
Prerequisites: Latin 230, 250 2 hours—31

351. Composition and Sight Translation.
Prerequisite: Latin 251 1 hour: half course—25

352. Roman Comedy, with an introduction to historical Latin Grammar.
Prerequisites: Latin 230, 250 1 hour: half course— 1

450. Roman Historians: with special reference to Livy and Tacitus.
Prerequisites: Latin 340, 350, 352 2 hours—19

451. Composition and Sight Translation.
Prerequisite: Latin 351 *1 hour: half course—29*

452. Lucretius, I-III (Selections), V; Virgil, "Aeneid" VII-XII.
Prerequisites: Latin 340, 350, 352 2 hours— 6

453. Minor Latin Poets: a study primarily of Silver Age Poets with special emphasis on Latin metre; Horace, "Satires" I. 4, 10; "Ars Poetica".
Prerequisites: Latin 340, 350, 352 *3 hours, one term: half course—13*

457. Greek and Roman History: lectures, readings, and reports. Prescribed for students in Honors Classics or Latin with Greek, optional with the consent of the instructor for other qualified students. Identical with Greek 457.
2 hours— 1

COMPUTER SCIENCE

College of Science

Professor:
John Francis Hart, B.A., M.A., Ph.D. Toronto, Head of the Department

Associate Professor:
Satoru Takasu, B.Sc., M.Sc., D.Sc. Tokyo

Assistant Professor:
Neil D. Jones, B.A. Southern Illinois

Lecturers:
J. M. Bennett, B.Sc. Queen's
F. Zabransky, B.A.Sc. Toronto

Instructor:
W. D. Denton, C.A.

Post-doctoral Fellow:
S. Huzino, D.Sc. Kyushu

Research Fellows and Demonstrators:
C. Dunham, M.A. British Columbia; P. Russell, B.A.; P. Wilford, M.A. Toronto; L. Youell, B.A.

Courses

31. Elements of Information Processing: An introductory course on the use of a digital computer in E.D.P. applications; emphasis on computer hardware, programming fundamentals, information processing, and general systems theory.
2 lectures, 2 laboratory hours— 6

41. Advanced Information Processing: Primarily a laboratory course in which the student is required to complete one major E.D.P. project during the year. Lecture topics include; the study of the COBOL language, sorting, file maintenance, and information retrieval.

Prerequisite: C. S. 31 or a course in programming.
1 lecture, 3 laboratory hours—34

Honors Courses

200. Digital Computer Programming: A thorough introduction to computer programming techniques, with emphasis on ALGOL, machine language, numerical methods, and statistics.

Prerequisite: Mathematics 20 or 24. 2 lectures, 2 laboratory hours—26

206. Seminar: Survey of the applications of general systems with emphasis upon basic concepts. 1 hour

306. Seminar: General systems applications from the technical standpoint.
1 hour

313. Elements of Computer Logic and Programming: This is an introductory course in the logic of computers, theory of automata, and programming.

Prerequisite: Short course in ALGOL 2 lectures, 2 laboratory hours—33

403. Introduction to Computing Algorithms: Development of algorithmic methods for solving mathematical problems on digital computers.

Prerequisite: Short course in ALGOL or FORTRAN.
2 lectures, 2 laboratory hours— 5

404. Theory of General Systems: Principles of systems theory and cybernetics, applications in Science and Social Science. 3 hours—23

405. Simulation laboratory: Techniques of simulating complex organisms and situations. 2 lectures, 2 laboratory hours— 2

413. Non-Numeric Computing: One semester of programming techniques for non-numeric computation, including translation of algebraic languages, and artificial intelligence programs; one semester on Theory of Computability, i.e., Turning machine and recursive function theory, mathematical machine theory, and formal language theory.

Prerequisite: Mathematics 350 (taken previously or concurrently), and Computer Science 200. 2 lectures, 2 laboratory hours—17

ECONOMICS AND SOCIOLOGY

University College

ECONOMICS

Professors:

Grant Louis Reuber, B.A., A.M., Ph.D. Harvard, Head of the Department
Meyer Louis Burnstein, J.D., M.A., Ph.D. Chicago
Mark Keith Inman, B.A. Acadia; M.A., Ph.D. Harvard; Vice-President, Arts and Science
Willem Hendrik Somermeyer, LL.D. Leyden

Associate Professors:

Ronald G. Bodkin, B.A. Swarthmore; M.A., Ph.D. Pennsylvania
John Joseph Madden, B.A. Manitoba; M.A. Toronto; Ph.D. Cantab.
Steve Gabriel Peitchinis, B.A., M.A.; Ph.D. London
Ronald Johnston Wonnacott, B.A.; A.M., Ph.D. Harvard

Assistant Professors:

Suraj Bhan Gupta, B.A., M.A. Punjab; Ph.D. Chicago

Lecturers:

Thomas Joseph Courchene, B.A. Saskatchewan
David Edward Bond, B.A. Dartmouth; M.A. Yale
Malcolm Galatin, B.Sc. (Econ.) London
Robert Alexander Johnston, B.Com. Toronto; M.A. Queen's
Louis Parai, B.A. Alberta; M.A. Toronto
Thomas Russell Robinson, B.Com. British Columbia; M.A. Yale
Frank Roseman, B.A. Sir George Williams; M.A. McGill
William David Walsh, B.Com. British Columbia; M.A. Yale

SOCIOLOGY

Professor:

John F. Kantner, A.B. Franklin and Marshall; M.A., Ph.D. Michigan

Assistant Professor:

T. R. Balakrishman, B.A., M.A. Madras; Ph.D. Michigan

Lecturers:

John Douglas Allingham, B.A., M.A. McMaster
George K. Jarvis, B.A. Brigham Young; M.A. Michigan
Richard Warren Osborn, A.B. Michigan

ECONOMICS COURSES

General Courses: A student who has taken a general degree with a major in Economics can fufil the requirements for a Master of Arts degree in Economics in two years.

20. 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. 3 hours—15

30. Price and Income Analysis: A study of the allocation of resources under various market conditions; the measurement and determination of national income, employment and prices; economic growth.
Prerequisite: Economics 20. 3 hours—34

31. Resource Allocation and Growth Policies in Canada: The principles of resource allocation and economic growth applied to the problem of devising public policies to stimulate the growth of the Canadian economy.
Prerequisite: Economics 20. 3 hours—24

32. Soviet Economics: Historical and doctrinal background; the structure and operation of the Soviet economy including central planning techniques; contemporary problems. Attention will concentrate on the U.S.S.R.
Prerequisite: Economics 20. 3 hours—20

33. Money, Banking, and Income: National income analysis, employment and prices, taxation and fiscal policy. Canadian banking and monetary policy, debt management, international monetary problems.
Prerequisite: Economics 20. 3 hours—15

35. Measurement and Forecasting: National income accounting, index numbers, examination of basic Canadian statistical series, elementary statistical theory, principles and applications of economic forecasting techniques.
Prerequisite: Economics 20 2 hours—10

36. Labour Economics: A study of the labour market, wage determination and the relationship between wages, employment and prices.
Prerequisite: Economics 20 2 hours— 4

37. Economic History of North America: An examination of the sources of North American economic development with special emphasis on Canadian economic development.
Prerequisite: Economics 20 2 hours— 9

38. International Trade and Economic Development: A review of the principles of international economics and economic development and their application to contemporary problems in the international economy.
Prerequisite: Economics 20. 3 hours—28

39. Economic History of Europe: An examination of the structure and growth of the European economy since the Middle Ages.
Prerequisite: Economics 20. 3 hours— 5

Honors Courses: Honors courses are restricted to students who have the prescribed prerequisites and are enrolled in honors economics, mathematics, history, or any other honors course and to students enrolled in pre-business and engineering science.

230. Economic Theory. 3 hours—17
Prerequisite: Economics 20 with at least 66% or permission of the instructor.

237. Economic History of North America: An analysis of the determinants of economic growth in North America with special emphasis on the influence of the European economy in generating such growth.
Prerequisite: Economics 20 or permission of the instructor. 3 hours— 9

255. Statistics: Probability; sampling; interval estimation of economic parameters; testing of hypotheses; index numbers; multiple regression; correlation; identification, serial correlation and other statistical problems. 3 hours—34

333. Money, Banking and Income.
Prerequisite: Economics 230. 3 hours and a seminar—15

351. International Economics.
Prerequisite: Economics 230 3 hours—36

434. Industrial Organization.
Prerequisite: Economics 230 2 hours—24

440. Income, Employment, Prices.
Prerequisites: Economics 333, 351. 3 hours—12

447. Economic History of Europe.
Prerequisite: Permission of the instructor. 2 hours—27

450. History of Economic Thought.
Prerequisite: Economics 230 or permission of the instructor. 2 hours—20

451. Problems of the International Economy.
Prerequisite: Economics 351 2 hours—36

455. Mathematical Economics. 3 hours— 2
Prerequisites: Economics 230 and Mathematics 20 or 24, or permission of the instructor.

460. Resource Allocation, Economic Welfare and Growth.
Prerequisite: Economics 230 3 hours—31

463. Public Finance.
Prerequisite: Economics 230 2 hours— 8

480. Seminar.
Prerequisite: Economics 333, 351. 2 hours.

495. Econometrics.
Prerequisite: Economics 455 and permission of the instructor. 2 hours— 5

497. Advanced Economic History.
Prerequisite: Economics 447 and permission of the instructor. 2 hours—16

SOCIOLOGY COURSES

All students majoring in Sociology are advised to elect Sociology 30 and 31.

General Courses

20. Introduction to Sociology: An examination of group structures and processes, status, role and stratification, culture and personality, major social institutions, social organization and social change. 3 hours—35

30. Sociological Theory: A survey of the historical development of sociological theory from its philosophical precursors to structural-functional theory, conflict theory and other recent concepts of analysis.

Prerequisite: Sociology 20. 3 hours—14

31. Research Methods: A beginning course in principle methods employed in the social sciences, especially in sociology. Research design, testing of hypothesis, evaluation of existing research, individual exercises and projects.

Prerequisite: Sociology 20. 3 hours—12

32. Population: An analysis of the causes and consequences of major population trends throughout the world; of changes in death and birth rates, mobility of people. Attention is given to economic systems, religious variables, and socio-cultural factors as they influence population.

Prerequisite: Sociology 20. 3 hours— 3

34. Urban Sociology: Community life from its beginnings in the folk society, with emphasis on contemporary urban-metropolitan communities. Community studies and community structures will be examined in both their ecological and social aspects.

Prerequisite: Sociology 20. 3 hours—16

35. Social Stratification: An examination of some of the basic features of social organization and stratification. The Hobbesian problem of order, the Marxist problem of social conflict, the sources of social change, role of population, power and stratification will be given special consideration. Bureaucracy, mass society and empirical studies of stratification and power will be discussed as the modern setting for many of these problems.

Prerequisite: Sociology 20. 3 hours—19

38. Social Change with Special Reference to Canada: An examination of processes, problems and theories of social change using Canadian geographic, religious, economic, political, and historical data for analysis.

Prerequisite: Sociology 20. 3 hours—35

40. Social Disorganization and Social Problems: A critical examination of theories of deviant behavior and the study of crime, delinquency, alcoholism, family disorganization, the aged and minority group relationships.

Prerequisite: Sociology 20. 3 hours— 4

46. Industrial Sociology: An examination of some non-economic influences in economic activity with emphasis upon a systematic comparative analysis of social organization, social processes and the practical human problems which emerge as a result of the division of labour.

Prerequisite: Sociology 20. 3 hours— 8

Honors Courses

Sociology 330, 331, 332, 334 and 338 are identical respectively with 30, 31, 32, 34 and 38, except that additional assignments may be required in Honors courses.

ENGLISH

University College

Professors:

John Whichello Graham, B.A. Manitoba; M.A., Ph.D. Toronto, Head of the Department
Alfred Brandon Conron, D.S.O., B.A., M.A., A.M., Ph.D. Harvard

Associate Professors:

William Eric Duncan Atkinson, B.A. Cantab.; Ph.D. Chicago
Herbert Berry, B.A. Furman; M.A., Ph.D. Nebraska
George E. Buckley, B.A. Mt. Allison; M.A. Columbia
Clifford Earle Sanborn, B.A., M.A., Ph.D. Toronto

Assistant Professors:

David Kaula, B.A. Cornell; Ph.D. Indiana
Ian Arnold MacDonald, B.A. Saskatchewan; M.A. Northwestern; Ph.D. Ohio State
Richard MacMillan Stingle, B.A., M.A. Toronto
Leroy J. Morrissey, B.A. Nebraska; A.M. Chicago; Ph.D. Pennsylvania

Honorary Lecturer:

Albert William Trueman, M.A. Oxon. (Dean of University College)

Lecturers:

Mary M. Brown (Mrs. C.), B.A., M.A. Part-time
E. J. Devereux, B.A., M.A. Newfoundland
Donald S. Hair, B.A.; M.A., Ph.D. Toronto
Gerald Douglas Parker, B.A. Acadia; M.A. Dalhousie

Instructors:

John Anonby, B.A., M.A. British Columbia
Elizabeth Bieman (Mrs. G.), B.A. Part-time
Linda Dawson (Mrs. P.), B.A.
Mary Jane Miller, B.A., M.A. Toronto
Leslie McGaw, B.A.
Maria Szyfman, M.A. Warsaw

Graduate Assistants (1964-5):

P. Brown, B.A.; T. Cox, B.A. Toronto; A. Menhart, B.A., M.A. Windsor; G. Miller, B.A., M.A. Windsor; J. Payne, B.A., M.A. Windsor; C. Robertson, B.A. Toronto; G. Wright, B.A.

Middlesex College

Professors:

Carl Frederick Klinck, B.A., M.A.; Ph.D. Columbia, F.R.S.C.; Professor of Canadian Literature
James Reaney, B.A., M.A., Ph.D. Toronto
Ross Greig Woodman, B.A. British Columbia; M.A. Manitoba; Ph.D. Toronto

Associate Professors:

Paul Duncan Fleck, B.A., M.A.; Ph.D. Belfast, acting Head of the Department
Ronald Gordon Nudell Bates, B.A., M.A., Ph.D. Toronto
Christopher Dean, B.A., Ph.D. Leeds

Assistant Professors:

Betty Bandeen, B.A.; A.M., Ph.D. Radcliffe
Anne C. Bolgan, B.A., D'Youville; M.A., Ph.D. Toronto
Donald H. Hensley, B.A., M.A. Oregon; Ph.D. Wisconsin
Victor M. Hoar, B.A. Illinois; M.A. Connecticut
James M. Kuist, A.B. Davidson College; M.A. Duke
Geoffrey Rans, M.A. Cantab.; Ph.D. Leeds
Elizabeth Hillman Waterston (Mrs. D. L.), B.A. Toronto; M.A. Bryn Mawr; Ph.D. Toronto

Lecturers:

Neil Hultin, B.A. Concordia College; M.A. Chicago

Instructors:

Duke Ronald Maskell, B.A. London
Diane Metcalf, B.A. Queen's; M.A. Toronto
Pamela H. Orr (Mrs. T.), B.A. Manitoba

Graduate Assistants (1964-5):

A Churchman, B.A.; P. Cole, (Mrs. G.) B.A.; L. Forstner, B.A.; D. Holman, B.A. Sussex; J. Kalbfleisch, B.A. British Columbia; E. Manson, B.A. Edinburgh

Courses

Detailed descriptions of the following courses may be obtained from the offices of the Department of English.

All courses in English scheduled for two hours may meet for additional hours at the discretion of the instructor.

20. General Literature and Composition: Selections from the works of Chaucer, Shakespeare, Donne, Milton, Pope, Wordsworth, Arnold and Eliot. There will be some study of English composition and at least four essays and two written tests will be required. 3 hours—11

No student will be admitted to any of the following courses until he has successfully completed English 20.

32. Literature of the Nineteenth Century: Selected works by Wordsworth, Coleridge, Shelley, Keats, Byron, Arnold, Tennyson, Browning, Newman, Huxley, Pater and other writers. 3 hours—11

34. Shakespeare. A study of the major plays. 3 hours— 6

36. Drama: A study of English and American dramatists against a background of Classical, Renaissance and Modern European drama. 3 hours—27

37. 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—16

38. Literature of the United States and Canada (English): Selected works by American authors from Franklin to Faulkner and by Canadian authors from Haliburton to Page. 3 hours—17

41. Creative Writing: Emphasis is placed on analysis of creative work submitted during the course. Apply to the Department of English for admission to this course. 1 hour: (half course)

44. The English Novel: A survey of representative English, continental and American novels from the eighteenth century to the present. 3 hours—33

45. 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—10

49. Literature of the Twentieth Century: Selected works by poets and novelists, chiefly British. 3 hours— 8

Speech 39. The major forms of oral discourse. 2 hours—30

Dramatics 46. Play Direction: An introductory course, with instruction in directing and acting, and participation in acting exercises and a final production. 2 hours— 9

Honors Courses

237. History of the English Language. 2 hours—16

253. Comparative Philology: Offered by the Departments of English, Russian, German, and Romance Languages. 1 hour— 1

256. Shakespeare. 2 hours—11

263/463. Old English Language and Literature: with special emphasis on Beowulf. 2 hours— 2

270. Literature of the Romantic Revival (1798-1832). 2 hours— 8

280. Literature of the Sixteenth Century, excluding drama. 2 hours—24

354. Criticism: A survey of the major critics, and problems in terminology and practical criticism. 2 hours—22

360. Literature of the Victorian Period (1832-1900). 2 hours— 7

366. Elizabethan and Jacobean Drama, exclusive of Shakespeare. 2 hours— 5

370. English Tutorial: Methods of research in English and advanced bibliography. Half course 1 hour— 4

373. Chaucer and his age. 2 hours—36

380. Literature of the Seventeenth Century, exclusive of drama. 2 hours—12

400. Thesis. First offered 1966-7. 2 hours

401. Problems course. A special tutorial for a selected group. First offered 1966-7. 2 hours.

436. Modern British and American Drama. 2 hours—23

438. American and English-Canadian Literature. 2 hours—27

441. Creative Writing. 1 hour (half course)

444. The English Novel. Not offered intramurally until 1966-7. 2 hours—33

459. Literature of the Twentieth Century: selected works by poets and novelists, chiefly British. 2 hours— 9

480. *Restoration and Eighteenth Century Literature* (1660-1780). 2 hours—31

GEOGRAPHY

Middlesex College

Professor:

Edward G. Pleva, B.A., M.A., Ph.D. Minnesota, Head of Department
Norman L. Nicholson, B.A., M.Sc.; Ph.D. Ottawa; F.R.G.S.; Senior Professor
Allan K. Philbrick, B.A., M.S., Ph.D. Chicago

Associate Professors:

Osmund P. Langtvet, C.Mag., C.Phil. Oslo
Robert W. Packer, B.A., M.A., Cantab.; F.R.G.S.
Harry N. Taylor, B.A. Westchester State; M.A. Indiana; Ph.D. Maryland

Assistant Professors:

Robert McDaniel, B.A., M.A.
Victor W. Sim, B.A. McMaster; M.A. Clark; Ph.D. McGill
James W. Simmons, B.Sc.; Ph.D. Chicago
Charles F. J. Whebell, B.A., M.Sc.; Ph.D. London

Lecturers:

Paul M. L. Bruer; B.A., M.A. Illinois (Part-time)
Donald E. Guard, B.A.Sc., M.Sc. Manitoba (Part-time)
Leonard N. Johnson, B.S.A. Toronto; M.A. (Part-time)
Donald M. Scott, B.Sc., M.Sc., Toronto (Part-time)
Michael J. Troughton, B.A.; B.Litt. Oxon.

Assistant:

Stephen Byles, B.A. Toronto

Preceptors:

Una Elliott, B.A. London, M.A.
Gunars Subins, B.A. Waterloo Lutheran; M.Sc.

Commonwealth Fellows:

Nazrul Islam, B.A., M.A. Dacca
Yue-man Yeung, B.A. Hong Kong

Teaching Fellows:

Lawrence Conrad Anderson, B.A., M.S. St. Cloud
Leslie James Wood, B.A. Dunelm

Graduate Assistants:

R. Anderson, B.A.; D. K. Benson, B.Sc.; D. Boggs; D. Cartwright, B.A. Toronto; W. Fieguth, B.A.; R. Grainger, B.A., B.A. Minnesota; A. Groenenberg, B.A. Amsterdam; C. Herniman, B.A. Windsor; A. Johnson; G. Kokich, B.A. Windsor; R. Mongeau, B.Sc. St. Francis Xavier; T. Richards, B.A. Wales; J. Thorsell, B.A. Alberta; R. Welch, B.A.; G. Wortley, B.A. Windsor

Courses

20. Elements of Physical Geography: The earth as the home of man; the elements of the physical landscape with special reference to man's adjustment to them. 2 lectures and 2 hours practical work— 3

32. Elements of Cultural Geography: An introduction to non-physical geography, with emphasis on concepts in biogeography, demography, settlement and urban geography, anthrogeography, historical geography, geographical thought.

Prerequisite: Geography 20 or equivalent.

2 lectures and 2 hours practical work—35

39. Elements of Economic Geography: Trade routes and centres. The world's physical resources; their nature, use and transportation.

Prerequisite: Geography 20 or equivalent.

2 lectures and 2 hours practical work—12

45. 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.

Prerequisite: Two courses in Geography or equivalent.

2 lectures and 2 hours practical work—31

46. World Regional Geography: A comprehensive systematic survey in world regional geography.

Prerequisite: Two courses in Geography or equivalent.

2 lectures and 2 hours practical work— 3

Honors Courses

In the case of exceptional individuals the prerequisites may be waived with the express permission of the instructor.

200. Quantitative Methods in Geography: Methods of analyzing geographical data, including some discussion of the scientific method and an introduction to statistical methods.

Prerequisite: Geography 20 and Mathematics 20 or 24 (may be taken concurrently). 2 lectures and 2 hours practical work—25

230. Advanced Physical Geography: Studies of the environmental factors, meteorology, climatology, geomorphology, hydrology, vegetation, and soils; their interrelationships; techniques of measurement and classification.

Prerequisite: Geography 20 or equivalent.

2 lectures and 2 hours practical work— 8

232. Cultural Geography: An introduction to non-physical geography with emphasis on concepts and research techniques in biogeography, demography, settlement and urban geography, anthropogeography, historical geography, political geography.

Prerequisite: Geography 20 or equivalent.

2 lectures and 2 hours practical work—35

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.

Prerequisite: Geography 20 or equivalent.

2 lectures and 2 hours practical work—21

339. Economic Geography: The relationship between resources and economic activities with consideration of the resource base, location theory and trade patterns.

Prerequisites: 3 courses in Geography.

2 lectures and 2 hours practical work—12

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.

Prerequisites: 3 courses in Geography.

2 lectures and 2 hours practical work—31

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.

Prerequisites: 3 courses in Geography.

2 lectures and 2 hours practical work— 3

430. Climatology: A study of the climates found on earth and their conditions. (Not given 1965-66).

Prerequisites: 3 courses in Geography.

2 lectures and 2 hours practical work— 4

431. Geomorphology: Examination of recent periodical literature with particular emphasis on geomorphic processes, current research techniques, and the physiographic development of selected Canadian regions.

Prerequisites: 3 courses in Geography, including Geography 230.

2 lectures and 2 hours practical work— 5

432. Advanced Cultural Geography: A critical examination of theories and practical studies in modern and contemporary cultural geography (not given (1965-66).

Prerequisites: 3 courses in Geography, including Geography 232.

2 lectures and 2 hours practical work— 7

433. Urban Geography: The City: A study of urban phenomena. System of cities; land use, social, culture, and political patterns within the city; urban problems.

Prerequisites: 2 courses in Geography or equivalent.

2 lectures and 2 hours practical work—11

434. Agricultural Geography: A general study of the factors involved in agricultural production and the classification of agricultural systems. Topical and regional studies with particular attention to tropical and underdeveloped areas.

Prerequisites: 2 courses in Geography or equivalent.

2 lectures and 2 hours practical work— 9

435. Geographical Aspects of Resources Analysis: A geographical approach to interpretive programs of resources analysis. Special problems in river basin or watershed development (not given (1965-66).

Prerequisites: 2 courses in Geography or equivalent.

2 lectures and 2 hours practical work—13

439. Advanced Economic Geography: The techniques of Regional Science, including the application of input-output analysis, linear programming, the gravity model and graph theory to the analysis of spatial systems.

Prerequisites: Geography 339, or permission of the instructor.

2 lectures and 2 hours practical work— 5

440: Political Geography: A general study of geographical factors in governmental organization; a survey of the political-territorial units of the world in their geographical settings; an introduction to Geopolitics.

Prerequisites: 3 courses in Geography or equivalent.

2 lectures and 2 hours practical work—25

443. Field Methods and Practices: Departmental field camps and field trips as arranged; attendance at geographical meetings as required; special studies and practical problems in field techniques.

Prerequisites: 3 courses in Geography.

Sessions and hours by arrangement. (Half course)

447. Historical Geography: Methods and techniques with special reference to the historical geography of North America (not given 1965-66).

Prerequisites: 3 courses in Geography.

2 lectures and 2 hours practical work—10

448. Senior Seminar in Geography: Presentation and discussion of papers on various geographical subjects: informal discussion of topics of current geographical interest: occasional lectures and symposia by staff and visiting professors.

Prerequisites: 5 courses in Geography.

Hours by arrangement. (Half course)

450. Senior Research and Report in Geography: A report on a geographical problem including the results of field work, cartographic representation, and a study of the basic literature of the problem.

Prerequisites: 5 courses in Geography.

Hours by arrangement. (One and one-half courses)

Senior Studies in the Regional Geography of Significant World Areas.

460. Canada: Regional aspects of the natural resources of Canada and their use; the basis of human occupance in Canada; Geographical problems in national development.

Prerequisites: 3 courses in Geography.

2 lectures and 2 hours practical work—22

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.

Prerequisites: 3 courses in Geography.

2 lectures and 2 hours practical work—30

462. Latin America: Regional study of economic and cultural geography; analysis of economic, cultural, and political development in the Latin American context.

Prerequisites: 3 courses in Geography.

2 lectures and 2 hours practical work—32

463. Western Europe: A systematic analysis of the regional geography of Western Europe; type studies.

Prerequisites: 3 courses in Geography.

2 lectures and 2 hours practical work—34

464. U.S.S.R. and Eastern Europe. Not given 1965-66—36

465. Middle East (Southwest Asia and North Africa). Not given 1965-66—22

466. Africa. Not given 1964-65—30

467. Malaysia, Australasia, and the Pacific. Not given 1965-66—34

468. South, East, and Southeast Asia (particularly India, China, Japan). Not given 1965-66—17

GEOLOGY

College of Science

Professors:

George Harold Reavely, B.A., M.A.; D.I.C. London; Head of the Department
George Gordon Suffel, B.Sc., M.Sc. Queen's; Ph.D. Stanford
Aleksis Dreimanis, Mag.rer.nat., Riga
Charles Gordon Winder, B.Sc.; Ph.D. Cornell

Associate Professor:

Richard William Hutchinson, B.Sc.; M.Sc., Ph.D. Wisconsin

Assistant Professors:

William R. Church, B.Sc., Ph.D. Wales
Alan D. Edgar, B.A., M.Sc. McMaster; Ph.D. Manchester
Alfred C. Lenz, B.Sc., M.Sc. Alberta; Ph.D. Princeton

Lecturers:

Grant M. Young, B.Sc. Glasgow
Michael E. L. Fleet, B.Sc., Ph.D. Manchester

N.R.C. Post Doctorate Fellow:

J. A. Westgate, B.Sc. Reading; Ph.D. Alberta

Commonwealth Fellow:

S. M. Casshyap, B.Sc., M.Sc., Ph.D. Aligarh

Preceptor:

Uldis J. Vagners, B.A.Sc. Toronto

Research Associates:

R. Brigham, M.S. Michigan State
H. Rance, M.Sc. Natal

Graduate Demonstrators:

J. A. Balogh, B.Sc., St. Lawrence; A. A. Berti, B.Sc., Toronto; F. W. Chandler, B.Sc., Chelsea; J. L. Craft, M.Sc., Syracuse; R. Graham, B.Sc., Queen's (Belfast); C. B. Gunn, B.Sc. Wales; P. J. Lee, B.S., Taiwan; K. K. Mukherji, M.Sc., Calcutta; J. M. Piotrowski, B.Sc., Connecticut; R. J. Platt, B.Sc., Manchester; S. M. Shanbhag, M.Sc. Karnatak

Courses

20. Introductory Course in Geology: Minerals and rocks; geological processes and their results; structure of the earth; fossils; and outline of the earth's history; economic relationships. 2 lectures, 3 laboratory hours—14

21. Geological Science: A survey of the Earth Sciences; the relation of Geology to the other sciences. 2 lectures, 2 laboratory hours—34

Honors Courses

200. Mapping Procedures: Involving Alidade and plane table, aerial photo interpretation, pace and compass techniques. Emphasis on lithological examinations. Offered at field camp: (half course)

251. Mineralogy and Elementary Petrography: Morphological and x-ray crystallography. Mineral structures and their relationships to physical and chemical properties. Crystallographic optics. The identification of some important mineral groups and of the commoner rock types. For certain non-geology honors science students some extra lecture hours may be given.
2 lectures, 3 laboratory hours— 8

263. Historical Geology: The significant events in the geologic history of the earth and its inhabitants, combined with a general discussion of the geology of Canada: Laboratory periods include map work, examination of fossils, and *field trips.* 2 lectures, 2 laboratory hours—15

300. Field Investigations: The chief emphasis will be on structural geology and igneous, metamorphic and sedimentary geology. Geophysical, economic and Pleistocene field studies are included. Offered at field camp (half course)

351. Optical Mineralogy: Concepts of light transmission in minerals. The application of these principles to mineral identification with the polarizing microscope. The identification of mineral species in specimen and thin section. The petrography of igneous, sedimentary and metamorphic rocks with emphasis on classification and thin section study. 2 lectures, 3 laboratory hours—15

354. Origin and Formation of Ore Deposits: A study of the principal processes of ore formation. Laboratory time will be spent in studies of ore minerals and ores, emphasizing the use of ore microscope.
2 lectures, 2 laboratory hours— 4

355. Structural Geology: Primary and induced structures in igneous, sedimentary and metamorphic rocks; the physical properties of rocks and the effects of stress application; the interpretative value of various minor structures; relations between structure and topography; earth's structure and mountain building. Laboratory work will include the interpretation of geologic structures from maps. 2 lectures, 2 laboratory hours—31

363. Invertebrate Paleontology: First half — the study of fossils in biological succession with concentration on classification, morphology and ecology; second half — index fossils and their geologic ranges.
2 lectures, 3 laboratory hours—27

365. Precambrian Geology of the Canadian Shield: General geology of the Shield, with studies of type areas. Particular attention is paid to current problems and controversies. 1 lecture, 1 hour class-study: (half course)—11

367. 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 exercises and field trips. 4 hours—20

368. Geology for Engineers: Involves selected topics from courses 20 and 367 offered only to Engineers majoring in Civil. 5 hours, one term: (half course)

452. Petrology: The principles and theories of igneous and metamorphic rock genesis; silicate phase equilibria are stressed. The laboratory study consists of petrographic methods and problems. 2 lectures, 3 laboratory hours— 3

454. Economic Mineral Deposits: The occurrence and production of ores of the principal metals, with a study of outstanding examples. Laboratory work consists of (a) a series of reports based on original sources and (b) studies of specific ore deposits, with emphasis on microscopic examination.
1 lecture, 5 laboratory hours— 7

458. Senior Research and Field Report: A report on geological field work carried on by the student, including the results of laboratory investigation and a study of available literature. (One and one-half courses)

460. Seminar: Presentation and discussion of papers on various geological subjects; informal discussion of topics of current geological interest.
2 hours: (half course)

462. Geochemistry: Introductory chemistry; cosmochemistry, element abundances, meteorites, origin of the elements; igneous and sedimentary geochemistry; geochronology; isotope geochemistry; geothermometry and geobarometry; polymorphism. 2 lectures, 2 laboratory hours—14

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. 2 lectures, 3 laboratory hours—24

470. Micropaleontology: Morphology, classification, ecology and stratigraphic occurrence of fossil protista, foraminifera, annelida, ostracoda and conodonts. Laboratory and library research. Admission requires instructor's permission. 5 hours.

GEOPHYSICS

College of Science

Professors:

Alan Edward Beck, B.Sc. London; Ph.D. Australian National University; A. Inst. P.; Head of the Department
Charles Murray Carmichael, B.Sc., M.Sc., Ph.D.

Visiting Associate Professor:

Wojciech Domzalski, B.Sc. London; Ph.D. London

Assistant Professors:

Robert Frank Mereu, B.Sc.; M.A. Toronto; Ph.D.
Douglas Edwin Smylie, B.Sc. Queen's; M.A., Ph.D. Toronto
Tadeusez Jan Ulrych, B.Sc. London; M.Sc., Ph.D. British Columbia

Professor (Part-time):

Robert James Uffen, B.A.Sc., M.A. Toronto; Ph.D.; P.Eng.; F.R.S.C. (Dean of the College of Science)

Research Fellow:

Henry Currie Palmer, B.Sc. St. Francis Xavier; Ph.D. Princeton
John Henry Sass, B.Sc., M.Sc.; Ph.D. Australian National Univ.

Research Associates:

F. M. Anglin, B.Sc.; J. K. A. Banson, B.Sc.; C. S. Chen, B.Sc., M.Sc.; A. C. Dubey, B.Sc., M.Sc.; A. S. Judge, B.Sc.; P. Killeen, B.Sc.; F. E. M. Lilley, B.Sc., W. G. Milne, B.A.Sc., M.Sc.; E. Mustonen, B.A. M.Sc.; J. P. Neophytou, B.Sc., M.A.; D. N. Skibo, B.Sc.; J. A. Slankis, B.Sc.; Anne Stevens, B.Sc., M.Sc.; M. R. Thapar, B.Sc., M.Sc.; H. D. Valliant, B.Sc.

Honors Courses:

366. Electronics: A course covering the principles and practical use of vacuum tube and semiconductor circuits with examples taken from geophysical instrumentation. 2 lectures, 2 laboratory hours—24

458. Geophysics Seminars: This is a course in which the students are required to prepare and present orally a paper on a specified topic; the paper is also written up in a style normally used for published papers.

465. General Geophysics: An introductory course in the various geophysical problems associated with gravity, magnetism, seismology, radio-activity, and the internal constitution of the earth, with applications to geophysical exploration. 2 lectures, 2 laboratory hours—11

GERMAN

University College

Professors:

Herbert Karl Kalbfleisch, B.A.; M.A. New York; M.A., Ph.D. Michigan; Head of the Department
Gordon Lloyd Tracy, B.A. Queen's; M.A., Ph.D. Wisconsin

Associate Professor:

Alexander Robinson Anderson, B.A. Toronto; Ph.D. Brown

Lecturers:

Heinz Juergen Schueler, B.A., M.A. Toronto
Gerald H. Seufert, Staatsexamen, Tübingen
Hanna Spencer (Mrs. E. Y.), Ph.D. Prague
Ronald Alexander Allen, B.A., M.A. Toronto; Ph.D. Chicago (part-time)

Teaching Fellows:

Patricia Burton, B.A.
Rosina Liepmann, B.A. Valparaiso; M.A. Michigan

Courses

1. Introductory German. Study of the sounds and structure of the language. Intensive oral and written practice. Readings in prose and poetry and in the history and civilization of the German-speaking world. 3 hours—36

5. Elementary Scientific German. The elements of German grammar with the reading of easy scientific German. 3 hours—23

10. Intermediate German. Further study of the structure and idiom of the language. Oral and written practice. Readings in modern prose and poetry. Prerequisite: German 1 or permission of the Department. 3 hours—36

20. Advanced German. Survey of German literature, composition, grammar, conversation.

Prerequisite: Grade 13 German or German 10 or permission of the Department. 3 hours—36

22. Conversation and Composition: Systematic oral practice and translation of texts.

Prerequisite: German 10 or German 20 or permission of the Department. 2 hours: half course.

30. Literature of the Nineteenth and Early Twentieth Centuries.

Prerequisite: German 20. 3 hours— 5

35. Intermediate Scientific German: The reading of scientific works in German and a review of basic grammatical constructions as an aid to reading.

Prerequisite: German 1 or German 5 or permission of the Department. 2 hours—23

40. German Literature of the Classical Period. 3 hours—24

42. Contemporary German Literature. 3 hours—15

44. A study of some major German novels of the Nineteenth and Twentieth centuries. 3 hours—20

45G. Scientific German for Graduate Students: The reading of scientific works in German from textbooks and journals, supplemented by individual reading in the special field of study of each student. This course may be elected by students without a previous knowledge of German. 2 hours—23

Honors Courses

All students in Honors Courses will take a comprehensive examination at the end of the final year.

290. Prose and Poetry of the Nineteenth Century.

Prerequisite: German 20 3 hours—35

291. Conversation, Composition, Translation, Phonetics.

Prerequisite: German 20 2 hours—24

333. History of the German Language. Readings in Middle High German Literature. 2 hours— 4

390. Drama of the Nineteenth Century. 2 hours—26

391. Conversation, Composition, Translation.

Prerequisite: German 291. 2 hours—34

420. German Literature of the Twentieth Century. 2 hours—16

444. The German Novel from the Seventeenth Century to the Present. 3 hours—25

480. German Classicism. Lessing, Goethe, Schiller. 2 hours— 6

481. Conversation, Composition, Translation. 2 hours—19

HEBREW

Associate Professor:

The Rev. Geoffrey Howard Parke-Taylor, B.A., M.A. Toronto; L.Th., B.D. Wycliffe

Lecturer:

The Rev. Doreen Smith, B.A. Toronto; B.D. Emmanuel (part-time)

Courses

These courses are given in Huron College on behalf of University College and Huron College.

1-10. Grammar: Text of Genesis 1-3; 22; Jonah. 5 hours—35

20. Introduction to Hebrew Narrative and Poetry: Text of II Samuel 9-20; I Kings 1-2. Selected Psalms. 3 hours—17

Prerequisite: Hebrew 1-10.

30. Hebrew Prophetic Literature: Selections from Isaiah of Jerusalem, Jeremiah, and the Minor Prophets. Introduction to Gunkel's **Formgeschichte** and **Gattungskritik.** (not offered 1964-65) 2 hours—24

Prerequisite: Hebrew 20.

HISTORY

University College

Professor:

Albert Victor Tucker, B.A., M.A. Toronto; Ph.D. Harvard, Head of the Department

Professors:

Wallace Klippert Ferguson, B.A.; M.A., Ph.D. Cornell; Litt.D.; F.R.S.C.; J. B. Smallman Professor of History

James John Talman, B.A., M.A.; Ph.D. Toronto; F.R.S.C.; University Librarian

Associate Professors:

Walter Balderston, B.A., Ph.D. Cornell

John Rowland Gwynne-Timothy, B.A., M.A. Toronto; D.Phil. Oxon.

John Purves McLaughlin, B.A. Queen's; Ph.D. London

Assistant Professors:

Frederick August Dreyer, B.A. Toronto; B.A. Oxon.; Ph.D. St. Andrews

Roger Lee Emerson, B.A. Dartmouth; M.A. Brown; Ph.D. Brandeis

Kenneth Harry Warren Hilborn, B.A., M.A. Queen's; D.Phil. Oxon.

Ian Kenneth Steele, B.A. Alberta; Ph.D. London

Gordon R. Taylor, B.A. Queen's; M.A. McGill

Lecturers:

Donald S. Hoffman, B.A. Syracuse

Charles Greenwood Thorne, Jr., B.A. Haverford; A.M. Pennsylvania

Lecturer (Part-time):

Charles Leslie Murison, M.A. Edinburgh; B.A. Cantab.

Middlesex College

Professor:

Hugh Mason Wade, Head of the Department

Professors:

Fred Harvey Hitchins, B.A.; M.A., Ph.D. Pennsylvania
Donald Gordon Grady Kerr, B.A. McGill; Ph.D. London; Principal, Talbot College
John R. Lander, B.A., M.A., M.Litt. Cantab.
Richard C. Overton, A.B., A.M. Williams; A.M., Ph.D. Harvard
Morris Zaslow, B.A., B.Ed. Alberta; M.A., Ph.D. Toronto

Assistant Professors:

Albert Mark John Hyatt, B.A. Toronto; M.A. Carleton; Ph.D. Duke
Peter F. Neary, B.Sc., M.A. Memorial; Ph.D. London
Charles Arthur Ruud, B.A. Willamette; A.M. Harvard; Ph.D. Berkeley

Lecturers:

Frederick Henry Armstrong, B.A., M.A. Toronto
Robert A. Hohner, A.B., A.M. Duke

Courses

20. *Europe and North America from the Eighteenth Century to World War II.* 3 hours—14

30. Medieval Europe: From the fourth to the fourteenth centuries (may not be taken by anyone who has taken History 20 before 1965) 3 hours—36

31. History of Canada. 3 hours—29

32. History of England to 1688. 3 hours—10

33. The British Empire and Commonwealth. 3 hours—32

34. History of the United States. 3 hours—21

35. History of England since 1688. 3 hours—18

36. Modern European History: From the middle of the sixteenth century to the Second World War. 3 hours—13

37. History of Russia-U.S.S.R.: The political, economic, and cultural development, social conditions, territorial expansion and foreign relations. 3 hours— 6

38. History of Latin America: (Not offered 1965-66).

39. Modern China and Japan: A survey of the cultural and political condition of China and Japan at the time of the arrival of the Europeans; the impact of the west on the government, society and thought of these nations, particularly since 1800. 3 hours— 1

40. Selected Topics in the History of Medieval Europe: (prerequisite: Course in Medieval History or permission of the Department of History). 3 hours—12

41. Selected Topics in the History of Canada: (prerequisite: Course in Canadian History or permission of the Department of History) 3 hours—15

44. Selected Topics in the History of the United States: (prerequisite: Course in American History or permission of the Department of History). 3 hours—26

46. Selected Topics in the History of Modern Western Europe: (prerequisite: Course in European or English History, or permission of the Department of History). 3 hours—24

Honors Courses

231. History of Canada: From the beginning of the French Regime. 3 hours—29

236. Europe and England in the 16th and 17th centuries: Seminar 4 hours—13

244. History of the United States from the Colonial Period. 3 hours—34

333. Expansion of the First British Empire from the 15th to the 18th centuries. 3 hours—32

335. Europe and England, 1715-1914: Seminar. 3 hours—18

337. History of Russia - U.S.S.R.: The 19th and 20th centuries with special emphasis on intellectual and social developments. 3 hours— 6

338. Latin American History. 3 hours—30

339. The Past Century in East Asia. The early history of China and Japan; political and intellectual developments in East Asia from 1860 to the present; some attention will be given to Korea and to South-East Asia. 3 hours— 1

357. Ancient Civilization: the Near East, Greece and Rome, identical with Latin 257 and Greek 257. 3 hours—24

400. Thesis Seminar: with permission of the Department of History. 3 hours

420. The High Middle Ages: Charlemagne to the end of the 13th century. 3 hours— 4

431. Canada in the 19th and 20th centuries: emphasis on selected topics and seminar discussion. 3 hours— 7

432. England, 1399-1642: a political, social, and constitutional study of England from the fifteenth to the seventeenth centuries. 3 hours—10

433. History of the Second British Empire and Commonwealth. 3 hours—19

444. The United States: selected topics and seminar discussion. 3 hours—14

451. Problems in Ontario History: (Not offered in 1965-66).

452. English Constitutional History: a study of the development of the English constitution from the Anglo-Saxon monarchy. 3 hours—35

456. *Modern Europe* since 1914: lectures and seminar. 3 hours—11

460. The transition from Medieval to Modern Civilization: the economic, social, political, religious, and cultural developments of the period from 1300 to 1600. 3 hours—26

HOME ECONOMICS

For faculty and courses see the Brescia College section.

JOURNALISM

University College

Professor:

John Leslie Wild, B.A.; M.A. Michigan, Head of the Department

Associate Professor:

Earle Beattie, B.A. Manitoba; B. Ed. Toronto

Assistant Professor:

C. Edward Wilson, B.A.

Lecturers (Part-time):

Thomas Hugh Bremner
John K. Elliott, B.A.
Arthur Rutherford Ford, B.A., LL.D. Toronto
James M. O'Neail, B.A.
C. Robert Turnbull

Courses

Students should be *proficient in typewriting* by the beginning of the second year.

20. Introduction to Journalism: A survey of News Media with emphasis on the Daily newspaper; newswriting, reporting; lectures, workshops, field trips, seminars on current events. 3 hours—33

Honors Courses

250. Interpretive News Writing and Reporting: Reporting specialized fields, public affairs, social, economic and political news. 6 hours—24

260. 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. 1 hour: half course—25

270. Pictorial Journalism: Principles of news photography; picture editing; the photo-story; magazine illustration; layout, engraving process. Not a course in photography. 2 hours: half course— 6

351. Newspaper Production: Newsroom organization; copy editing; page makeup; survey of the mechanical phases of newspaper production. 3 hours: half course— 5

352. Public Relations I: History and function of public relations; public relations processes with emphasis on communications; relations with the general public, employees, shareholders, customers, the community, the governments; lectures, seminars, case studies, workshops.
4 hours—11

355. History of Journalism: A survey of the development of journalism in the British Isles, United States and Canada. 2 hours: half course— 1

365. Editorial Writing: Editorial policy; the editorial and the background article; research methods; editorial page feature; the signed column; ethical standards of the press. 1 hour: half course—21

375. Feature and Magazine Article Writing: Feature writing for newspapers; article writing for industrial, trade and general circulation magazines, including assignments and a study of free lancing, readership, research, interviewing, organization, rewriting, style. 2 hours: half course—36

400. Newswriting and Reporting: For students registered in the Diploma program in Journalism. Writing for mass communication; the forms and style of journalistic prose; reporting methods; news evaluation; interpretive reporting; world news editing and reporting. 10 hours—12

451. Communication Problems: Development of communication, process of communication, aspects of the mass media, propaganda, public opinion, general semantics. Papers and projects on news coverage and comment, foreign reporting. 4 hours— 5

452. Public Relations II: Public relations in special situations; industry, banking, insurance, utilities, transportation, hospitals, churches, educational institutions, health and welfare agencies, government, armed forces; research, planning, evaluation, executive decision-making; seminars; case studies. (Not offered until 1966-67) 4 hours— 1

455. Radio and Television News and Documentary Writing: Comparative study of newspaper, radio and television writing and news treatment; preparation of newscasts; radio interviewing and documentaries; television news and documentary writing. 3 hours—13

PURE AND APPLIED MATHEMATICS AND ASTRONOMY

College of Science

Professors:

Gordon Richey Magee, B.A.; M.S., Ph.D. Chicago, Head of the Department
John Henry Blackwell, B.Sc. Melbourne; M.Sc., Ph.D., Senior Professor Applied *Mathematics (Honorary Lecturer, Physics)*
David Borwein, B.Sc. Witwatersand; Ph.D., D.Sc. London, F.R.S.E.
Randal Hudie Cole, B.A.; M.A., Ph.D. Wisconsin
William Henry Wehlau, A.B., Ph.D. California(Honorary Lecturer, Physics)

Associate Professors:

Mir Maswood Ali, B.Sc., M.Sc. Dacca; M.S. Michigan; Ph.D. Toronto
Derek Naylor, B.Sc., Ph.D., London
James Davis Talman, B.A., M.Sc.; Ph.D. Princeton
Harry van der Laan, B.A.; Ph.D. Cambridge

Assistant Professors:

Edward J. Barbeau, B.A., M.A. Toronto; Ph.D. Newcastle
A. Stanton Deakin, B.Sc. Carleton; M.A., Ph.D. Toronto
Jay L. Delkin, B.A. Reed; M.A. British Columbia
Kimmo A. Innanen, B.A.Sc. Toronto; M.Sc. Waterloo; Ph.D. Toronto
Trevor M. Luke, B.A. Queen's; M.Sc., Ph.D. McGill
Peter W. Manuel, B.Sc., M.Sc., Ph.D.
Donald O. McKay, B.A., M.A., Ph.D. Buffalo
Donald Richard Miller, B.A., M.A., Ph.D. Toronto
Morton A. H. Nerenberg, B.Sc., Ph.D. McGill
Irvine J. W. Robinson, B.A., M.A. Queens
Douglas Edwin Smylie, B.Sc. Queen's; M.A., Ph.D. Toronto
K. Subrahmaniam, B.Sc., M.Sc. Benares; D.Sc. Johns Hopkins

Lecturers:

Anne E. M. Bode, B.A., M.A. Saskatchewan
Gordon D. J. Edwards, B.Sc. Toronto, S.M., A.M. Chicago
John Francis Hart, B.A., M.A., Ph.D. Toronto (Honorary Lecturer)
John A. Mereu, B.A.; F.S.A. Society of Actuaries (Part-time)
A. K. Md. E. Saleh, B.Sc. Comilla Victoria; M.A., Ph.D.
Amelia S. Wehlau, A.B., Ph.D. California (Part-time)

Instructors (Part-time):

Ann L. Bellis, B.S., M.S. North Carolina State College
Walter H. Gillespie, B.A. Princeton
Robert J. Phillips, B.A. Queens

Demonstrators and Research Assistants:

J. D. Andean, B.Sc. Australian National University; W. W. Ching, B.Sc. Chu Hai College, Hong Kong; R. Hosking, B.Sc. Adelaide; A. B. M. Lutful Kabir, B.Sc., M.Sc. Dacca

Mathematics Courses

20. Introductory College Mathematics: An introduction to calculus; a study of logic, set theory, probability theory, and the algebra of vectors and matrices. 3 hours—30

Prerequisite: Grade XIII Mathematics (any two papers), or equivalent mathematics.

24. Introductory Calculus: Introduction to differential and integral calculus with applications. 3 lectures and 1 tutorial hour—30

Prerequisite: Grade XIII Mathematics (three papers), or equivalent.

27. Calculus: For first year Engineering Science. 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. 4 lectures and 1 tutorial hour— 5

Prerequisite: Grade XIII mathematics (three papers), or equivalent.

30. Algebra: Introduction to modern algebra: rings, domains, fields, groups, polynomials, matrices, determinants.
Prerequisite: Mathematics 20 or 24. 3 hours—35

32. Analytic Geometry: The general conic and pencils of conics; geometry of three dimensional space.
Prerequisite: Mathematics 20 or 24. 3 hours— 5

34. 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.
Prerequisite: Mathematics 20 or 24 or 27. 3 hours— 9

35. Statistics: Standard probability distributions; sampling distributions; estimation; test of hypothesis; analysis of variance; regressions and correlation.
Prerequisite: Mathematics 20 or 24. 3 hours—30

40. Elementary Theory of Numbers: Euclidean algorithm, congruences, indices, continued fractions, Gaussian integers, partitions and Diophantine equations. 3 hours—22
Prerequisite: Mathematics 20 or 24.

Honors Courses

230. Algebra: Finite dimensional vector spaces, linear transformations and matrices, linear equations, quadratic forms, eigenvalues and eigenvectors, vector spaces over the complex numbers.
Prerequisite: Mathematics 20 or 24. 2 hours—35

250. Algebra and Geometry: Vector and matrix algebra, determinants, linear transformations, linear equations, canonical forms. Applications to bilinear forms, quadratic forms, geometry, systems of linear differential equations.
Prerequisite: Mathematics 24. 4 hours—14

256. Calculus and Differential Equations: Uniform continuity, Riemann integral, indeterminate forms, improper integrals, Taylor's formula; functions of several variables, partial differentiation, multiple integration; cylindrical and spherical coordinates; line and surface integrals, Green's Theorem, Stokes' Theorem; infinite sequences and series; uniform convergence; ordinary differential equations.
Prerequisite: Mathematics 24. 4 hours— 2

277. Calculus and Differential Equations: For second year Engineering Science and for the Natural Sciences. Partial differentiation; multiple integrals; functions of a complex variable; ordinary differential equations.
Prerequisite: Mathematics 24 or 27. 3 hours—20

For each 300 course, the prerequisites are Mathematics 230 or 250 and 256, or consent of instructor. For each 400 course consent of the instructor is required.

340. Number Theory: Divisibility, congruences, quadratic reciprocity, some functions of number theory, Diophantine equations, continued fractions, the distribution of primes, algebraic numbers, partitions. 3 hours—22

350. Algebra I: Introduction to abstract algebraic systems; elementary theory of groups, rings, fields and vector spaces; establishment of real and complex fields. 3 hours—25

351. Geometry I: Groups of transformations of the Euclidean plane, inversion and coaxal systems; the projective plane. 3 hours—16

353. Finite Differences: Advancing differences, interpolation, divided differences, central differences, inverse interpolation, summation, approximate integration. Investment: Compound interest, nominal and effective rates of interest and discount, annuities-certain, bonds. 3 hours— 5

355. Statistics I: Standard distributions; sampling distributions; sampling from finite population; estimation; test of hypothesis; design of experiments; *analysis of variance and regression analysis; non-parametric methods; sequential analysis.* 3 hours—23

356. Analysis I: Real variables: sequences, improper integrals, series, Fourier series, Fourier integral, Fourier transform, Riemann-Stieltjes integral. Complex variables: integration and differentiation of a function of a complex variable, Taylor and Laurent series, conformal mapping, residues. 3 hours—31

358. Advanced Classical Dynamics: A logically connected development of classical mechanics including a thorough treatment of Lagrangian and Hamiltonian methods.

Prerequisite: Mathematics 230 or 250, 256; Physics 250. 3 hours—17

363. Numerical Analysis: Accuracy of approximate calculations, interpolation, summation of series, numerical differentiation and integration, solution of numerical algebraic and transcendental equations, numerical solution of ordinary differential equations, least squares and harmonic analysis, numerical solution of simultaneous linear equations. Students are encouraged to use the IBM 7040 digital computer. 3 hours—14

377. Engineering Mathematics 1: This is a general course in Applied Mathematics for third year engineering students. Topics covered include: introduction to numerical analysis and computer programming; linear algebra; ordinary linear differential equations with variable coefficients, special functions; elementary probability theory. First term: 2 lectures, 1 laboratory hour. Second term: 3 lectures—26

378. Applied Mathematics I: Theory of ordinary differential equations and special functions; properties and solution of some partial differential equations of mathematical physics; Sturm-Liouville problem; calculus of variations; orthogonal function expansions. 3 hours— 1

378P. Applied Mathematics I P: Special course for students of Physics. The material of Mathematics 378, augmented by complex variable theory. 4 hours— 1

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 hours—31

450. Algebra II: Elementary factorization theorems; field theory; Galois theory; groups with operators, semi-simple rings, general factorization theorem. 3 hours— 8

452. Geometry II: The algebraic treatment of projective geometry of one and two dimensions; the properties of conic loci, conic envelopes and linear systems of conics; higher correspondence; apolarity; the theory of invariants and transformations of the plane. 3 hours—35

453. Methods of Operations Research: Optimization, linear and quadratic programming, theory of games, queuing theory.

Prerequisite: Mathematics 230 or 250, 256. 3 hours—17

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 hours—21

456. Analysis II: Basic point set topology, advanced real variable theory, introduction to measure and integration theory. 3 hours— 3

458. Quantum Mechanics: Axioms of Quantum Mechanics; commutation relations and correspondence principle, Heisenberg and Schroedinger representations; solutions of Schroedinger equation; angular momentum; perturbation theory. 3 hours—12

460. Introductory Topology: Metric spaces, topological spaces, connectedness, compactness, separation axioms, Tietze extension theorem; simplical complexes, classifications of compact 2-manifolds, homotopy classifications of maps of n-spheres, theorem of Borsuk-Ulam; homology groups. 3 hours—18

463. Life Contingencies: The mortality table, commutation functions, annuities, insurances, net premiums, reserves, gross premiums, non-forfeiture values, combination benefits, joint annuities, last survivor annuities, generalized multiple life annuities, contingent assurances, reversionary annuities, population tables, multiple decrement tables. 3 hours—29

464. Ordinary Differential Equations: Existence theorems; general linear equation, matrix systems, adjoint systems, Green's function, expansion problems; stability theory. 3 hours—33

468. Tensor Calculus: Theory of curves, Serret-Frenet formulae; curvilinear coordinates, first and second fundamental forms, geodesics, Codazzi equations, Gauss-Bonnet theorem. Introduction to differential geometry in the large. Introduction to n-dimensional Riemannian geometry and tensor analysis. 3 hours—27

470. Foundations of Mathematics: 3 hours—24

477. Engineering Mathematics II: A sequel to Mathematics 377, consisting of the following topics: vector calculus; orthogonal functions and Fourier series; introduction to partial differential equations; numerical analysis and computer programming; applications of computer science to problems in engineering design. First term: 3 lectures
Second term: 1 lecture, 2 laboratory hours—29

478. Applied Mathematics II: This course is concerned basically with techniques of problem solution in Applied Mathematics. Topics discussed vary from year to year and in depth but usually include the following:— Integral transforms; integral equations; difference equations, generalised functions; special application of complex variable theory; approximation methods.
Prerequisites: Mathematics 356, 378, Physics 350. 3 hours—19

488. Relativity and Electromagnetic Theory: (Not offered until 1966-67). 3 hours—24

498. Mechanics of Continua: An introduction to the theories of hydrodynamics and/or the theory of elasticity. 3 hours—36

ASTRONOMY COURSES

29. Descriptive Astronomy: Systems of coordinates; identification of stars and constellations; the solar system; normal, variable and binary stars; structure of our galaxy; other galaxies; observations with the telescopes in the Hume Cronyn Observatory and the Observatory of the College of Science. This course satisfies the requirements for a laboratory science for the B.A. 3 hours—13

Honors Courses

229. Introduction to Astronomy: Coordinate systems; the solar system; motions and physical properties of the planets, normal, variable, and binary stars; stellar motions; nebulae; structure of our galaxy; other galaxies. Occasional evening meetings. 3 hours—13

359. Astronomy I: Radio astronomy; interstellar matter; celestial mechanics; binary stars. 3 hours— 7

459. Astronomy II: Introduction to the study of stellar atmospheres; stellar structure; dynamics of the galactic system. 3 hours—16

MILITARY STUDIES

Credit for military studies as a half-course may be obtained by serving for three years, including summers, with 80 per cent attendance at lectures and parades.

MUSIC

See The College of Music Section. Music courses ending in "O" are available to arts and science students.

PHARMACOLOGY

College of Science

Professor:

Charles Willis Gowdey, B.A., M.Sc.; D. Phil. Oxon.; Head of the Department

Associate Professors:

Earnest Howard Colhoun, B.S.A. Toronto; Ph.D. Cantab.
John Thomas Hamilton, B.Sc., Ph.D. Edinburgh

Assistant Professor:

Richard Blain Philp, D.V.M. Guelph; Ph.D.

Honorary Lecturers (part-time):

Thomas Drake Lovegrove, B.A., M.D., M.Sc.
David Borris Meltzer, B.Sc. Manitoba; M.D., F.R.C.P.(C)

Honorary Instructor (part-time):

Donald Frederick Hansford, Phm.B. Toronto

Fellow:

Beryl Ann Chernick, M.D.

Demonstrators:
Robert Gordon Burford, B.Sc., M.Sc., Martin Lewis Throne, B.A. Harpur

Graduate Assistants:
Milton Lewis Wilkins Hersey, B.Sc. McGill; M.D.; Mahendra Prasad, M.B., B.S. Patna; Henry Maxwell Rubinstein, B.A. Harpur

Honors Courses (as available)

301. General Physiology and Pharmacology: (Given in collaboration with the Department of Physiology). A survey of the principles of general physiology and pharmacology. 2 lectures

460. Advanced General Physiology and Pharmacology: (Given in collaboration with the Department of Physiology). Selected topics including the general principles of measurement in these fields. 1 lecture

461b. Autonomic Pharmacology: The chemical transmission of nervous impulses in, and the effects of drugs on, the autonomic nervous system. 1 lecture

462. Chemical Pharmacology and Toxicology: A survey of the relation between chemical structures and pharmacological activity, and a discussion of the general problem of toxic substances in our environment. 1 lecture

463a. Botanical Pharmacology: A study of some naturally-occurring drugs and allied substances. 1 lecture

467. Behavioral Physiology and Pharmacology. (Given in collaboration with the Department of Physiology). A discussion of the physiological mechanisms involved in behavior and the effects of drugs upon them. 1 lecture

480. Laboratory: A laboratory course in Experimental Pharmacology designed to accompany the lecture courses. Maximum time available

481. Research and Seminar. 1 hour

PHILOSOPHY

University College

Senior Professor:
Allison Hartz Johnson, B.A. Mt. Allison; M.A., Ph.D. Toronto; F.R.S.C.

Professor:
Joseph Margolis, B.A. Drew; M.A., Ph.D. Columbia; Acting Head of the Department

Associate Professor:
Harold Joseph Johnson, B.A. Alfred; Ph.D. Chicago

Assistant Professors:
Richard Norton Bronaugh, B.A. Oregon; M.S., Ph.D. Wisconsin
Stanley George French, B.A. Carleton; M.A. Rochester; Ph.D. Virginia
Martha Elaine Williams, B.S. William and Mary; M.A., Ph.D. Bryn Mawr

Lecturers:

Edward Beaman, B.A. Cincinnati
Donald James Hockney, B.A. McMaster

Teaching Fellows:

John Robert Gellard, B.A.; Barbara Houston, B.A.; John Rathray McGregor, B.A.;Bradley Russell Munro, B.A.; Margaret Steel, B.A.; Jonathan Van Vorst, B.A. William and Mary

Middlesex College

Professors:

Robert Earl Butts, A.B., A.M. Syracuse; Ph.D. Pennsylvania; Head of the Department
John Whitney Davis, B.A., M.A., Ph.D. Boston

Associate Professors:

Irving Block, B.A., Vanderbilt; M.A., Ph.D. Harvard
Wilbert Cameron Henry, B.A., M.A.; Ph.D. Toronto

Assistant Professor:

Peter Adam Angeles, B.A., M.A., Ph.D. Columbia

Lecturers:

Patrick Maynard, B.A. Chicago
Anne Martin Schrecker, B.A. Kalamazoo; M.A. Radcliffe; Ph.D. Bryn Mawr
W. Kent Wilson, B.S. Marietta, M.A. Pittsburgh

Teaching Fellows:

Colin Rowe Burnett, B.A.; John Baillie Cairns, B.A.; Alexander Miller Finney, B.A. Acadia; Geoffrey Francis Armatage Holt, B.A. Toronto; Robert Charles Sims Ripley, B.A., M.A. Toronto, L.S.T. Bishop's

Courses

20. Introduction to Philosophy: This course is concerned with ethical, logical, aesthetic, religious, educational and political problems. Its purpose is to help students to understand what is involved in these problems and to appreciate some of the solutions provided by the great thinkers of the past and present. This course is for freshmen. 3 hours— 1

30. Basic Philosophical Literature: A critical survey of a selected group of Philosophical classics, ancient and modern. 3 hours— 1

31. Logic and Problems of Knowledge: First term—Logic: meaning and definition, formal logic, verification of knowledge and scientific method; second term—Problems of knowledge, with particular reference to religion. 2 hours—20

32. Philosophical Theory: Readings in selected philosophical classics, with an emphasis on those which form the background of scientific theory. (This course should not be selected by those who are taking or have taken Philosophy 20 or 30.) 2 hours— 2

34. Logic and Philosophy of Science: An introduction to problems in logic and the philosophy of science. 2 hours— 9

35. Aesthetics: A study of aesthetic theory, criticism, and general theory of value.
Prerequisite: One course in Philosophy. 2 hours— 3

36. Ancient Philosophy: A survey of the principal developments from the Presocratics (600 B.C.) to Plotinus (250 A.D.) and of their contributions to our cultural heritage. Primary emphasis will be placed on the critical reading of selected original sources.
Prerequisite: One course in Philosophy. 2 hours—28

42. Introductory Ethics: A critical inquiry into the possibility and nature of ethical standards, the methods by which they may be known, and their applications to concrete problems of personal and social morality.
Prerequisite: One course in Philosophy. 2 hours—31

Honors Courses

254. Introduction to Problems in Theory of Knowledge: Intensive seminar and tutorial study of major problems in epistemology. For Honors students in any department. 2 hours— 3

256. Ancient Philosophy: A critical examination of the major philosophers and philosophical schools from the Presocratics to Plotinus, with emphasis on the writings of Plato and Aristotle. 2 hours—15

257. Earl Modern Philosophy. 2 hours—31

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. 2 hours—22

350. Philosophical Texts: An examination of specified source materials in Greek and Modern Philosophy; critical works will also be studied. (Offered on demand) 2 hours—13

351. Logic and Problems of Philosophical Analysis: First term: Formal logic—propositional calculus, quantification theory. Second term: Modal logic, problems of meaning and ontology. 2 hours—20

353. Philosophy of Religion. 2 hours—12

355. Aesthetics and Value Theory. 2 hours— 3

357. Modern Philosophy: Later modern philosophy with particular emphasis on the philosophy of the 19th century.
Prerequisite: Philosophy 257. 2 hours—36

362. Ethics: A critical study of moral problems and theories. The course will be based on reading selected from the classics of ethical literature from Aristotle to the present. 2 hours—29

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. 2 hours—29

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.
2 hours—10

456. Plato/Aristotle: Full year courses in Plato and Aristotle offered in alternate years. The later dialogues of Plato and selected works of Aristotle will receive special attention. 2 hours— 5

458. Dewey, Bergson and Whitehead: A critical study of these 20th century philosophers. 2 hours—14

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. 2 hours—25

466. Mediaeval Philosophy: A survey of the principal currents in philosophy from the breakdown of classical culture to the Renaissance (350 A.D. to 1500). Primary emphasis will be placed on the critical examination of representative works. (Offered alternate years.)
Prerequisite: Philosophy 256. 2 hours—18

467. Rationalism/Empiricism: Full year courses in rationalism and empiricism are offered in alternate years. In the course on rationalism emphasis is placed on the philosophies of Descartes, Leibniz, and Spinoza, and in the course on empiricism emphasis is placed on Locke, Berkeley and Hume. In both courses, however, attention is given to the minor figures of the period. 2 hours—21

474. Problems of Philosophy. (Offered on demand). 2 hours— 1

477. Hume/Kant: Full year courses in selected writings of Hume and of Kant are offered in alternate years. In each case an intensive study of several major works of the philosopher will be undertaken. 2 hours—24

PHYSICAL AND HEALTH EDUCATION

University College

Professor:

Willard Joseph L'Heureux, B.A.; M.A. Michigan; Head of the Department

Associate Professors:

Elfrida M. Berzins (Mrs.), M.M. Riga
John Russell Fairs, B.Sc., M.A. Columbia
Michael Yuhasz, B.A., M.S., Ph.D. Illinois

Assistant Professors:

Robert Barrie Eynon, B.A., M.S. Illinois
Frank J. Hayden, B.A., M.Sc., Ph.D. Illinois
Glynn Arthur Leyshon, B.A., M.S. Illinois
John R. Richardson, B.P.H.E., M.Sc., Alberta
George Arthur Wearring, B.A.; M.S. Southern California

Lecturers:
Mary Lou Dresser, B.A.; M.A. Stanford
Gerald I. Gonser, B.A., M.A. Michigan
Helen Vieno Kunkel (Mrs.), B.A.
Margaret Joy Taylor, B.A., B.P.H.E. Toronto
Ronald C. Watson, B.A., B.P.E., M.Sc. Alberta

Lecturers (Part-time):
William John Pillsworth, B.A.; M.A. New York

Instructors:
Murray McNie

Courses

20. Survey of Physical Education: Historical and scientific foundations; motor performance; selected health problems; physical fitness and recreation skills. 2 lectures and 2 laboratory hours

30. Advanced theory and practice of activities: (Open only to students who have completed Physical Education 20 before 1965.)
2 laboratory hours

Honors Courses

251. Team Games and Individual Activities: The theory and mechanics of activities; the development of personal performance skills.
2 lectures and 4 laboratory hours

253. School Health Education: An approach to intelligent planning for healthful living; the study of personal health from the standpoint of Biology, Psychology and Nutrition; community and institutional public health; methods and materials of school health teaching. 3 lectures—21

254. Functional Human Anatomy: To be given by the Department of Anatomy, Medical School. 1 lecture and 1 laboratory hour (half course)—29

258. History of Physical, Health and Recreation Education: The historical development of these three sections of education; meanings of play, work, and leisure in historical perspective and their interrelationships in modern society.
3 lectures—34

342. Human Physiology: Trends in investigations of the physiology of physical activity, with implications for physical and health education. To be given by the Department of Physiology, Medical School.
2 lectures and 3 laboratory hours— 4

351. Team Games and Individual Activities: The theory and mechanics of activities in addition to those studied in P.H.E. 251.
1 lecture and 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 inter-school programs; scheduling and management of athletic contests.
3 lectures— 8

353. Kinesiology, Corrective Physical Education: Essential facts of human anatomy and physiology as they pertain to corrective exercise; analysis of complex body movements.

2 lectures, laboratory as required—31

442(a). Physiology of Exercise: To be given by the Department of Physiology, Medical School.

One term - 2 lectures, 2 laboratory hours— 1

442(b). Scientific Training Techniques: The investigation of modern athletic training methods with emphasis on interval training, weight training, isometric exercises and nutrition.

One term - 2 lectures, 2 laboratory hours— 5

451. *Team Games and Individual Activities:* The study of team games with particular reference to coaching responsibilities in planning, methodology, skill analysis, personnel management, etc.

Prerequisite: P.H.E. 251, 351. 5 hours (lecture or laboratory as required)

456. Seminar: The interpretation of physical education in its relationship to education; principles underlying program; presentation of senior thesis.

3 hours—14

457. Physical Fitness Appraisal and Guidance: The scientific basis of physical fitness appraisal; the construction and administration of fitness and sports skills tests; descriptive statistics in the handling of data for evaluation, grading, and classification. 2 lectures, 2 laboratory hours—21

PHYSICS

College of Science

Professors:

Peter Allan Forsyth, B.A., M.A. Saskatchewan; Ph.D. McGill; F.R.S.C., Head of the Department
Eric Brannen, B.A., M.A. Toronto; Ph.D. McGill
Peter Arthur Fraser, B.Sc.; M.S. Wisconsin; Ph.D.
Donald Ross Hay, B.Sc., M.Sc.; Ph.D. McGill

Associate Professors:

A. M. I. A. W. Durnford, B.A., M.A.; Ph.D. Toronto
Harry Ian Symons Ferguson, B.Sc., M.Sc., Ph.D.
Eric Harold Tull, B.A. Sc. British Columbia; M.Sc., P.Eng.
Eric Lloyd Vogan, B.Sc., M.Sc.; Ph.D. McGill

Assistant Professors:

James Arthur Fulford, B.Sc., Ph.D.
Gerard Rosaire Hébert, B.Sc. Ottawa; M.Sc. British Columbia; M.Sc. Catholic U. of America; Ph.D.
Gordon Frederick Lyon, B.A., M.A., Ph.D. Saskatchewan
Romas Mitalas, B.A., M.A., Toronto; Ph.D. Cornell
Donald Ross Moorcroft, B.A.Sc. Toronto; Ph.D. Saskatchewan
Rama Chandra Murty, B.Sc. Andhra; M.Sc., Dip. Lib. Bombay; Ph.D.
Graham Stewart Rose, B.Sc., Ph.D. Birmingham
Mordechay Schlesinger, M.Sc., Ph.D. Hebrew University
Thomas William Wallace Stewart, B.Sc., M.Sc.; Ph.D. London

Honorary Lecturers:

Alan Edward Beck, B.Sc., London; Ph.D. Australian National University (Assoc. Prof. and head of Geophysics Dept.)
John Henry Blackwell, B.Sc. Melbourne; M.Sc., Ph.D. (Senior Professor of Applied Mathematics)
Charles Murray Carmichael, B.Sc., M.Sc., Ph.D. (Assoc. Prof. of Geophysics)
John Campbell Forrester MacDonald, B.A., M.A. British Columbia; Ph.D. Toronto
Robert Frank Mereu, B.Sc.; M.A. Toronto; Ph.D. (Assist. Prof. of Geophysics)
Tadeusz Jan Ulrych, B.Sc., London; M.Sc., Ph.D. British Columbia (Assist. Prof. of Geophysics)
William Henry Wehlau, A.B., Ph.D. California (Prof. of Mathematics and Astronomy)

Part-time Lecturers:

Heinrich Roman Froelich, B.Sc. Berlin; M.Sc., Ph.D.
William Ross Jarmain, B.A.; M.A. Wisconsin

Research Associate:

Keikichi Naito, D.Sc. Tokyo (on leave from Meteorological Research Institute, Tokyo)

Demonstrators:

Frank M. Anglin, B.Sc. Ottawa, M.Sc.; Patricia Mary Chefurka, B.Sc. Manitoba; M.S. Montana State College; Abinash Chandra Dubey, B.Sc. Bihar; M.Sc. Ranchi; Alan Stephen Judge, B.Sc. London; Patrick Killeen, B.Sc. Loyola; Jack Kruuv, B.S.Sc., M.Sc., University of Waterloo; Eric Mustonen, B.Sc. Syracuse; M.A. Indiana; Marvin Harold Sherebrin, B.Sc., Manitoba; M.Sc.; Donald Nicholas Skibo, B.Sc. Alberta; Mangat Tharpar, B.Sc. Hon. Indian School of Mines Danhbad; M.Sc. Ranchi.

Research Fellows, Scholars and Part-time Demonstrators:

Donald Alexander McNaughton Butter, B.Sc. Glasgow; M.Sc. British Columbia; Cheng-Shih Chen, B.Sc., M.Sc. Taiwan; Fah-Chap Choo, Dip. Physics, Chung Chi College; Yung-Hwa Chu, B.Sc. Taiwan Normal; Vladimir Degen, B.A., M.A. Toronto; James Philip Fallona, B.Sc., M.Sc.; Fouad Kwan Said Sussein Fanaki, B.Sc. Alexandria; M.Sc.; Joseph Victor Gore, B.A., M.A. Saskatchewan; Maaike Hoeksema, B.Sc.; Sandra Innanen, B.A., M.A. Toronto; Krishan Namboodiri Mukundankutty Kartha, B.Sc. Kerala; M.Sc. Saugar; Roy Arthur Koehler, B.A.; Michel Kraidy, Lic. (Math and Physics) Lebanese University; M.A.; Victor Michael Kushnir, B.Sc.; Hans Carl Martin, B.Sc. Manitoba; M.Sc.; Kenneth Hugh Mason, B.Sc.; Donald James McEwen, B.Ed., B.A., M.A. Saskatchewan; Andrew Thomas McGregor, B.Sc., M.Sc.; James Edward Mentall, B.Sc. Case; M.Sc. Washington; Mary Frances Murtry, B.Sc. London, M.Sc.; James Albert Myer, B.Sc.; Frank Harry Palmer, B.Sc. British Columbia; M.Sc.; Barry Antony Read, B.Sc. Royal Military College; Victor Edwards Sells, B.Sc., M.S.; Ravi Dev Srivastava, M.Sc. Allahabad; M.Sc. Queen's; David Strelioff, B.A., M.A. Saskatchewan; Chia-Luan Ting, B.Sc. Tunghai

Courses

20, 21, 22. Introductory Modern Physics: 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. Conservation laws are stressed. The necessary concepts from classical physics are reviewed.

20 — for science students who have taken Math 24 or are taking Math 24 concurrently. 2 lectures, 3 laboratory hours—19

21 — for students not intending to specialize in a natural science. 2 lectures, 3 laboratory hours—31

22 — for students who are intending to specialize in the natural sciences. All students must have standing in Grade 13 Physics. 2 lectures, 3 laboratory hours—19

33. 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 College of Music only. 3 lecture - laboratory hours— 7

34. General Physics: A study of the laws and principles of light, sound, electricity, magnetism, and thermionics.

Prerequisite: Physics 20, 21 or 22. 2 lectures a week—27

35. Vibrations and Waves: A course dealing with the formulation and elaboration of the concept of waves including energy transport. The following topics are discussed: sound waves and other mechanical waves, electromagnetic waves, introduction to wave-particle duality.

Prerequisite: Physics 20, 21 or 22. 2 lectures—11

38. Selected readings in Physics: A discussion course in which detailed study is made of writings selected from among the original works describing major achievements in physics and from among those commenting on the achievements. Enrolment may be limited.

Prerequisite: Physics 20, 21 or 22. 2 discussion hours per week

39. Practical Physics: A course in laboratory physics designed to stress the physical concepts of wave and particle properties of light and matter, energy quantization and the interaction of electric and magnetic fields with matter.

Prerequisite: Physics 20, 21 or 22. 3 laboratory hours

43. Fundamentals of Meteorology: Meteorological elements and instruments for their measurement, including temperature, pressure, wind, relative humidity, cloud forms and precipitation. 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 luminous atmosphere phenomena and severe types of storms.

Prerequisites: Physics 20, 21 or 22 and Mathematics 20 or 24. 2 lectures— 2

46. Atomic Physics: (1) A review of the laws and theories of classical physics; (2) The development of physical science from the late 19th century to the present.

Prerequisites: Physics 34 and Mathematics 20 or 24 (this may be taken concurrently). 3 lectures—34

Honors Courses

204. Introduction to some topics in Biophysics and Radiobiology, based on the presentation of pertinent material in optics, and in atomic and nuclear physics.

Prerequisite: Physics 20 or 22. 2 lectures, 3 laboratory hours—27

250. Classical Mechanics: Vector algebra including triple products, a kinematic description of motion and the logical development of classical mechanics of single particles and systems starting with a critical analysis of Newton's Laws and ending with the Special Theory of Relativity (to the level of the Lorentz transformations and relativistic equations of motion).

Prerequisite: Physics 20. 2 lectures—28

251. Introductory Numerical Analysis: Emphasizes a standard statistical treatment of the theory of error. Methods of computation; graphical techniques; approximate interpolation, differentiation and integration; series approximations; solution of equations; curve fitting. Practice in the use of these methods is provided in Physics 259.

Prerequisite: Mathematics 24 or equivalent. 2 lectures—12

254. Optics: A discussion of geometrical optics, physical optics and quantum optics. Laboratory experience with the phenomena discussed is provided by Physics 259, which, if not taken previously, must be taken concurrently.

Prerequisite: Physics 20. 2 lectures—31

255. Electricity and Magnetism: An introduction to the laws and principles of electricity and magnetism. Laboratory experience with the phenomena discussed is provided by Physics 259, which, if not taken previously, must be taken concurrently.

Prerequisite: Physics 20. 2 lectures— 8

256. Light, Acoustics, Electricity and Magnetism: An introductory course in geometrical and physical optics; acoustics; electrostatics; magnetism; and electromagnetism.

Prerequisites: Physics 20 or 22 and Math 20 or 24.
3 lectures, 3 laboratory hours—32

257. Special course for students of Mathematics.
The material of Physics 254, 255, 259.

Prerequisite: Physics 20. 4 lectures, 3 laboratory hours—31-8

259. Laboratory: The experiments in this course stress the physical concepts of wave and particle properties of light and matter, energy quantization and the interaction of electric and magnetic fields with matter.

Prerequisite: Physics 20. 3 laboratory hours.

350. Classical Mechanics: The Lagrangian formulation of classical mechanics is developed and applied to various problems including relativistic motion and normal mode analysis. Hamilton's equations are derived and applied to phase space analysis. The course lays the classical groundwork for quantum mechanics and statistical mechanics.

Prerequisite: Physics 250. 2 lectures—12

355. Vector Analysis and Electromagnetic Theory: A vector treatment of the theory of static and dynamic electromagnetic fields leading to Maxwell's equations and the solutions describing propagation of plane electromagnetic waves.

Prerequisites: Physics 250 and 255. 2 lectures—36

356. Applied Electronics: A study of the operation and properties of circuits in which vacuum tube, gaseous tube, and semi-conductor devices are employed. The laboratory work of this course is part of Physics 359. If Physics 359 is not taken, a separate laboratory (3 hours) is required.

Prerequisite: Physics 255 or equivalent. 2 lectures—13

357. Atomic Physics: Charged particle motion in electric and magnetic fields and applications; the physics of atoms, molecules, electrons and light quanta, with emphasis on the experimental facts that led to the quantum theories.

Prerequisites: Physics 254 and 255 or equivalent. 2 lectures—19

359. Laboratory and Tutorial: Designed to familiarise the student with some of the more detailed phenomena and effects of classical physics together with the fundamentals of electronic circuits and some of the basic concepts of modern physics.

Prerequisite: Physics 259. 6 laboratory hours.

366. Applied Electronics: Similar to 356.
2 lectures a week, 3 laboratory hours a week for 1 term—13

The following courses will be offered in 1966-67 and subsequent years:

417. Communication Circuits: A study of high-frequency transmission line theory; Maxwell's equations and their application to antenna and wave-guide systems; radio system modulation and detection and introduction to radio noise theory. For Engineering Students. 3 lectures—25

450. Theoretical Physics: The discussion of a selection of topics in physics at a senior level, with emphasis on the application of the techniques for the solution of the differential equations of mathematical physics, including boundary value problems.

Prerequisites: Physics 350, 355 and Mathematics 378P or equivalent.
2 lectures— 7

451. Matter in Bulk: A study of the mechanical properties of matter including states of matter, elasticity, surface tension and viscosity; followed by an elementary treatment of solid state physics covering the thermal, electric, and magnetic properties of crystalline matter.

Prerequisites: Physics 350, 355 and 357 or equivalent. 2 lectures—35

453. Thermodynamics and Statistical Mechanics: Introduction to thermodynamics including some applications, followed by discussion of statistical thermodynamics including both classical and quantum statistical mechanics.

Prerequisites: Physics 350 and 357 or equivalent. 2 lectures—30

457. Quantum Mechanics and Nuclear Physics: The first half of the course is an introduction to quantum mechanics, drawing on the experimental evidence of Physics 357. The second half is an introduction to nuclear and particle physics.

Prerequisites: Physics 350, 357 and Mathematics 378P or equivalent.
2 lectures—25

458. Seminar: The presentation of a scientific paper before students and members of the faculty, and the writing of an essay upon an assigned topic.
1 hour: (half course)

459. Laboratory and Tutorial: Designed to give training in the techniques and methods of measurement in modern physics; emphasis is laid upon individuality of work and resourcefulness. The tutorial supplements the fourth year lecture work.
Prerequisite: Physics 359. 9 laboratory hours.

464. Advanced Spectroscopy: A discussion of selected topics of contemporary interest in spectroscopy.
Prerequisite: Physics 254. 2 lectures— 3

466. Advanced Radio Physics: A discussion of selected topics in circuit analysis, transmission line theory and the propagation of radio waves.
2 lectures—24

479. Laboratory: Designed to accompany the lecture work of Physics 417.
6 hours per week.

The following courses will be offered in 1965-66 only:

417. Communication Circuits: A study of high-frequency transmission line theory; Maxwell's equations and their application to antenna and wave-guide systems; radio system modulation and detection; and introduction to radio noise theory. For Engineering Students. 3 lectures—25

454. Advanced Optics and Spectroscopy: The principle of superposition of amplitudes; Huygens' Principle; wave packets and line profile; advanced aspects of interference, diffraction and polarisation; introduction to atomic and molecular spectroscopy.
Prerequisite: Physics 254 2 lectures— 7

455. Electromagnetic Theory: A vector treatment of the theory of the static and dynamic electromagnetic fields, based on the fundamental experiments.
Prerequisites: Physics 255 and 350. 2 lectures—24

456. Atomic and Nuclear Physics: A course designed to give a thorough knowledge of the fundamental particles and of the experimental basis for modern concepts of atomic and nuclear structure.
Prerequisite: Physics 350. 2 lectures—13

457. Introductory Quantum Mechanics: The course stresses the physical ideas behind wave-particle duality, wave packets, operational definitions. Schroedinger's equation is solved for barrier problems, tunnelling, etc. The operator formalism and postulatory basis of Quantum Mechanics is developed.
Prerequisite: Physics 350. 2 lectures—25

458. Seminar: The presentation of a scientific paper before students and members of the faculty, and the writing of an essay upon an assigned topic.
1 hour: (half course)

459. Laboratory: Designed to accompany the lecture work of the fourth year Physics and Mathematics. Emphasis is laid upon individuality of work and resourcefulness. As far as possible, training is given in research methods.
Prerequisite: Physics 359. 12 laboratory hours: double course.

476. Methods of Mathematical Physics II: A continuation of Physics 351 with particular emphasis on the application of integral transform methods and the theory of the complex variable to the differential, integral, partial differential, and difference equations of the physical sciences.

Prerequisite: Mathematics 378P. 2 lectures—34

477. Communications Circuits: The analysis of power amplifiers; oscillator circuits including microwave oscillators; high frequency transmission lines; modulation and defection; wave-guide and antenna theory; some aspects of the theory of noise.

Prerequisites: Physics 376 and 377. 3 lectures— 4

479. Laboratory: Designed to accompany the lecture work of the fourth year Radio Physics option. The course consists of experiments illustrating various aspects of electronics. In addition, each student is required to complete the design and construction of at least one project of his own.

12 hours: double course.
For Engineering Students. 6 hours: full course.

PHYSIOLOGY

College of Science

Professors:

James Alexander Franklin Stevenson, B.A., M.A., M.D., C.M. McGill, Head of the Department
John Rogerson Beaton, B.A., M.A., Ph.D. Toronto
George Waldemar Stavraky, M.D. Odessa; M.Sc., M.D., C.M. McGill

Associate Professors:

Gordon James Mogenson, B.A., M.A. Saskatchewan; Ph.D. McGill
Jerome Joseph Séguin, B.Sc., M.Sc., Ph.D.

Assistant Professors:

Donald Gilbert Montemurro, B.A., M.Sc., Ph.D.
Bruce Paul Squires, B.A., M.D., Ph.D.

Honorary Lecturers:

Charles Dyson, M.D., D.Oph. McGill
Jackson Sandford Hart, B.A., M.A., Ph.D. Toronto; F.R.S.C.
George William Manning, M.A., M.D., Ph.D. Toronto; F.R.C.P.(C)

Lecturers:

Paul George Richard Harding, M.D., M.Sc., F.R.C.S.(C)

Lecturers (sessional, part-time):

Donald Clarence Bondy, M.D.; F.R.C.P.(C)
George Greenough Hinton, B.Sc., M.D., C.M. McGill; F.R.C.P.(C)
Lionel Reese, M.D., C.M. Queen's; F.R.C.S.(C), F.A.C.S.
Francis John Rounthwaite, B.S., M.D., C.M. McGill; F.R.C.S.(C)
Wolfgang Eberhard Gottfried Alfred Spoerel, M.D. Frankfurt-on-Main; F.R.C.P.(C)

Research Fellows:

James A. Bain, M.D.
Manuel Banet Lopez de Rego, M.D. Santiago

Demonstrators:

Franklin C. Bryans, B.A.; Roderick B. A. Currie, B.Sc. St. Francis Xavier; Brian H. Sabiston, B.A. British Columbia

Graduate and Research Assistants:

Blanche M. Box, B.Sc.; Vera Feleki; Robert W. Luke, B.A.; Donald S. Merker, B.Sc. Toronto

Courses

22. Human Physiology: The fundamental principles of human physiology for students in Nursing. 2 lectures, 2 laboratory hours

24. Human Physiology: An introductory course (as available). 2 lectures, 2 laboratory hours

Honors Courses

300. Mammalian Physiology: A survey for Honors Students. 3 lectures, 4 laboratory hours (every second week)

301. General Physiology and Pharmacology: (Given in collaboration with the Department of Pharmacology). A survey of the principles of general physiology and pharmacology. 2 lectures

342. Human Physiology: A survey for students in Honors in Physical, Health and Recreation Education. 2 lectures, 3 laboratory hours

440a. Statistical Methods in Biology: An interdepartmental course given in co-operation with the Departments of Psychiatry and Preventive Medicine, and Biophysics. (1 lecture (one term, half-course)

440b. History of Science: An interdepartmental course. 1 lecture (one term, half-course)

442. Physiology of Exercise: For students in Honors Physical, Health and Recreation Education.

Prerequisite: Physiology 342. 1 lecture, 3 laboratory hours (one term)

460. Advanced General Physiology and Pharmacology: (Given in collaboration with the Department of Pharmacology). Selected topics including the general principles of measurement in these fields.

Prerequisite: Physiology and Pharmacology 301. 1 lecture

461. Regulatory Physiology: An analysis of the control and regulatory systems of the mammalian organism. 1 lecture (one term, half-course)

462. Physiology of Exercise: For students in Honors Physiology. 1 lecture (one term, half-course)

463. Nutrition: The principles of nutrition, particularly as applied to man. 1 lecture

464. Cardio-Respiratory Physiology: An advanced description of the cardio-vascular and respiratory systems of the mammal. 1 lecture

465. Physiology of the Gastro-Intestinal and Hemopoietic Systems: An advanced description of these systems in the mammal. 1 lecture

466. Neurophysiology: The physiology of the mammalian nervous system.
1 lecture

467. Behavioral Physiology and Pharmacology: (Given in collaboration with the Department of Pharmacology). A discussion of the physiological mechanisms involved in behavior and the effects of drugs upon them.
1 lecture

468. Endocrinology: The function of the endocrine system in the mammal.
1 lecture

469. Physiology of the Special Senses: (Given in collaboration with the Departments of Physics and Psychology). The function of the visual, auditory, olfactory and gustatory senses. 1 lecture

480. Laboratory: A laboratory course in Experimental Physiology designed to accompany the lecture courses of Fourth Year Honors Physiology.
Maximum time available.

481. Research and seminar. 1 hour

POLITICAL SCIENCE

Middlesex College

Professors:

Peyton Vaughan Lyon, B.A. Manitoba; M.A., D. Phil. Oxon.; Head of the Department
Henry Bertram Mayo, M.A., D. Phil. Oxon., F.R.S.C.

Assistant Professors

William M. Dobell, B.A. McGill; M.A., B.Litt. Oxon.
Charles C. Dunlop, B.A., M.A. Queen's
Bohuslav Bohumil Kymlicka, B.A. British Columbia; M.A. Columbia
T. Robert Sansom, B.A. New Brunswick; Ph.D. London

Visiting Professor:

R. Selucky, Ph.D. Leningrad

Lecturer:

Sidney J. R. Noel, B.A. Memorial; M.A. Oxon.

Courses

Politics 20 is a prerequisite for all courses in Politics unless permission of the Department is obtained.

20. Government of Canada: An introduction to democratic theory and practice primarily through the study of Canadian political institutions and processes. 3 hours—32

31. 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, Canada. 3 hours— 7

37. History of Western Political Thought: A study of the major political thinkers from Plato to Mill and Marx. 3 hours—29

42. Britain and the Commonwealth: A study of the governmental institutions and political processes of the United Kingdom and selected Commonwealth countries; the nature and function of the Commonwealth relationship.
3 hours—22

44. American Government and Politics: A study of the American Constitution, institutions of government and political processes. 3 hours—26

46. Public Administration: The basic principles of public administration in the modern state, including organization, procedures and the relation of administration to policy making. 3 hours—15

48. Comparative Foreign Governments: A study of the governmental institutions and political processes of leading West European and Communist countries, followed by an analysis of particular institutions on a comparative basis.
3 hours— 1

Honors Courses

Politics 231, 242, 244, 337, 346, 348 are identical respectively with 31, 42, 44, 37, 46, 48 except that additional assignments will be required in Honors courses.

350. Advanced Canadian Government: An examination of selected problems in Canadian government such as the constitutional and financial aspects of federalism; political parties and pressure groups; and provincial government.
3 hours—11

362. Provincial and Local Government: The structure and processes of provincial and local government in Canada, including such topics as provincial-municipal relations, finances, metropolitan areas and regional planning.
3 hours—13

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 political behavior. 3 hours—33

451. International Law and Organization: A study of the United Nations, NATO, the West European Communities and similar organizations; an introduction to international law, emphasizing its relevance to the resolution of conflict between nations.

Prerequisite: Politics 31 or 231. 3 hours—22

480. Seminar: Problems in the methodology of political science; the implications for political science of developments in other fields such as law, economics, sociology and psychology. 2 hours.

PSYCHOLOGY

Middlesex College

Professors:

Mary Jean Wright, B.A.; M.A., Ph.D. Toronto, Head of the Department
Douglas Northrop Jackson, B.Sc. Cornell; M.S., Ph.D. Purdue
Leola Ellen Neal, B.A., M.A.; Ph.D. Toronto; (Dipl. Clin.); Dean of Women; (part-time)
Gordon Haslam Turner, B.A., M.A., Ph.D. Toronto

Associate Professors:

Jaroslav Havelka, M.A. Masaryk; Ph.D. Milan; M.Sc. McGill
Gordon James Mogenson, B.A., M.A. Saskatchewan; Ph.D. McGill
Allan Urho Paivio, B.Sc., M.Sc., Ph.D. McGill
Morris Modris Schnore, B.A., M.A.; Ph.D. McGill
Frank Ray Wilkinson, B.A. Utah; M.A. Hawaii; Ph.D. Michigan State

Assistant Professors:

David Arthur Trytherch Chambers, B.A. British Columbia; M.Sc., Ph.D. McGill
John Peter Denny, B.A. Toronto; Ph.D. Duke
Robert Charles Gardner, B.Sc. Alberta; M.Sc., Ph.D. McGill
Robert Melville Knights, B.A.; Ph.D. Minnesota
Harold Oliver Lobb, B.A., B.Ed., M.Ed. Saskatchewan; Ph.D. Toronto
William John McClelland, B.A., M.A. Toronto; Ph.D. London
Willard E. Reitz, B.S. Pennsylvania State; M.A. Illinois; Ph.D. Pennsylvania State
Thomas Joseph Michael Ryan, B.A., M.A. McMaster; Ph.D. Iowa
Thomas F. Siess, B.A. Valparaiso; Ph.D. Minnesota
Frank William Ralph Taylor, B.A., M.A., Ph.D. Toronto
John Kerr Walker, B.A., M.A. McMaster

Lecturers:

Karoly Miklos Banreti-Fuchs, Dr. Utrecht (Part-time)
Sohan Lal Sharma, B.A. Lahore; Ph.D. Michigan; (Dip. Clin.) (Part-time)

Teaching Fellows:

Martin Edward Morf, B.A. Acadia; M.A. Dalhousie; Herbert Marshall Simpson, B.A., M.A. British Columbia; Nikolaus Tines, B.A., M.A. Windsor; Alexander Daniel Yarmey, B.A., M.A.

Courses

Psychology 20 or 21 is ordinarily prerequisite to all other courses in Psychology. Psychology 31 is ordinarily prerequisite to Psychology 48.

20. Introduction to Psychology: Problems and Methods; individual differences and their assessment; learning; memory; thinking; sensation and perception; motivation; emotion; personality. Open only to Freshmen. 3 hours—19

21. Principles and Methods: A discussion of the motives, emotions and intellectual abilities of human beings, special emphasis on the effective use of these factors in private and social activities. Open only to senior students, including premedical students, who have neither had nor are taking Psychology 20. 3 hours—19

31. Theories of Personality: Representative theoretical interpretations of personality development and dynamics.
Prerequisite for Psychology 48. 2 hours— 6

32. Motivation and Learning: The causes of behavior and the modification of behavior through experience. A survey of current theory and research in motivation and learning. 2 hours—29

36. Child Psychology: An introduction to theory and research in selected areas of child behavior, with particular emphasis on learning, motivation, and personality. 2 hours—16

39. Exceptional Children: Problems and methods in work with the gifted, mentally deficient, physically handicapped, brain damaged, and emotionally disturbed child. 2 hours—22

46. Applied Psychology: The application of psychological principles to practical problems, with the major emphasis on problems in education and industry. 2 lecture hours—27

48. Abnormal Psychology: A consideration of abnormal activities in sensation, perception, memory, emotion, thought and behavior; mental deficiency; the causes and symptoms of psychoneuroses; some reference to major mental disorders; psycho-therapeutic techniques.

Prerequisite: Psychology 31. 2 hours— 6

49. Social Psychology: The activities of living beings in response to their social environment. The conditioning of personality by the family and other groups; types of prejudice; leadership and prestige in social life; the mob; mental epidemics; propaganda; public opinion 2 hours—33

Honors Courses

234. Historical Systems: A study of persistent problems in the history of psychology and an introduction to the traditional systems of psychology: Structuralism, Functionalism, Behaviorism, Gestalt Psychology, and Psychoanalysis. 2 hours—12

235. Experimental Psychology I: Motivation and Learning: Critical examination of methods, findings, and theory. 2 lectures, 2 laboratory hours—24

236. Child Psychology: An introduction to theory and research in selected areas of child behavior, with particular emphasis on learning, motivation, and personality; some practical experience in field and laboratory settings. 2 hours—16

255. Statistical Methods: Statistical techniques applicable to the treatment of psychological data; elementary research design. 2 lectures, 1 laboratory hour—19

337. Tests and Measurement: Discussion of basic considerations in measurement; description and evaluation of typical measuring instruments and their uses; consideration of persistent problems in the field of measurement. 2 lectures, 1 laboratory hour—23

338. Experimental Psychology II: Sensation and Perception; Critical examination of methods, findings, and theory. 2 lectures, 2 laboratory hours—11

343. Physiological and Comparative Psychology: Neural and endocrine foundations of behavior; learned and unlearned behavior in selected invertebrate and vertebrate organisms. 2 hours—17

349. Social Psychology: Theory and measurement of human social behavior with emphasis on empirical studies of individuals in response to their environment. Topics include: culture and personality; ethnic prejudice; psycholinguistics; propaganda; group structure; mass behaviour. 2 hours—33

445. Cognitive Processes: Theory and empirical findings concerning thinking processes such as concept formation, problem solving, and creativity. 2 hours—36

446. Applied Psychology: Consideration of practical problems for which psychological principles and techniques have relevance. In addition to academic course work, students are required to undertake at least 30 hours of supervised practical training. 2 hours—27

450. Personality Theory: Representative theoretical interpretations of personality development and dynamics. 2 hours—16

459. Research Problems: A seminar course in which students will select topics for special investigation. 3 hours.

460. Experimental Psychology: Laboratory and seminars dealing with methods, findings, and theory in sensation, perception, and learning as well as the development of research problem for individual investigation. Qualifying students only. 2 lectures, 2 laboratory hours

461. Contemporary Theory: A critical examination of the theories of representative contemporary psychologists. Qualifying students only. 2 hours— 1

ROMANCE LANGUAGES

University College

Professors:

Robert Warren Torrens, B.S. Dartmouth; M.A. Harvard; Ph.D. Cornell, Head of the Department

Norman Adrian Bennetton, B.A., M.A. Southern California; Ph.D. Johns Hopkins

Associate Professors:

James Bernard Sanders, B.A., M.A. Manitoba; D. de l'U. de Paris

Robert Lowell Walters, B.A. Oberlin; M.A., Ph.D. Princeton

Assistant Professors:

Bruce Davies, B.A. McMaster; M.A. Harvard

Lane Murch Heller, B.A., M.A., Ph.D. Wisconsin

Dorothy Franklyn Jones, B.A. Smith; M.A. Columbia; Ph.D. Brown

Jack Warwick, B.A. Oxon.; M.A., Ph.D.

Lecturers:

Felix Roque Atance, B.A. Toronto; M.A. Nebraska

Jean Cross Newman, B.A. McGill; A.M. Radcliffe; Dra. en Fa. Madrid

Instructors:

John Raymond Dugan, B.A., M.A. Toronto

David Edward Westgate, B.A. Nottingham; M.A. McMaster

Teaching Fellows:

Alexander Boyd Fancy, B.A. Mt. Allison; M.A.; John Fraser Jull, B.A.; Nora Catherine Keeling, B.A., M.A.; Mohamed Hédi Mizouni, B.S. Washington

Visiting Professor:

Michael Andrew Screech, B.A. London; D.Litt. Birmingham

Middlesex College

Professor:

Robert Newton Shervill, B.A.; M.A., Ph.D. North Carolina, Head of the Department

Associate Professors:
Théophile Joseph Casaubon, B.A. Laval
Adrien Favre, L. ès L. Toulouse
Lionel Jacques Seymour Metford, B.A., M.A. British Columbia; D. de l'U. de Paris

Assistant Professors:
Wolfram Burghardt, B.A., M.A. Toronto
Douglas George Creighton, B.A., M.A. Toronto; Ph.D. Columbia
Jean Méral, L. ès L. Toulouse
Tomâs Ramos Orea, Dr. en Fa., Madrid

Lecturers:
Maria Valeria Brizio, Dott. in Fa. Bologna
Frederick Kilburn Harper, B.A., M.A. Manitoba
Luis Lozano, B.A. Ottawa; M.A.
Armand Joseph Roth, L. ès L., Strasbourg

Instructor:
Louise Henrietta Forsyth, B.A. Sask.; M.A.

Teaching Fellows:
Paulette Suzanne Morin, B.A. Carleton
Mary Isobel Raine, B.A.
Cornelia Maria van der Wel, B.A. London; M.A.
Hannah Shaw Vickers, B.A. Toronto

Visiting Professor:
Walter Newcombe Ince, B.A., M.A. Cambridge; D. de l'U. de Paris

French Courses

Students in General Program 2 who choose French as their subject of concentration must elect French 31.

It is recommended that students who major in this Department elect four senior courses in the major subject; two in the second year and two in the third year.

20. Advanced French: Introduction to French literature, grammar, translation, oral practice.
Prerequisite: French 10 or Grade 13 French. 3 hours—23

22. French Conversation: Systematic oral practice for those students who wish to develop fluency in speaking French.
Prerequisite: French 20. 2 hours: half course.

30. The French Novel: Study of typical examples of the novel taken from French literature of the seventeenth through the twentieth centuries.
Prerequisite: French 20. 3 hours—21

31. Grammar, Composition, Phonetics, Oral Practice.
Prerequisite: French 20. 3 hours—23

34. French Drama: Study of typical examples of French dramatic literature of the seventeenth through the twentieth centuries.
Prerequisite: French 20. 3 hours—31

38. French-Canadian Literature: Lectures and reading on the historical and cultural background and the philosophical and literary contributions of French Canada.

Prerequisite: French 20. 3 hours— 9

41. Advanced Grammar, Composition and Oral Practice:

Prerequisite: French 31 or by permission of Department Head. 3 hours—23

43. Commercial French: Advanced transactions, reading. For students in Secretarial Science.

Prerequisite: French 31. 3 hours—22

45. Scientific French: Reading of scientific French from textbooks and journals supplemented by individual reading in the special field of study of each student.

Prerequisite: French 10 or Grade 13 French. 1 hour: half course—27

Honors Courses

All students in Honors Courses will take a comprehensive examination at the end of their final year.

270. The French Classical Period: Study of representative literature of the seventeenth century; reading, lectures, discussion and reports.

Prerequisite: French 20. 3 hours—21

271. Phonetics, Grammar, Composition and Oral Practice.

Prerequisite: French 20. 3 hours—17

338. French-Canadian Literature: Survey of the literature of French Canada covering characteristic material from 1845 to the present; intensive study of selected modern novels and poems; representative writings from the "ancien régime" may be included.

Prerequisite: French 270. 2 hours—19

350. French Literature of the Mediaeval and Renaissance Periods: Reading, lectures, discussion, reports.

Prerequisite: French 270. 2 hours—27

380. French Literature of the Eighteenth Century: Lectures, reading, discussion, reports.

Prerequisite: French 270. 2 hours—24

381. Grammar, Composition, Oral Practice.

Prerequisite: French 271. 3 hours—15

490. The Literature of the Nineteenth Century: Lectures, reading and reports.

Prerequisite: French 380. 3 hours—24

491. Advanced Composition and Oral Practice.

Prerequisite: French 381. 1 hour: half course—12

499. Contemporary French Literature: Study of some typical examples of the novel and drama of the twentieth century; reading, lectures, discussion, reports.

Prerequisite: French 380. 3 hours— 1

Italian Courses

1. Elementary Italian: Grammar, oral practice, reading of simple texts. Students who have an A standing at the end of the first semester may transfer to Italian 10. 3 hours— 9

10. Intermediate Italian: Review of grammar, readings from Italian literature, oral practice.

Prerequisite: Italian 1 or its equivalent. 3 hours— 9

20. The Literature of the 19th and 20th Centuries: Study of representative writers, reading, lectures, reports.

Prerequisite: Italian 10 or Grade 13 Italian. 3 hours— 9

30. The Literature of the 'Rinascimento': Study of representative writers of the 15th and 16th centuries. Selected modern novels for outside reading.

Prerequisite: Italian 20. 3 hours—26

40. A Study of Dante, Petrarca, Boccaccio and Their Period: One modern novel; composition.

Prerequisite: Italian 20. 3 hours—16

Spanish Courses

1. Elementary Spanish: Grammar, translation, dictation, oral practice. Students who have an A standing at the end of the first semester may transfer to Spanish 10. 3 hours—29

10. Intermediate Spanish: Grammar, composition, translation, dictation, oral practice.

Prerequisite: Spanish 1 or its equivalent. 3 hours—29

20. Advanced Spanish: Introduction to Spanish literature, grammar, translation, oral practice.

Prerequisite: Spanish 10 or Grade 13 Spanish. 3 hours—28

22. Conversation: Systematic oral practice for developing fluency in speaking Spanish.

Prerequisite: Spanish 10. 2 hours: half course.

45. Scientific Spanish: Reading of Scientific Spanish from journals supplemented by individual reading in the special field of study of each student.

Prerequisite: Spanish 10 or Grade 13 Spanish. 1 hour: half course— 1

Note: Spanish 30, 31, 35, 40, 41 and 48 are Pass Courses identical with 230, 231, 260, 340, 341 and 348 respectively.

Honors Courses

All students in Honors Courses will take a comprehensive examination at the end of the final year.

230. Spanish Drama of the Nineteenth and Twentieth Centuries: Lectures, reading, discussion, reports.

Prerequisite: Spanish 20. 2 hours—14

231. Phonetics, Prose Composition, Conversation.

Prerequisite: Spanish 20. 2 hours— 7

260. Spanish Poetry of the Nineteenth and Twentieth Centuries: Lectures, reading, discussion, reports.
Prerequisite: Spanish 20. 2 hours— 4

340. Spanish Prose of the Nineteenth and Twentieth Centuries: Lectures, reading, discussion, reports.
Prerequisite: Spanish 230. 2 hours— 2

341. *Grammar*, Composition, Oral Practice.
Prerequisite: Spanish 231. 2 hours—35

348. *Latin-American Literature:* *Study of typical examples of the modern* prose and poetry of Latin America.
Prerequisite: Spanish 230. 2 hours—12

365. Spanish Poetry: Garcilaso de la Vega to the end of the Golden Age.
Prerequisite: Spanish 260. 2 hours—31

455. Spanish Literature of the Mediaeval Period: Phonological and morphological development of Spanish.
Prerequisite: Spanish 365. 2 hours—13

460. Spanish Drama before Lope de Vega, and Spanish Drama of the Golden Age.
Prerequisite: Spanish 365. 2 hours—30

461. Advanced Composition and Oral Practice.
Prerequisite: Spanish 341. 1 hour: half course—21

465. The Spanish Novel and Non-fictional Prose of the Golden Age.
Prerequisite: Spanish 340. 3 hours— 8

RUSSIAN STUDIES

Middlesex College

Professor:

Leonid Ignatieff, B.A. McGill; M.A., Ph.D. Michigan; Cert. Russian Institute, Columbia; Head of the Department

Assistant Professor:

Charles Arthur Ruud, *B.A. Willamette; A.M. Harvard; Ph.D. California*

Special Lecturer:

Helen D. Isyumov (Mrs.), B.A. Univ. of Moscow

Instructors:

Nina S. Bernotas (Mrs.), B.A.
Erna V. Froese (Mrs.), B.A.
Dallas McFadden, B.A., M.A. British Columbia

Courses

1. Elementary Russian: A beginning course, pronunciation, grammar, dictation, translation, oral practice. Students who have a high "A" standing at the end of the year may register for Russian 20 the following year. 4 hours—10

10. Intermediate Russian: Review of grammar, composition and conversation.
Prerequisite: Russian 1 or permission of Department. 4 hours—10

20. Advanced Russian: Special problems of grammar, translation, conversation, composition.
Prerequisite: Russian 10 or permission of Department. 4 hours—10

22. Russian Conversation: Oral practice to develop fluency in speaking Russian.
Prerequisite: Russian 10 or Russian 20. 2 hours: (half course)

30. Outline of Classical Russian Literature: (Eighteenth and Nineteenth Centuries.) Lectures, reading, discussions, reports.
Prerequisite: Russian 20 or permission of Department. 3 hours—22

35. Intermediate Scientific Russian: The reading of scientific Russian and a review of basic grammar as an aid to reading.
Prerequisite: Russian 1. 3 hours—17

37. History of Russia - U.S.S.R.: The political, economic and cultural development, social conditions, territorial expansion and foreign relations.
3 hours— 6

40. Outline of Twentieth Century Literature: Lectures, reading, discussions, reports.
Prerequisite: Russian 30 or permission of Department. 4 hours—23

45. Advanced Scientific Russian: The reading of scientific texts and articles in Russian. For Honors Science students.
Prerequisite: Russian 35. 1 hour: (half course)

Honors Courses

All students in Honors Courses will take a comprehensive examination at the end of the final year.

280. Introduction to Russian Literature and Culture.
Prerequisite: Russian 20. 3 hours—25

281. Composition and Conversation.
Prerequisite: Russian 20. 3 hours—31

337. History of Russia - U.S.S.R.: The 19th and 20th centuries with special emphasis on intellectual and social developments. 3 hours— 6

390. Prose of the Nineteenth Century.
Prerequisite: Russian 280. 3 hours—14

391. Phonetics, Composition and Conversation.
Prerequisite: Russian 281. 3 hours—29

420. Contemporary Literature.
Prerequisite: Russian 390. 2 hours—18

490. Poetry of the Nineteenth Century.
Prerequisite: Russian 390. 2 hours— 4

491. Composition and Conversation.
Prerequisite: Russian 391. 2 hours—25

493. History of the Russian Language.
Prerequisite: Russian 391. 2 hours—36

SECRETARIAL SCIENCE

University College

Professor:
Mary Hamilton Gillespie, B.A.; M.A. Columbia, Head of the Department

Associate Professors:
Elaine Woodrow Chapman, (Mrs. C. B.), B.A.
Roma Lucille Waller (Mrs.), B.A.; M.A. Columbia

Assistant Professor:
Eleanor Gertrude Ward (Mrs. Bruce), B.A.

Instructors:
Patricia F. Davis, B.A.
Betty Seldon (Mrs. T. B.), B.A.

Assistant:
Shelagh A. Morrison, B.A.

Courses

The difficulty of adjusting timetables makes it impossible for those who are unable to pass the final tests of each year to take General Arts subjects of a succeeding year in conjunction with their Shorthand and Typewriting. Therefore, students who fail to pass in one or more of their subjects are faced with the possibility of having to lose an entire year.

28-29. Shorthand and Typewriting: Pitman's Shorthand: theory, speed up to 60 words a minute, and typed transcription of notes. Touch system of typewriting; care of machine; letter styles; copying from manuscript and printed matter; centering; accuracy; and timed tests. 12 hours.

30. Accounting and Bookkeeping: Prescribed for Secretarial Science students. Provides practical and basic applications of accounting relating to the sole proprietorship form of business organization, as well as to the partnership and corporate types of organization. 3 hours.

36. Business Mathematics: Prescribed for Honors students in Business Administration and Secretarial Science. It provides practical and basic applications of methods relating to the Mathematics of Business. 2 hours.

37. Office Practice: The foundation of the work in Office Practice is laid in the third year. Lectures are given on office methods, and actual duties are undertaken in the Secretarial Science Office.
Prerequisites: Secretarial Science 28-29. 3 hours.

38-39. Shorthand and Typewriting: Shorthand speed up to 100 words a minute; typed transcription of notes; typewriting from manuscript; tabulation; carbon copies; telegrams; financial statements; methods of duplicating; accuracy and timed tests.

Prerequisites: Secretarial Science 28-29. 12 hours.

47. Office Practice: The responsible duties of the various members of an office staff and the operation of modern office equipment are undertaken by the fourth year students. Units of work are assigned in rotation. Lectures are given on secretarial duties, office organization, the administration of services, the problems of office personnel.

Prerequisites: Secretarial Science 37, 38, 39. 15 hours: double course.

48-49. Shorthand and Typewriting: Shorthand speed up to 130 words a minute; typed transcription of notes; typewriting speed up to 60 words a minute; typing from advanced copy (technical matter, foreign languages) and from dictation.

Prerequisites: Secretarial Science 38, 39. 10 hours.

SOCIOLOGY — See Economics and Sociology Page 115

ZOOLOGY

College of Science

Professors:

Anthony William Aldridge Brown, B.Sc.F., M.A., Ph.D., Toronto; F.R.S.C., M.B.E., Head of the Department
Helen Irene Battle, B.A., M.A.; Ph.D. Toronto
William Wallace Judd, B.A. McMaster; M.A., Ph.D. Toronto
William Alexander Kennedy, B.A., Ph.D. Toronto; Honorary (part-time)
David Maxwell Scott, B.Sc., Ph.D. McGill

Associate Professors:

Thomas Kenneth Richard Bourns, B.A., M.A. British Columbia; Ph.D. Rutgers
Robert Harvey Stinson, B.A. McMaster; Ph.D. Toronto

Assistant Professors:

Miles Hugh Alston Keenleyside, B.A., M.A. British Columbia; Ph.D. Groningen
Charles Donald MacInnes, B.Sc. Bishop's; Ph.D. Cornell
Donald Burley McMillan, B.Sc., M.Sc., Ph.D. Toronto
John Earle Steele, B.Sc. Dalhousie; M.Sc.; Ph.D. Saskatchewan

Honorary Lecturers (Part-time):

Edwin Joshua Bond, B.S.A., O.A.C.; M.Sc.; Ph.D. London
William Chefurka, B.Sc. Manitoba; M.A. Montana State; Ph.D. Harvard
Ernest Howard Colhoun, B.S.A. Toronto; Ph.D. Cantab.; F.R.E.S.
Andrew Hampden Lawrie, B.A., M.A. Toronto
Hector Alexander Urquhart Monro, B.Sc. (Agr.), M.Sc., Ph.D. McGill
John James Tibbles, B.S.A. Toronto; M.Sc., Ph.D. Wisconsin

Instructor:

Marjorie Eleanor Moulton, M.Sc.

Graduate Demonstrators:

Austina Kennedy, B.Sc., Dalhousie; Theodorus Henricus Scholten, B.S.A., Toronto; Perry David Anderson, B.A.; Douglas Arnold Hagan, B.A.; Francis William Clark, B.S.A. Toronto; Oleh Eugene Rudzik, B.A.; Charles Roger Braekevelt, B.A.; Conrad Herbert Jarosch, B.Sc., British Columbia; Jackson Edouard Mathieu, B.A.; James Alexander Darley, B.A.; Larry Fredrick Archer, B.A.; Edet Ebisung Inwang, B.S.A., McGill; Richard Uren Johnston, B.A.; Charles David Grant, B.A., Toronto

Graduate Assistants and Scholars:

David Malcolm Ogilvie, M.Sc., New Brunswick; Takeo Tadano, M.Sc., Tohoku; Dean Carruthers Read, M.Sc., McGill; Donald Hardisty Colrick Herne, M.S.A., Toronto; John Allen George, M.S.A. Toronto; John Gibson, B.A. Dublin; Karen Doreen Larsen, B.Sc. Carleton; Desmond Patrick Adrien Lanktree, B.A. Oxford; Meir Ziv, M.Sc. Agr. Jerusalem; Talaat M. A. Zaghloul, M.Sc. Alexandria.

Courses

20. Introductory Zoology: The principles of animal biology as illustrated by a study of the structure and physiology of particular forms. To qualify for the Honors Courses in Biology a student must obtain at least 60% in this course.
2 lectures, 3 laboratory hours— 7

21. 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 applications of biology to social and economic problems. This course is given both in the Department of Botany and in the Department of Zoology. 2 lectures, 2 laboratory hours— 7

22. Biology: For students of General Program I: the fundamental principles of biology stressing the features common to all living organisms. This course is given both in the Department of Botany and in the Department of Zoology.
2 lectures, 2 laboratory hours—23

30. Mammalian Zoology: The biology of mammals, with emphasis upon structure and function, and their adaptive significance. Students who have received credit in Zoology 24 will *not* be permitted to take Zoology 30.

Prerequisite: Zoology 20 or Biology 21 or Biology 22.
2 lectures and 3 laboratory hours— 7

34. Comparative Vertebrate Histology: An introduction to the microscopic structure and development of tissues and organs.

Prerequisite: Zoology 30 (60%). 1 lecture, 3 laboratory hours—21

37. History of Biology: The history of discoveries in biology and the development of biological thought. 2 lectures— 3

Prerequisite: Zoology 20 or Biology 21 and one other college course in Zoology.

41b. Entomology: The biology and economic importance of the insects, and in addition the spiders, mites, crustacea and other arthropods.

Prerequisite: Zoology 20 or Biology 21.
2 lectures, 3 laboratory hours (full course, second term)—33

43. Animal Ecology: Formation and distribution of animal populations; population dynamics, ecosystems. The laboratories will include field investigations and techniques of wildlife management.
2 lectures and 3 laboratory hours—29

44. Embryology: A study of fundamental embryological processes as illustrated by selected invertebrate and vertebrate types.
Prerequisite: Two zoology courses (60%).
2 lectures, 3 laboratory hours—15

45. Principles of Genetics: The principles of Mendelian genetics and the chromosome theory.
Prerequisite: Zoology 20 or Biology 21 (60%). 2 lectures—17

47. Parasitology: A study of parasitism as a way of life, representative animal parasites, host-parasite relationships, and parasitological techniques.
Prerequisite: Two Zoology courses (60%).
2 lectures, 3 laboratory hours—36

Honors Courses

255. Principles of Genetics: The principles of Mendelian genetics and the chromosome theory, illustrated by lectures and the practical performance of simple breeding experiments.
Prerequisite: Zoology 20. 2 lectures—17

270. Comparative Vertebrate Zoology: The biology, origin, and evolution of the classes of vertebrates; an introduction to some principles of evolution.
Prerequisite: Zoology 20. 2 lectures, 3 laboratory hours—33

352. Comparative Physiology: A study of chemical and physical principles of cell function, homeostatic mechanisms and the integration of organ systems in selected invertebrate and vertebrate types.
Prerequisite: Zoology 270. 2 lectures, 3 laboratory hours—11

354. Vertebrate Histology: An introduction to the microscopic structure and development of vertebrate tissues and organs.
1 lecture and 3 laboratory hours—21

370. Invertebrate Zoology and Entomology: The anatomy and biology of representative invertebrate animals (first term) and of insects (second term).
Prerequisite: Zoology 270. 2 lectures, 3 laboratory hours—32

437. History of Biology: The history of discoveries in biology and the development of biological thought. 2 lectures— 3

453. Animal Ecology: Distribution of animal populations, population dynamics, predator-prey interactions, ecosystems. The laboratories will include analysis of wildlife and laboratory populations.
2 lectures and 4 laboratory hours—29

454. Embryology: Principles of development as illustrated by selected invertebrate and vertebrate types. 1 lecture and 3 laboratory hours—15

456. Laboratory Technique: A practical course in standard laboratory procedures, including microtechnique, photomicrography, and preparation of illustrations. 3 laboratory hours: (half course)

460. Insect Taxonomy: The principles and historical development of insect taxonomy, and the classification of specimens by means of keys and monographs. 3 laboratory hours: (half course)— 7

463. Biological Field Studies: An obligatory course of study of living organisms in their field environment. The student should be prepared to meet part of his expenses for travel and subsistence. Prescribed but non-credit.

465. Biometry: Methods of measurement and sampling, and the application of statistical methods to zoological data. 3 laboratory hours: (half course)—12

470. Vertebrate Taxonomy: Classification and distribution of vertebrates, and the study of Canadian vertebrates in the laboratory. Next offered in 1966-67 and thereafter in alternate years. 3 lecture hours—24

471. Parasitology: A study of parasitism as a way of life, representative animal parasites, host-parasite relationships, and parasitological techniques. 2 lectures and 3 laboratory hours—36

473. Comparative Ethology: An introduction to the study of animal behavior.

2 lectures, 3 laboratory hours—25

480. Tutorial: A course in reading and practical work within a particular field of Zoology under the direction of a staff member.

Prerequisite: Average of 66% in third year. Full course.

THE SUMMER SCHOOL AND EXTENSION DEPARTMENT

Director:

Angela M. Armitt, B.A.

Assistant Director:

D. L. Harris, M.S.W.

Assistants:

Olive M. Hodgins
Hazel J. Trott, B.A.
Helen Knox

The Faculty of Arts and Science through the Summer School and Extension Department offers general program subjects leading to a General B.A. degree for students unable to attend the intramural winter sessions. These subjects are available in three ways: (1) at the Summer Session in London, (2) during the Winter Session in London and at 10 other centres in Western Ontario and (3) by correspondence.

In addition some honors subjects are offered in the Summer Session and in London during the Winter Session. These are available to teachers with University degrees who are working toward Type A teaching certificates. The dates for the 1965 Summer School are July 5 to August 18 (including examinations).

A student enrolled in the Summer School, Correspondence and Extension Department may take as many as five courses a year (two in a Summer Session and three during a Winter Session). Any student who wishes to take more courses than the maximum mentioned must petition the Academic Standing Committee for permission.

A candidate for a degree must attend this University for one academic year and two Summer Sessions or five Summer Sessions. This requirement is reduced to a minimum of one Winter Session or three Summer Sessions by attendance at Extension lecture classes held by this University, or by the transfer of credit from an approved college or university.

No intramural student may register in an extension or correspondence course without the written permission of his Dean. Any student who receives such permission is expected to pay the full extension or correspondence fee unless he presents to the Registrar and the Comptroller a credit slip to be obtained from the Extension or Correspondence Department and countersigned by both his Dean and the Director of the Extension Department.

Detailed regulations with respect to subjects offered to part-time students are available on application to the Director, Summer School and Extension Department.

TROIS-PISTOLES SUMMER SCHOOL FOR FRENCH, ENGLISH, PAINTING AND METHODOLOGY, TROIS-PISTOLES, PROVINCE OF QUEBEC

Middlesex College

Director: Theophile Joseph Casaubon, B.A. Laval

In 1965 the School will operate from July 1 to August 12. Although formal instruction is given in phonetics, composition, etc., the emphasis is on the spoken language. University credits may be obtained. Courses in painting are also offered.

For the bulletin concerning the courses apply to the Director of the Trois-Pistoles Summer School, Middlesex College, or to the University Registrar.

College of Music

Dean: Clifford von Kuster, Mus.Bac., L.R.C.T.

Professor:

Alfred Rosé, B.A., Head of Voice Department, Music History, Conductor of University Choir

Associate Professors:

Donald McKellar, A.R.C.T., Mus.Bac., M.Mus., Head of Music Education, Conductor of University Concert Band and String Orchestra

Assistant Professors:

Paul Green, A.R.C.T., Mus.Bac., M.Mus., Theory and Music Education
John S. McIntosh, Mus. Bac., M.Mus., Head of Theory and Organ Departments
Howard Munn, Piano and Piano Teaching Materials
Peter S. Odegard, B.A., M.A., Ph.D., Music History
Robert Skelton, M.Mus., Violin and Theory
Earle Terry, B.A., B.Paed., M.Mus., Choral Music

Lecturers:

Peter J. Clements, B.A., M.A., Theory
James Ford, Brass Instruments
Lillian Wilson, Voice

Instructors:

Jean McCullough, B.A., M.Sc., Choral Music
Alma Madill, A.T.C.M., Piano and Theory
Marian MacLennan, B.A., R.C.A.D. (Artist's Diploma), Piano
Clifford von Kuster, Mus. Bac., L.R.C.T., Piano and Piano Pedagogy

Courses:

10. For Arts and Science Students: There are three parts of this course: history of music, theory and performance. To obtain credit, two of the three parts must be taken. If a student chooses performance, he must pay for the private lessons.

History of Music: Music in the ancient world. The Christian foundations of Western Music. The Middle Ages. The Renaissance. The birth of opera and oratorio. The Baroque. Bach and Handel. 1 hour

Theory: Rudiments and elementary form and analysis. 1 hour

20. For Arts and Science students: There are three parts of this course: history of music, theory and performance. To obtain credit, two of the three parts must be taken. If a student chooses performance, he must pay for the private lessons.

History of Music: Instrumental music and opera in the 18th century. Haydn, Mozart, Beethoven and Schubert. Opera in the early 19th century. Romanticism: Chopin to Wagner. 1 hour—18

Theory: Elementary harmony, including keyboard harmony and improvisation. 1 hour— 6

20S. Music Education (choral): Summer School only. 10 hours

20Y. A listener's course designed for Arts students to acquaint them with the landmarks of the orchestral, choral and chamber repertoire through guided listening to recordings and live performance. No. prerequisite. 2 hours—18

21. Individual lessons in the student's major applied music subject. 1 hour

21A. Piano minor: Individual piano lessons for those students majoring in another applied music subject. ½ hour

22. Piano paedagogy: Teaching approach to all phases of technique, tone production, phrasing, style and interpretation, memorizing, practise methods. 1 hour

23. Piano teaching materials: Assignments in compiling, listing and performing teaching material. Practise teaching. 1 hour

24. A general history of the development of the wind and string instruments: The instrumentation of the orchestra and band. Transposing instruments. Elementary score reading and conducting. 1 hour

25. Theoretical Studies: Analysis, sight-singing, dictation and four-part writing based on triads, dominant seventh chords and their inversions. Rhythmic reading and dictation. Keyboard harmony. 5 hours

26. Music History 1: A study of the history and literature of music up to 1750. The first half of a two year survey. 3 hours

27. Choral Technique: Basic elements of voice production and choral singing. Elementary choral conducting. Study of rehearsal techniques through the performance of selected repertoire. 1 hour

28. Ensemble: Band, orchestra or chorus. Performance of major works for the respective media. 3 hours

30. For Arts and Science students: There are three parts of this course: history of music, theory and performance. To obtain credit, two of the three parts must be taken. If a student chooses performance, he must pay for the private lessons.

History of Music: The middle 19th century. Nationalism in music. The end of the 19th century. Impressionism. Contemporary music. 1 hour—24

Theory: "Free" counterpoint; advanced harmony and composition. 1 hour—34

30Y. For Arts and Science students: A continuation of Music 20Y. Will include a detailed study of at least three large scale compositions from a listener's viewpoint, with attention to the life, social background and other works of the composer. 2 hours—18

31. Individual lessons in the student's major applied music subject. 1 hour

31A. Piano minor: Individual piano lessons for those students majoring in another applied music subject. ½ hour

35. Theoretical Studies: Analysis, sight-singing, dictation and writing using diatonic seventh chords, chromatic harmony and extended modulation. Advanced rhythmic reading and dictation. Keyboard harmony.
Prerequisite: Music 25. 5 hours

36. Music History II: A survey from 1750 to the present time.
Prerequisite: Music 26. 3 hours

37. Choral Technique: Continuation of Music 27. 1 hour

38. Ensemble. 2 hours

40. For Arts and Science Students: An advanced course in score reading, orchestration, advanced form, analysis and composition. Individual research projects. 3 hours

41. Individual lessons in the student's major applied music subject. 1 hour

44. Repertoire: Lecture-recitals presenting outstanding examples of piano, vocal, instrumental, orchestral and choral works by performance or by recordings. 1 hour

45. Counterpoint: First term—the contrapuntal style of the 16th century, including analysis of works of Palestrina and Lassus. Writing in two, three and four parts. Second term—contrapuntal techniques of the 20th century.
Prerequisite: Music 25 and 35. 3 hours

47. Choral methods and materials. 2 hours

48. Ensemble. 2 hours

Honors Courses
Music 306, 316, 326, 336, 346A, 356 and 366 are music electives for third and fourth year students. They will not be offered every year but a selection of two or three will be offered on an alternating basis.

117, 217, 317, 417. Woodwind and brass class: Actual work on instruments to acquire a proficiency in one of each group and a working knowledge of the others. 1 hour

231, 341, 451. Individual lesson in the student's major applied music subject. 1 hour

231A. Piano minor: Piano lessons for students majoring in another instrument or voice. ½ hour

232, 332, 432. Music Education Ensemble: Performance of band and orchestral literature applicable to high school performing ensembles. 1 hour

235. Theoretical Studies: Analysis, sight-singing, dictation and writing using diatonic seventh chords, chromatic harmony and extended modulation. Advanced rhythmic reading and dictation. Keyboard harmony.
Prerequisite: Music 25. 5 hours

236. Music History II: A survey from 1750 to the present time.
Prerequisite: Music 26. 3 hours

237, 337. Choral Technique: Continuation of Music 27. 1 hour

238, 348, 458. Performing Ensemble: Band, orchestra or chorus. Performance of major works for the respective media. 3 hours

239. Composition: Fundamentals of writing. Works in the smaller forms for piano, voice or solo instrument. 2 hours

247, 347, 447. Class instruction in the stringed instruments. 1 hour

247A, 447A. String Repertoire: A survey of string literature for school orchestras and ensembles through performance. 1 hour

252, 352, 452. Collegium Musicum Ensemble: A study of Mediaeval, Renaissance and Baroque Music (vocal and instrumental) through performance. 2 hours

306. History of Ancient, Mediaeval and Renaissance Music. A seminar on music from ancient Greece to circa 1600.
Prerequisite: Music 36 or equivalent. 2 hours

307, 407. Music Education. Instrumental. 1 hour

316. History of Music in the Baroque Era: A seminar on music from approximately 1600 to 1750.
Prerequisite: Music 36 or 236. 2 hours

326. History of the Symphony: A seminar on music composed for orchestra.
Prerequisite: Music 36 or 236. 2 hours

327, 427. Music Education. Choral. 1 hour

336. History of Chamber Music: A seminar on music composed for chamber ensembles from the 16th century to the present time.
Prerequisite: Music 36 or 236. 2 hours

342, 442. Conducting: Advanced choral and orchestral conducting techniques.
Prerequisite: Theory 235. 2 hours

344, 454. Repertoire. General. 1 hour

345. Counterpoint: First term—the contrapuntal style of the 16th century, including analysis of works of Palestrina and Lassus. Writing in two, three and four parts. Second term—contrapuntal techniques of the twentieth century.
Prerequisite: Music 235. 3 hours

346. Music History: Wagner, his predecessors and contemporaries. The late Romantics. Nationalism. Realism. Impressionism. The 20th century. 2 hours

346A. History of the Art Song and Oratorio: A seminar devoted to the study of the literature of song and oratorio.
Prerequisite: Music 36 or 236. 2 hours

349. Composition: Works in the larger forms for solo instruments and chamber ensembles.
Prerequisite: Music 239. 3 hours

350. Music Education Seminar: Teaching techniques of the wind and string instruments. The psychology of the musical mind. Tests and measurements of musical ability. Care and maintenance of the wind and string instruments. 1 hour

351, 461. Chamber music: Duos, trios, quartets, etc., with and without piano. 1 - 2 hours

353, 463. Church music materials, methods and techniques of service playing. 1 - 2 hours

354(P). Piano Literature: A study of the literature for piano solo. For piano majors in the third year.

Prerequisite: Music 36 or 236. 1 hour

354(O). Organ Literature: A study of the literature for organ. For organ majors in the third year.

Prerequisite: Music 36 or 236. 1 hour

356. History of Opera: A seminar on the development of opera from the time of the Florentine Camerata to the present day.

Prerequisite: Music 36 or 236. 2 hours

366. Selected Composer Study: A seminar on the life and works of a single composer, to be selected and named in advance by the instructor. A different composer will be selected each year.

Prerequisite: Music 36 or 236. 2 hours

437. Choral Methods and Materials: A survey of choral repertoire suitable for use in the high schools. Advanced choral conducting. The practical aspects of teaching choral music in the schools.

Prerequisite: Music 337. 2 hours

450. Music Education Seminar: School music administration. Classroom teaching techniques. School music library. Methods and materials of school wind, string, and percussion classes. Band and orchestra performing materials. Conducting. 2 hours

453. Paedagogy of the Major Instrument. 1 hour

455. Orchestration: Instruments of the orchestra: range, tone colours, transpositions. Practical scoring for individual choirs, chamber orchestra and full orchestra.

Prerequisite: Music 345. 2 hours

456. History of Contemporary Music. 1 hour

467. Percussion Class: Learning fundamentals of percussion instruments. ½ hour

The Affiliated Colleges Faculties and Courses

THE PRELIMINARY YEAR

The Preliminary Year offered at Brescia College is designed for students who have completed Grade XII (Ontario) or who have equivalent standing, including Latin or Mathematics and one language besides English. Minimum standards of admission as set by the College are based on percentage, or rank-in-class and on principal's reports. The course is also open to students who have failed to complete the Grade XIII requirements for admission to University. The latter must take the entire Preliminary Year with advance credit only for Grade XIII subjects in which the papers average at least 66%.

Each case of an adult special student seeking admission to the Preliminary Year will be judged on its own merits by the Admission Committee of the College.

The Preliminary Year will consist of the following program:

For admission to First Year, General Program 2 or to Secretarial Science:

English 10

Another language

Latin 10 or two mathematics

Three of: History 14, Geography 20, a third mathematics, Religious Knowledge 10x, 21x, another language 1, 10, 1-10, Music—Grade II Theory and Grade VIII Practical, Home economics 25x.

SPECIAL COURSES

The following courses, equivalent to Grade XIII subjects, are not offered in the Colleges of the University but may be offered by the affiliated colleges as part of the Preliminary year.

English 10: Literature and Composition. 3 hours—11

French 10: Intermediate French. 3 hours—23
Prerequisite: Grade 12 French.

History 14: History of the Americas. 3 hours—14

Latin 1. Elementary Latin: for those beginning Latin at the University. 3 hours—26

Latin 10. Intermediate Latin:
Prerequisite: Grade 12 Latin or Latin 1. 3 hours—26

Mathematics 10: College Algebra. 2 hours—30

Mathematics 12: Analytic Plane Geometry. 2 hours— 5

Huron College

London, Ontario
(Founded in 1863)

OFFICERS OF ADMINISTRATION

Principal:

The Rev. J. Grant Morden, B.A. Toronto; L.Th., B.D., D.D. Wycliffe; S.T.M. Union Theological Seminary; D.Th. General Theological Seminary, N.Y.

Dean of Arts:
The Rev. J. G. Rowe, S.B. Harvard; B.D. Episcopal Theological School, Cambridge, Mass.; M.A., Ph.D. Toronto

Registrar:
J. Catharine Ridley

FACULTY

Business Administration

Lecturer:
Robert G. Fullerton, B.A., M.B.A.

Classics

Associate Professor:
The Rev. F. H. Allen, M.A., B.D. Oxon.

Lecturer:
P. Derbyshire, B.A. (part-time)

Economics and Political Science

Lecturer:
Elizabeth P. Bond, B.A. Wellesley, M.A. Yale (part-time)
H. B. Rooney, B.A., M.B.A.

English

Professors:
Eleanor Croysdale Jared, B.A.; M.A. Toronto; A.M., Ph.D. Radcliffe

Assistant Professor:
Elizabeth Revell, B.A. Toronto; M.A., B.Litt. Oxon.

Lecturers:
D. A. Blostein, B.A. Manitoba; B.A. Oxon.
P. M. Hinchcliffe, B.A. British Columbia; M.A. Toronto
A. D. Isler, B.A. Hunter College; M.A. Columbia
E. D. McVey, M. A. Queen's

French

Assistant Professor:
G. A. Black, M.A. Toronto; Acting Head of Department
Deborah Metford, B.A., M.A. British Columbia; D. de l'U. de Paris (part-time)

Lecturer:
R. Moorcroft, B.A. Saskatchewan (part-time)
C. M. van der Nel, B.A. London; M.A. (part-time)

Hebrew

Associate Professor:
The Rev. Geoffrey Howard Parke-Taylor, B.A., M.A. Toronto; L.Th., B.D., Wycliffe

Lecturer:
The Rev. Doreen Smith, B.A., Toronto; B.D., Emmanuel (part-time)

History

Professors:
The Rev. J. G. Rowe, S.B. Harvard; B.D. Episcopal Theological School, Cambridge, Mass.; M.A., Ph.D., Toronto; Head of the Department and Dean of Arts
The Rev. J. L. H. Henderson, B.A., B.D., D.D.

Assistant Professor:
K. C. Sessions, B.A., M.A., Ph.D. Ohio State

Lecturer:
J. N. Thompson, B.A. McMaster; M.A. Princeton

Mathematics

Lecturer:
F. P. Cass, B.A., Victoria University of Wellington, New Zealand

Philosophy

Professor:
The Rev. W. S. Morris, B.A. Bristol; Ph.D. Chicago

Assistant Professors:
J. A. Trentman, B.A., M.A., Ph.D. Minnesota; Acting Head of the Department

Lecturer:
J. A. Eisenberg, B.A. Toronto; M.A. Pennsylvania
R. P. Miller, B.A. Cornell; B.Phil. Oxon.; M.A. Michigan

Psychology

Associate Professor:
F. W. Burd, M.A. Toronto; Head of the Department

Assistant Professor:
Moira Sansom, B.A. Mount Allison; B.A. New Brunswick; B.L.S. Toronto; Ph.D., London; (part-time)

Lecturer:
The Rev. Thomas Harris, B.A. Toronto; L.Th. Wycliffe; M.A. Columbia; B.D. Union Theological Seminary

RELIGIOUS KNOWLEDGE

Professor:
The Rev. J. Grant Morden, B.A. Toronto; L.Th., B.D. Wycliffe, S.T.M. Union Theological Seminary; D.Th. General Theological Seminary, N.Y., Principal and Dean of Theology

Associate Professor:
The Rev. F. H. Allen, M.A., B.D. Oxon.

Courses

30x. An Introduction to the Living Religions of the World: A study of the history, faith, and practices of the major living religions. 2 hours

40x. New Testament Greek. 3 hours

42x. Christian Ethics: A consideration of some principles of morals and of Biblical ethics in relation to contemporary problems. 2 hours

PRE-THEOLOGICAL STUDENTS

Students interested in Pre-Theology should consult with the Dean of Arts concerning their program and options before registering for the Arts Program of their choice.

Brescia College

(London, Ontario)

(Affiliated in 1919)

OFFICERS OF ADMINISTRATION

Dean: Mother M. Dominica, B.A., M.A.

Registrar: Mother M. St. Paul, B.A., M.A.

FACULTY

Classics

Lecturer:

Mother M. St. Catherine, B.A.; M.A. Detroit

Economics and Political Science

Professors:

Mother M. St. Michael, A.T.C.M.; B.A.; M.A. Catholic U of America; Ph.L., Ph.D. Laval

Mother M. Rosanna, A.T.C.M.; B.A.; M.A. Catholic U of America

Lecturers:

Rev. T. L. McManus, B.A.; J.C.L.

Mother M. Perpetua, B.A.; M.A. Detroit

English

Professor:

Mother Mary Agnes, B.A.; M.A. Toronto; M.A. Notre Dame

Assistant Professor:

Mother M. Corona, B.A.; M.A., Ph.D. Notre Dame

Lecturers:

Mother M. St. Catherine, B.A.; M.A. Detroit

Mother St. Wilfrid, B.A.

German

Lecturers:

Mother Mary Agnes, B.A.; M.A. Toronto; M.A. Notre Dame
Mother M. Teresa, B.A.

History

Lecturers:

Rev. P. E. Crunican, B.A., M.A. Toronto
Mother M. St. Paul, B.A.; M.A. Notre Dame

Instructor:

James Ryan, B.A. Ottawa

Home Economics

Professor:

Mother M. Dominica, B.A., M.A. Toronto

Associate Professor:

Mother M. St. Dominic, B.Sc. Marywood

Lecturers:

Isabel Hodgkinson (Mrs. G. J.), B.A., M.A. Toronto
Mother M. Victoria, B.Sc. Chestnut Hill; M.Ed. St. Louis
Dorothy Ragg (Mrs.), B.A.; R.P.Dt.

Mathematics

Instructor:

W. H. Adamson, B.A., M.A.

Philosophy

Professor:

Mother M. St. Michael, A.T.C.M.; B.A.; M.A. Catholic U of America; Ph.L., Ph.D. Laval

Lecturer:

Rev. Arnold F. Loebach, B.A.; J. C. L. Catholic U of America

Psychology

Associate Professor:

Mother M. St. Michael, A.T.C.M.; B.A.; M.A. Catholic U of America; Ph.L., Ph.D. Laval

Lecturer:

Mother M. Perpetua, B.A.; M.A. Detroit

Religious Knowledge

Professor:

Rev. James Joseph Carrigan, B.A., S.T.L., S.T.D. Montreal

Instructor:

Mother Marie, B.A., M.A.; Ph.D. Toronto

Romance Languages

Professors:

Mother Marie, B.A., M.A.; Ph.D. Toronto
Mother M. Rosanna, A.T.C.M.; B.A.; M.A. Catholic U of America

Programs

The General Programs and some of the Honors Programs are available in Brescia College. All laboratory courses in the Natural Sciences are taught entirely in University College.

For the outline of the program in Home Economics offered jointly by Brescia and University Colleges, see the General Programs section.

HOME ECONOMICS

23x. Applied Art: Fundamentals of design and color as applied to the home; modern handicraft suitable for use in home and school. 2 hours—13

25x. Household Administration: General principles of home construction and planning, problems of home management and equipment. 2 hours—31

30x. Clothing: A study of textiles; problems in clothing construction.
1 lecture, 3 laboratory hours— 1

31x. Normal Nutrition: Normal requirements of the body; the optimum diet; food nutrients and their functions; deficiencies.
2 lectures, both terms; 2 laboratory hours, one term—21

32x. Foods: The principles of cookery and food preparation and the scientific theory underlying them. 1 lecture, 3 laboratory hours—31

33x. Interior Decoration: Elements of interior decoration and design.
Prerequisite: Home Economics 23x. 1 hour: (half course)—35

40x. Clothing and Designing: Art of costume and personal appearance; history of costume; Pattern designing; care of fabric; problems in clothing construction.
Prerequisite: Home Economics 30x. 2 lectures, 3 laboratory hours— 7

41x. Advanced Nutrition: Nutritional needs during infancy; the pre-school child; the adolescent. Modifications of the normal diet to meet specific dietary needs during diseases. Preparation of foods for these diets.
2 lectures, both terms; 2 laboratory hours, one term—14

42x. Foods: Food science and experimental cookery.
Prerequisite: Home Economics 32x. 1 lecture, 3 laboratory hours—19

45x. Family Economics: Marketing and consumer problems; family finance management; budgeting. 2 hours: (half course)—23

46x. Demonstration Techniques: Meal service.
One afternoon a week, second term: (half course)—

47x. Nutrition: Seminars and reports on recent findings in nutrition.
Prerequisite: Home Economics 31x. 1 hour: (half course)

48x. Institutional Management: Discussion of equipment; organization and administration of food services; quantity cookery, field projects.
Prerequisite: Home Economics 32x.
2 lectures, 3 laboratory hours one term—29

PHILOSOPHY

Philosophy 20 or 30 or 36 is a prerequisite for all General courses in Philosophy; Philosophy 230 for all Honors courses in Philosophy. Students preparing for Social work or other professions may, with permission, select options to suit their needs. Courses scheduled for two hours a week may meet for additional seminars or discussions at the discretion of the instructor. Brescia College may cancel a Philosophy course for a year if the number of students who wish to take it is insufficient.

20x. Introduction to Philosophy: Problems, divisions and methods of philosophy; the principles of natural philosophy, metaphysics, epistemology and moral philosophy. 3 hours— 1

30x. Basic Philosophical Literature: As in the Colleges of the University. 3 hours— 1

31x. Logic: The three operations of the intellect: conception, judgment, reasoning.

32x. Introductory Ethics: General and individual. 2 hours— 2

33x. Introduction to Metaphysics, Epistemology, and Ontology: Problems of being, knowledge, casualty and analogy. 2 hours.

34x. Political Philosophy: History of ancient medieval and modern Political Philosophy. The philosophical implications of contemporary political movements and principles for world society. 2 hours— 9

35x. Aesthetics: Lectures and seminars on the history of the philosophy of art and the metaphysics of the beautiful; aesthetic problems; aesthetics as the foundation of criticism; art and prudence; the liberal and servile arts. 2 hours— 3

36x. Ancient, Mediaeval and Scholastic Philosophy: with reading from selected texts. 2 hours—28

42x. Social Ethics: Domestic society: the nature and conditions of marriage; function, rights and duties of family inmates. Birth control and population problems. Civil society; the philosophy of the state; the relations between church and the state; the community of nations; labor problems. 2 hours—31

43x. Advanced Metaphysics: Natural theology; comparative religious philosophy. 2 hours—12

44x. Social Philosophy: The relationship of philosophy to the social sciences; the nature and function of society; freedom, authority, government, the family and the state; historical development of social economy from primitive to modern times; individual and social character of property; capital and labor. 2 hours—22

47x. History of Modern Philosophy: The transition from mediaeval to modern philosophy; modern philosophy; readings from selected basic texts. 2 hours—35

Honors Courses

The following courses are identical with the Pass courses indicated, except that additional assignments will be required or seminars added: 231 (31), 335 (35), 336 (36), 347 (47), 443 (43).

230x. Basic Philosophical Literature: An examination of the principal problems and issues, methods and attitudes, theories and solutions, terms and concepts of philosophy in the light of Scholastic principles; a critical reading of selected philosophical classics is required. 2 hours— 1

350x. Philosophical Texts: An examination of specific source materials in Greek, Mediaeval and Modern Philosophy, as well as pertinent critical texts. 2 hours—13

448x. Seminar in Contemporary Philosophy. 2 hours—14

454x. Principles and Problems of Philosophy: Philosophical problems of special interest to the class, evaluated according to pragmatic, idealist and neo-Thomistic principles. 2 hours.

456x. Seminar in Plato and Aristotle.
Prerequisite: Philosophy 336. 2 hours.

457x. Seminar in Modern Philosophy.
Prerequisite: Philosophy 347. 2 hours—34

462x. Ethics: A critical study of moral problems and theories; a comparative study of conflicting approaches to ethical problems found in the classics of ethical literature from Aristotle to the present, including Thomistic and neo-Thomistic texts. 2 hours—29

466x. Seminar in Post Aristotelian and Mediaeval Philosophy.
Prerequisite: Philosophy 336. 2 hours—18

PSYCHOLOGY

Psychology 20 is ordinarily prerequisite to all other courses in psychology.

20x. Introduction to Psychology: The nature, faculties and functions of man according to the Thomistic interpretation; sensation, perception, intellection, motivation, emotion, volition, habits, the human soul, personality, the relative importance of heredity, environment and the self-structure. 3 hours—19

31x. Psychology of Personality: A study of the major personality theories including the Thomistic. 2 hours— 6

36x. Child Psychology: The Thomistic "person" and Child Development; native equipment and environment; maturation and learning; character and personality; child management; familial and other social relationships. 2 hours—16

46x. Applied Psychology: Psychological principles applied to practical problems in education, industry and vocational guidance; relevance of the Encyclicals to current problem-solving techniques. 2 hours—27

48x. Abnormal Psychology: Abnormal personality theory including Thomistic; the abnormal in sensation, perception, memory, emotions, thought and behavior; mental deficiency; causes and symptoms of neuroses and major disorders; therapy techniques with ethical norms. 2 hours— 6

49x. Social Psychology: Social environment and human response; role of family, church group, etc. in personality growth; attitudes and prejudice; leadership and status; crowd, mob; propaganda and public opinion; Social Psychology of the Encyclicals. 2 hours—33

RELIGIOUS KNOWLEDGE

10x. Introduction to Theology. 2 hours.

20x. Review Survey: The essentials of Catholic Doctrine and of the Catholic way of life. 2 hours.

31x. The Old Testament: Its content viewed as Salvation History and its role in Catholic belief and worship. 2 hours.

32x. Moral Theology: Christian Revelation as applied to man's actions. 2 hours.

33x. History of Liturgy: Survey of expressions of special conciousness in worship from Apostolic to modern times. Lectures, readings, seminars on the Encyclicals. 2 hours.

35x. Comparative Religion: Ecumenism; a study of contemporary religions under various aspects — moral practices; historical and doctrinal considerations. 2 hours.

40x. Dogmatic Theology: A study of revealed truths; God and creation; sin and Redemption; supernatural life; the channels of the supernatural life. 2 hours.

SOCIOLOGY

39x. The Family: The family as a primary social group; a brief history of family life in Western societies; modern biological, psychological, sociological, economic and ethical views on the family. 2 hours.

St. Peter's and Christ the King Colleges

London, Ontario

(Founded in 1912; affiliated in 1923)

OFFICERS OF ADMINISTRATION

Rector: Rt. Rev. A. P. Mahoney, P.A., V.G., LL.D.

Dean of Arts: Rev. E. P. La Rocque, M.A.

Registrars: The Reverend A. F. Loebach, B.A., J.C.L.
J. Q. Cahill, B.A., M.A.

FACULTY

Classics

Professor:

Charles Jeremiah Treacy, B.A.; M.A., Ph.D., Toronto

Lecturer:

Rev. F. G. Childs, B.A.; J.C.D., Angelicum (Rome).

Economics and Political Science

(Economics, Politics, and Sociology)

Assistant Professor:

Ignatius John Adel-Czlowiekowski, LL.M., Lemberg; LL.D., Fribourg

Lecturer:

Emile Primorac, B.A., M. Comm., Toronto

English

Assistant Professors:

Rev. C. E. Keane, B.A., M.A., Notre Dame
Fritz Maximilian Gerhard Wieden, B.A., M.A.; Ph.D., Toronto

Lecturers:

Thomas Joseph Collins, B.A., M.A.
Sean Finbarr Gallagher, B.A., National U. of Ireland; M.A.

German

Lecturer:

Fritz Maximilian Gerhard Wieden, B.A., M.A., Ph.D. Toronto

History

Professor:

William Herbert Stockdale, B.A., M.A., Alabama; Ph.D., New York

Lecturers:

Rev. P. E. Crunican, B.A., M.A., Toronto
James Quinton Cahill, B.A., St. Ambrose (Iowa); M.A., Columbia

Mathematics

Lecturer:

Rev. J. J. Bensette, B.A.; M.A., Detroit

Philosophy

Professors:

Rt. Rev. A. J. Durand, B.A., M.A.; Ph.L., Ph.D., Laval
Rev. R. A. Graveline, B.A.; Ph.L., S.T.L., Laval
Rev. W. J. Ring, B.A.; Ph.L., Laval

Assistant Professors:

Rev. P. E. Cavanagh, B.A., M.A. Toronto; Ph.D. Notre Dame
Rev. M. T. Ryan, B.A., M.A., Ph.D. Notre Dame

Instructor:

Leonard Albert O'Hanley, B.A. St. Dunstan's; L.Th. Montreal; M.A. Marquette

Psychology

Assistant Professor:

Thomas Alexander Francoeur, B.A., M.A., Ph.D. Montreal; M.A. Ottawa
Nicholas Tines, B.A., M.A. Windsor

Religious Knowledge

Professors:

Rev. J. J. Carrigan, B.A.; S.T.L., S.T.D., Montreal
Rev. R. A. Graveline, B.A.; Ph.L., S.T.L., Laval

Lecturer:

Rev. E. P. La Rocque, B.A., M.A. Laval; Dean of the College of Christ the King

Romance Languages

Professor:

Dante Anthony Lenardon, B.A., B.Ed., Alberta; M.A., Ph.D. Toronto

Lecturer:

Rev. E. P. LaRocque, B.A.; M.A., Laval

Programs

St. Peter's College consists of the Pre-theology division of St. Peter's Seminary, for candidates for the priesthood, and Christ the King College, an Arts College for lay students.

In addition to the Pre-Theology B.A. program shown below, taught in St. Peter's College, the General program and some Honors programs are available at the College of Christ the King. All laboratory courses in Science are taught entirely in University College.

PRE-THEOLOGY B.A. PROGRAM

Requirements for Admission: The Secondary School Graduation Diploma and Grade XIII standing with an average of 60% in English, another language, Latin or two Mathematics, and three other papers; or the Preliminary Year.

This program leads to the degree of Bachelor of Arts. It is accepted by the Department of Education of Ontario as academic qualification for the High School Assistant's Certificate, Type B.

First Year

English 20
Philosophy 21x, 26x, 27x
A language other than English at the 20 level

Two of:
Religious Knowledge
French 20
Another foreign language
History 20

Second Year

English 32, 36, 38 or 49
Philosophy 33x, 39x
Psychology 30x

Two of:
another Philosophy course
Latin 20, 35x, or 45x
A Senior English
Religious Knowledge
Another language other than English

Third Year

English 32, 36, 38, or 49 (one not previously taken)
Philosophy 43x, 47x
Psychology 40x

One of:
another Philosophy course
A Senior Latin
Another Senior English
Another language other than English
Religious Knowledge

LATIN

Courses

25x. Introduction to Mediaeval Latin: Cicero, De Amicitia; St. Ambrose. Hymns and Homilies; St. Augustine, Confession; a comparative study of the thought and style of Cicero and St. Augustine; syntax and composition. 3 hours.

35x. Survey of Mediaeval Latin: From the death of St. Augustine to the 12th century; lectures on Latin style and culture of the period; syntax and composition. 3 hours.

PHILOSOPHY

20x. An introduction to Philosophical Problems: Along with an historical approach, the solutions of various philosophers are assessed at their true value. 3 hours.

21x. Formal Logic: the operations of the intellect. Conception, judgment, reasoning. 2 hours.

26x. Natural Philosophy: An introduction to Aristotelian philosophy by a close study of the De Principiis Naturae of St. Thomas. 2 hours.

27x. The History of Pre-christian Philosophy: A survey of philosophy in the Orient and in the Graeco-Roman world from its beginnings to the neo-Platonism of the early Christian period. 2 hours.

30x. A Critical Reading of some of St. Thomas' Writings: concerning Metaphysics, Ethics and Rational Psychology. 3 hours.

31x. Logic: Ancient and Modern. 2 hours.

32x. An Introduction to Ethics. 2 hours.

33x. Metaphysics: An introduction to metaphysics as the science of the first cause of all being. 2 hours.

34x. The Philosophy of Science. 2 hours

37x. History of Philosophy: from the time of Christ until 1600 A.D. 2 hours.

38x. The Philosophy of Social Work. 2 hours.

39x. Social Philosophy: Capitalism, individualism, collectivism, authoritarian and corporate state; civil organization and administration; social functioning of modern economic society. 2 hours.

42x. The Philosophy of Marriage. 2 hours.

43x. Metaphysics: God the first cause: The demonstration by reason of the existence of an uncaused cause of all being; an examination of atheism, agnosticism and pantheism. 3 hours.

44x. The Philosophy of Education. 2 hours.

45x. Medical Ethics. 2 hours.

47x. Modern Philosophy: The history of philosophy from the Renaissance to the present day. 3 hours.

48x. Politics: A study of the political philosophy of Aristotle and St. Thomas, together with a survey of the dominant political theories of our own day.

49x. The Philosophy of Art: Nature of art; fine arts and useful image and imitation; relationship of fine art to nature, science and morals; sacred art.

Honors Courses

Some of the above courses may be offered as Honors courses, with additional assignments required.

PSYCHOLOGY

20x. The faculties and functions of man: Sensation, perception, intellection, volition. Personality and individual differences. 3 hours.

30x. The Nature of Man: Man's soul and its essential qualities; the union of soul and body in man; personality; the origin and the immortality of the human soul. 3 hours.

31x. Psychology of Personality. 2 hours— 6

36x. Child Psychology. 2 *hours—16*

40x. Dynamology: Vegetative powers; sensation and perception; internal senses, feeling and emotion; reflex behaviour, intellectual operations; the unconscious; abnormal phenomena; the faculty theory and modern psychological research. 3 hours.

48x. *Abnormal Psychology.* 2 hours— 6

RELIGIOUS KNOWLEDGE

21x. Salvation History: God's Covenants with men in the Old Testament and in the New Testament. 2 *hours.*

22x. Christian Ethics: the last end of man; norm of morality; law; reason and conscience; habits and virtues; the role of passion; right and duty. 3 hours.

30x. Theology: the rational defence of Christian Revelation; existence of God; the fact of revelation; the sources of revelation; the Church of Christ. 2 hours.

34x. Principles of Catechetics: the teaching of religious knowledge as to content and method. 2 hours.

35x. Comparative Religion: a study of the theological issues at stake in the division of Christendom; approaches to Christian unity; Ecumenism. 2 hours.

37x. Church History: Christian antiquity and mediaeval church history from the birth of Christ to 1500 A.D. 2 hours.

40x. Theology: a study of revealed truths; God and creation; sin and redemption; supernatural life; the channels of the supernatural life. 2 hours.

41x. Biblical Theology: the theology of the Bible; inspiration; revelation; special problems concerning history and interpretation. 2 hours.

47x. Church History: The Reformation and modern church history from 1500 A.D. to the present day. 2 hours.

REGISTRATION IN THE FACULTY OF ARTS AND SCIENCE, 1964-65

	University College	Middlesex College	College of Music	Huron College	Brescia College	St. Peter's Seminary Christ the King	St. Peter's	TOTALS	
Full-time Students:									
Preliminary	.....	.....	....	.....	24	.....	....	24	
First	903	528	32	203	74	63	15	1818	
Second	653	436	24	177	47	51	15	1403	
Third	444	308	24	123	37	67	16	1019	
Fourth	104	107	5	10	2	3	....	231	
									4495
Part-time Students:									
Intramural	71	13	2	6	30	2	1	.....	125
Correspondence 329	.....	.....	....	.....	.....	.....	....	329	
Summer School 1986	.....	.....	....	.....	.....	.....	....	1986	
Extension 1179	.....	.....	....	.....	.....	.....	....	1179	
									3494
TOTALS	2175	1392	87	519	214	186	47		8114
Less (winter session) Part-Time Duplicates									47
									8067

SUMMARY OF REGISTRATION IN THE WHOLE UNIVERSITY, 1964-65

	Arts	Science	Business	Engineering	Law	Medicine	Nursing	TOTALS
UNDERGRADUATE:								
Full-Time Students:								
First	1454	395	.....	96	56	60	.....	
Second	1216	181	.....	62	51	60	.....	
Third	967	51	55	55	34	55	152	
Fourth	193	38	57	43	.....	56	42	
Part-Time Students:								
Winter	1581	5	.....	4	1	1	.....	
Summer (1964)	1986	.....	.....	.....	.....	.....	.....	
TOTALS	7397	670	112	260	142	232	194	9007
GRADUATE:								
Full-Time Students	295	157	254	18	.....	52	10	
Part-time Students	61	6	2	.....	.....	3	.....	
TOTALS	356	163	256	18	.....	55	10	858
UNIVERSITY TOTAL ENROLMENT								9865

Constituent University	8899	Men	6442	Full-Time	6215	
Affiliated Colleges	966	Women	3423	Part-Time	3650	

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