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University of Windsor Graduate Calendars

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1990

## University of Windsor Graduate Calendar 1990-1992

University of Windsor

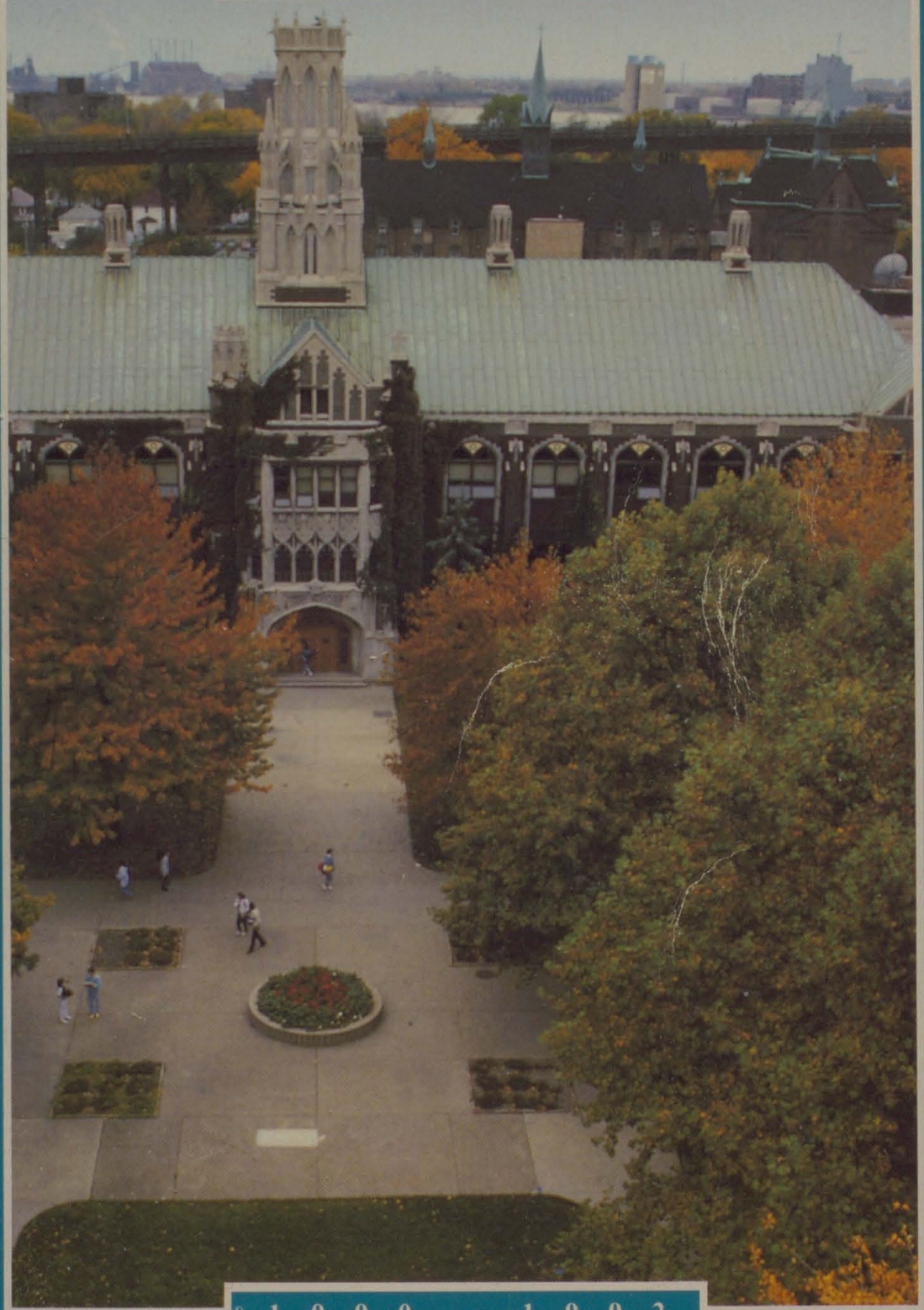
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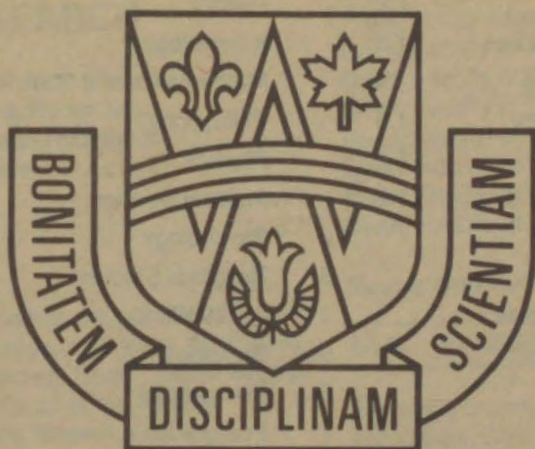
G R A D U A T E C A L E N D A R



## STATEMENT OF RESPONSIBILITY

1. The content of this document is provided for the information of the student. It is accurate at the time of printing but is subject to change from time to time as deemed appropriate by the University of Windsor in order to fulfill its role and mission or to accommodate circumstances beyond its control. Any such changes may be implemented without prior notice and without obligation and, unless specified otherwise, are effective when made.
2. This Calendar represents the University of Windsor's best judgment and projection of the course of conduct of the University of Windsor during the periods addressed therein. It is subject to change due to forces beyond the University of Windsor's control or as deemed necessary by the University of Windsor in order to fulfill its educational objectives.
3. Advisors are provided to assist you in planning your academic program. They are not authorized to change established policy of the University of Windsor. You are solely responsible for assuring that your academic program complies with the policies of the University of Windsor. Any advice which is at variance with established policy must be confirmed by the appropriate Dean's Office.
4. Any tuition, fees and other charges described herein are good faith projections for the academic year. They are, however, subject to change from one academic term to the next as deemed necessary by the University of Windsor in order to meet its financial commitments and to fulfill its role and mission.
5. There are other fees and charges which are attendant upon a student's matriculation at the University of Windsor. These fees or charges may be determined by contacting the University offices which administer the programs or activities in which the student intends to enroll or engage.
6. The University of Windsor reserves the right to terminate or modify program requirements, content, and the sequence of programs offerings from semester to semester for educational reasons which it deems sufficient to warrant such actions.  
Further, the University of Windsor reserves the right to terminate programs from semester to semester for financial or other reasons which it determines warrant such action. The content, schedule, requirements and means of presentation of course may be changed at any time by the University of Windsor for educational reasons which it determines are sufficient to warrant such action. Programs, services, or other activities of the University of Windsor may be terminated at any time due to reasons beyond the control of the University of Windsor including, but not limited to, acts of God, natural disasters, destruction of premises, labor disturbances, governmental orders, financial insolvency, or other reasons or circumstances beyond the control of the University of Windsor.
7. The course descriptions herein are based upon reasonable projections of faculty and faculty availability and appropriate curriculum considerations. The matters described are subject to change based upon changes in circumstances upon which these projections were based and as deemed necessary by the University of Windsor to fulfill its role and mission.

# UNIVERSITY OF WINDSOR



## GRADUATE CALENDAR 1990-1992

Federated and Affiliated Institutions

ASSUMPTION UNIVERSITY  
HOLY REDEEMER COLLEGE  
CANTERBURY COLLEGE  
IONA COLLEGE

The University is a full member of

THE ASSOCIATION OF UNIVERSITIES AND  
COLLEGES OF CANADA  
THE ASSOCIATION OF COMMONWEALTH UNIVERSITIES  
THE INTERNATIONAL ASSOCIATION OF UNIVERSITIES

Published by the Office of the Registrar

Windsor, Ontario, Canada N9B 3P4



# TABLE OF CONTENTS

Faculty of Graduate Studies and Research		Geography	17
Structure of the Faculty	1.1	Geology	18
Programs Offered	1.2	History	19
Application Procedures	1.3	Kinesiology	20
Faculty Regulations	1.4	Mathematics and Statistics	21
Doctor of Philosophy	1.5	Philosophy	22
Master's	1.6	Physics	23
Research Institutes	1.7	Political Science	24
Biological Sciences	2	Psychology	25
Business Administration	3	Religious Studies	26
Chemistry and Biochemistry	4	Social Work	27
Communication Studies	5	Sociology	28
Computer Science	6	Visual Arts	29
Economics	7	Postgraduate Awards and	
Education	8	Financial Aid	30
Engineering—General Regulations	9	Calendar of the Academic Year	31
Civil Engineering	10	General Information	
Electrical Engineering	11	Summary of Registration	32.1
Engineering Materials	12	Student Services	32.2
Geological Engineering	13	Student Affairs	32.3
Industrial Engineering	14	Fee Regulations and Schedule	33
Mechanical Engineering	15	General Index	34
English	16		



# 1 FACULTY OF GRADUATE STUDIES AND RESEARCH

## LOCATION:

Graduate Studies, Room 325  
Research Services, Room 418  
Windsor Hall Tower

## TELEPHONE:

(519) 253-4232

*Note:* Some Faculties are not departmentalized. In such cases, reference to "Department" or "Department Head" should be read as "Faculty" or "Dean of the Faculty."

## 1.1 Structure of the Faculty

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### 1.1.1 OFFICERS OF ADMINISTRATION

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Dean, Faculty of Graduate Studies and Research, (Ext. 2109), Lois K. Smedick; B.A. (Wilson), M.S.L. (Pontifical Institute of Mediaeval Studies, Toronto), Ph.D. (Bryn Mawr)

Associate Dean, Research, (Ext. 2150), Terence E. Smith, B.Sc., Ph.D. (Wales)

#### *FLUID DYNAMICS RESEARCH INSTITUTE*

Acting Director: Dr. Alexander Cormac Smith

#### *GREAT LAKES INSTITUTE*

Interim Director: Dr. John Alexander McCorquodale

Founding Director: Dr. Marie Sanderson

#### *INSTITUTE FOR INTERNATIONAL AND DEVELOPMENTAL STUDIES*

Director: Dr. E. Donald Briggs

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### 1.1.2 GRADUATE COUNCIL

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#### *Ex-officio Members (with vote) :*

Dean, Chair, *ex officio*  
Associate Dean, Research  
University Librarian  
President, Graduate Student Society  
Dean, Faculty of Arts  
Dean, Faculty of Business Administration  
Dean, Faculty of Education  
Dean, Faculty of Engineering  
Dean, Faculty of Human Kinetics  
Dean, Faculty of Science  
Dean, Faculty of Social Science

#### *Elected Representatives from each Faculty*

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### 1.1.3 COMMITTEES

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Academic Standing Committee  
Admissions Committee  
Awards Committee  
Executive Committee  
New Programs Committee  
Support Committee

#### *Chair:*

Dean of Graduate Studies and Research

#### *Other Members:*

Elected annually from Graduate Council  
and graduate faculty

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### 1.1.4 RESEARCH BOARD

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#### *Chair:* elected

*Executive Secretary:* Associate Dean,  
Research, *ex officio*

Six faculty members elected by the  
Research Board

Two appointees of the Board of Governors

The Research Board also includes these  
committees:

Animal Care Committee  
Biohazards Committee  
Ethics Committee

(For the chairs of these committees, contact  
the Office of Research Services.)



## 1.2 Programs Offered

The Faculty of Graduate Studies and Research offers programs leading to the following degrees:

Master of Arts in Communication Studies, Economics, English Literature, English and Creative Writing, Geography, History, Philosophy, Political Science, Psychology, Religious Studies, Sociology;

Certificate in Archival Studies;

Master of Science in Biological Sciences, Chemistry and Biochemistry, Clinical Chemistry, Computer Science, Geology, Mathematics, Physics, Statistics;

Master of Applied Science in Civil Engineering, Electrical Engineering, Engineering Materials, Environmental Engineering, Geological Engineering, Industrial Engineering, Mechanical Engineering.

Master of Business Administration; Integrated M.B.A./ LL.B.;

Master of Education;

Master of Fine Arts in Visual Arts;

Master of Human Kinetics in Kinesiology;

Master of Social Work;

Doctor of Philosophy in Biological Sciences, Chemistry and Biochemistry, Civil Engineering, Clinical Chemistry, Electrical Engineering, Engineering Materials, Environmental Engineering, Mathematics, Mechanical Engineering, Physics, Psychology, Statistics;

Postdoctoral Diploma in Clinical Chemistry;

Postdoctoral Certificate in Clinical Psychology.

## 1.3 Application Procedures

An application for admission may be obtained from the Faculty of Graduate Studies and Research, University of Windsor, Windsor, Ontario, Canada N9B 3P4.

Applicants are advised to check departmental listings for deadlines. If an earlier deadline is not specified, applications, transcripts, and

confidential reports should be submitted to the Faculty of Graduate Studies and Research by July 1 for September admission, November 1 for January admission, and March 1 for May admission.

All documents received become the property of the University and will not be returned.

All applications must be complete by the last date of registration.

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### 1.3.1 DEFERRED APPLICATIONS

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Offers of admission are made for a specific term, and acceptance may be deferred for one term only. Students wishing to be considered for admission at a later date will normally be required to complete a new application and to resubmit their documents.

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### 1.3.2 DOCUMENTATION REQUIRED

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All documents received become the property of the University and will not be returned.

Action will be taken on an application for admission when all the documents listed below have been received:

- 1) The form "Application for Admission to the Faculty of Graduate Studies and Research" properly filled out.
- 2) Two official transcripts of all undergraduate and graduate work from all colleges or universities attended. The term "official" means that the transcripts are sent directly from the college or university concerned to this University.
- 3) Two Confidential Report forms as indicated on the application form; three forms are required for applicants to the Psychology and Communication Studies Departments. These should be sent directly by the persons reporting, and not by the applicant.
- 4) *Graduate Record Examination (GRE)*: Applicants whose academic credentials are difficult to assess may be required to write the Graduate Record Examination administered by the Educational Testing Service, Princeton, New Jersey, U.S.A. 08540. Information on the GRE may be obtained from the Office of Graduate Studies and Research.



5) *Graduate Management Admission Test (GMAT)*: M.B.A. applicants are required to take the Graduate Management Admission Test prior to admission. Information on the GMAT may be obtained from the Office of Graduate Studies and Research.

6) All applicants whose native language is not English are required to take an English proficiency test administered by one of the following institutions:

- (a) *The English Language Institute (ELI) of the University of Michigan*: The applicant is expected to make arrangements for taking this test in his or her own locale by contacting the regional centre or by writing to the English Language Institute of the University of Michigan, Testing and Certification, North University Building, Ann Arbor, Michigan, U.S.A. 48109.
- (b) *The Educational Testing Service, Test of English as a Foreign Language (TOEFL)*: For information on arranging for this test the applicant should write to Educational Testing Service, Princeton, New Jersey, U.S.A. 08540.

An applicant who is unable to take one of these tests must present satisfactory alternative evidence of English proficiency. Consideration of alternative evidence may be requested by writing to the Dean of Graduate Studies and Research and presenting supporting documentation of English proficiency.

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### 1.3.3 ADMISSION LEVELS

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The two routes for admission to II Master's (Candidate) or I Ph.D. status each require four years (eight terms). The I Master's (Qualifying) designation is thus equivalent to Level IV of an honours Bachelor's program.

Students holding an honours degree in another discipline may be admitted to a two-year II Master's (Candidate) program.

Only students who have been admitted to a graduate program may receive graduate credit at the University of Windsor for courses taken.

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### 1.3.4 POSTGRADUATE AWARDS

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For information regarding graduate scholarships and other awards, see 30.

## 1.4 Faculty Regulations

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### 1.4.1 REGISTRATION

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Students whose applications for admission to graduate study have been approved for full- or part-time study should present themselves to their Department for registration on the dates recorded in the Calendar of the Academic Year (see 31). Part-time students may register by mail on the forms provided by mail from the Office of the Registrar or the Office of Graduate Studies and Research.

#### Categories of Registration

The University designates graduate students as full- or part-time:

1) *Full-Time Student*: A student who is admitted to a program on a full-time basis and who meets the following criteria will be registered as a full-time student:

- (a) is geographically available and visits the campus regularly. It is understood that a graduate student may be absent from the University while still under supervision, e.g., visiting libraries, attending a graduate course at another institution, doing field work, etc. If such period of absence exceeds four weeks in any term, written evidence must be available in the Graduate Studies Office to the effect that the absence has the approval of the Department Head and of the Dean of Graduate Studies and Research.
- (b) is regularly employed on other work, or by the University, for not more than an average of ten hours a week. It should be noted that if a student is employed as a teaching assistant or demonstrator, the ten hours a week should represent the total time spent by the student in connection with the appointment, in-



cluding time spent on preparative work, reading set assignments, marking examinations, etc.

2) *Part-Time Student*: Some graduate programs are available on a part-time basis. Students interested in part-time studies should first consult the Department Head. If a student has not been accepted on a part-time basis at first registration, he or she must petition the Faculty of Graduate Studies and Research for permission to register in a given term or terms as a part-time student. Such petitions will not normally be granted to students meeting criteria (a) and (b) above for full-time students. However, petitions based on domestic responsibilities which demand more than ten hours a week will be considered.

*Note*: Part-time students may not take more than two courses in any term. Registration in any given term for a major paper, thesis, or dissertation is counted as the equivalent of one course.

*Resident/Post-Resident Student*: See the academic regulations concerning Residence in 1.5.2 and 1.6.2. For purposes of assigning fees, the residence period is defined as three terms of full-time study at the Master's level or nine terms of full-time study at the doctoral level (six terms after Master's level). Graduate students must apply to the Faculty of Graduate Studies and Research to establish post-resident status for fee purposes.

### Graduate Registration Regulations

1) Graduate students must register before the proper deadline or they will not receive credit for academic work they may be doing during the term. *Note*: Registration is not complete until the appropriate fees have been paid.

2) Graduate students must be registered in the term preceding the proper deadline for Spring or Fall Convocation in order to be permitted to graduate. Students must also file an "Application for Graduation" in the Registrar's Office.

3) Full-time students are required to maintain continuous registration through all terms of their graduate program. Failure to do so will

require application for readmission to their program and payment for all terms missed up to a maximum of three terms.

4) In case of illness or other exceptional circumstances, a full-time student may apply to the Dean of Graduate Studies and Research for, and may be granted, a leave of absence. In the case of financial necessity, primarily as evidenced by the support awarded through the University, a student shall be granted a leave of absence for employment for no more than one term out of three upon application. Applications may be filed at any time and shall be processed within three weeks of receipt by the Faculty of Graduate Studies and Research. Permission may be granted only if the facilities of the University, including consultation with members of the faculty, are not to be utilized and if, upon return, the student will still be able to complete the degree program requirements within the allowed time. A student on leave of absence will be assessed a fee of fifty dollars (\$50.00) per term. Appeals against any decision shall be heard promptly by the Graduate Appeals Committee.

5) Part-time students must register in every session in which the facilities of the University are to be utilized, whether in residence or off campus. This includes those who are consulting with members of the Faculty while working on a major paper, thesis, or dissertation. Part-time students who have not registered in two consecutive terms will be required to re-apply for admission, and their applications will be considered on their merits in the light of the then prevailing conditions and circumstances.

6) Students are reminded that they will not receive credit for courses for which they are not properly enrolled or for courses completed during terms in which the student has not paid fees.

Once a student has registered, course changes or withdrawal require permission from the Dean of Graduate Studies and Research. Subjects dropped without permission from the Dean will be regarded as failures.



*Provisional and Non-Degree Registration:* A provisional registrant is one who is allowed to attend classes while the application is still under consideration. A student whose application is not complete by the regular registration period may be allowed to register provisionally. All required forms and documents must be submitted before the last day of registration.

A student who is not eligible for admission as a degree student may be allowed to register for individual courses on a non-degree basis. Only students who have been admitted to a graduate program may receive graduate credit at the University of Windsor for courses taken.

*Audit Student:* An audit student in any course is one who attends the course without credit toward a degree or program, and who is not entered or registered on the official University records or lists for purposes of academic or degree credit or transcripts. Such a student will not be allowed to write examinations and cannot be graded in any way. The student will normally pay the regular fees for the course(s).

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#### 1.4.2 POLICY ON AUTHORSHIP AND PLAGIARISM

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The University expects that all researchers will adhere to the proper standards of intellectual honesty in the written or spoken presentation of their work and will at all times acknowledge in a suitable manner the contribution made by other researchers to their work, as outlined in the Senate Policy on Authorship.

Plagiarism is defined as:

The act of appropriating the literary composition of another, or parts of passages of his/her writing, or the ideas or language of the same, and passing them off as the products of one's own mind. (*Black's Law Dictionary*).

It is expected that all graduate students will be evaluated and graded on their individual merit, and all work submitted for evaluation should clearly indicate that it is the student's own contribution.

Graduate students often have to use the ideas of others as expressed in written or published work in preparing essays, papers, reports, theses and publications. It is imperative that both the data and ideas obtained from any and all published or unpublished material be properly acknowledged and their sources disclosed. Failure to follow this practice constitutes plagiarism and is considered to be a serious offence by this Faculty. Thus, anyone who knowingly or recklessly uses the work of another person and creates an impression that it is his or her own is guilty of plagiarism.

It is not permissible for an essay or other paper to be submitted twice. It is expected that a thesis, essay, paper or report has not been, and is not concurrently being, submitted to any other faculty or university for credit toward any degree, or to this Faculty for any other course. In exceptional circumstances and with the prior agreement of the instructor, a student may use research completed for one course as part of his or her written work for a second course.

Where plagiarized work has been submitted or where a student has submitted a paper for double credit, an F grade shall be assigned by the instructor both to that assignment and to the course. The student has the right to appeal this grade to the Dean of Graduate Studies and Research, in accordance with the Graduate Appeals Policy as stated in Senate Bylaw 51.B. In more serious cases, e.g., breach of the above regulation on more than one occasion, and upon recommendation by the Dean of Graduate Studies and Research that disciplinary action be taken, the matter will be submitted to the University Committee on Student Affairs for appropriate sanctions, which include admonition, censure, disciplinary probation, restitution, suspension or expulsion, as set out in Senate Bylaw 31.

In case of any doubt, students are strongly urged to consult with the instructor or thesis supervisor. In cases where students feel that their intellectual property or copyrighted material has been plagiarized, complaints should be made to the Dean of Graduate Studies and Research.



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### 1.4.3 GRADING AND DROPPING COURSES

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For the standards which are required in specific degree programs, see 1.5 (Ph.D.) and 1.6 (Master's).

#### *Letter Grades:*

A<sup>+</sup>, A, A-, B<sup>+</sup>, B, B-, C<sup>+</sup>, C, C-, D<sup>+</sup>, D, D-, F, F-NR (Failure, No Record)

INC (Incomplete—course work only)

IP (In Progress—major paper, thesis, or dissertation)

P or NP (Pass or Non-Pass)

S or U (Satisfactory or Unsatisfactory)

The final deadline for dropping graduate courses without a grade being assigned is five weeks from the start of each of the three terms. After the withdrawal deadline, courses dropped will require the assignment of a grade of "Withdrew-Passing" or "Withdrew-Failing". Prior to the deadline, courses dropped will be recorded as "Voluntary Withdrawal".

The granting of an Incomplete grade must follow discussion between the student and the course instructor concerning the nature of the work to be completed and the time period for completion. Courses recorded as Incomplete must be completed and a grade reported within twelve months of the original due date unless an earlier deadline has been established. If such courses are not completed within twelve months, they will remain designated as Incomplete on the student's transcript. Normally, a student may carry only one Incomplete grade at a time. Graduate students carrying more than one Incomplete grade at the end of a semester will have their progress reviewed by their Department, and a recommendation will be forwarded in each case to the Faculty of Graduate Studies and Research.

The Faculty of Graduate Studies and Research requires that students maintain at least a B average at all times.

Courses in which a grade of B or higher is received will be accepted for graduate credit. In addition, upon the positive recommenda-

tion of the Department concerned, the Faculty of Graduate Studies and Research may grant credit for not more than two semester courses in which a grade of C or C<sup>+</sup> has been obtained. The regulations of individual departments should be consulted for their particular policies on Incomplete and C grades.

If a student fails to obtain credit in a course, the course may be repeated once only, at the discretion of the Department concerned and the Dean of Graduate Studies and Research. No student may repeat, or replace with another course, more than two semester courses in which credit was not obtained.

Theses and major papers, for which a letter grade is assigned, must be graded B or better to receive credit.

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### 1.4.4 EXAMINATIONS AND APPEALS

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A Department may require either oral or written examinations in graduate courses.

Each instructor must inform his or her students, by the end of the second week of each course, concerning the following:

- (a) the basis for determining the final grade in the course;
- (b) the approximate dates for tests, essays, etc.

Alterations in the announced procedure may be made by the instructor with the consent of the majority of the registered class.

A student who misses an examination or wishes to receive consideration on account of a serious illness, a bereavement, or other grave reason prior to or during the examination period should communicate with the Head of the Department concerned as soon as possible, and must submit supporting documents (e.g., a medical certificate) before or during the examination period but no later than one week after the scheduled examination. In such cases, the Dean of Graduate Studies and Research, on recommendation of the Department and the Academic Standing Committee, may grant aegrotat standing in the subject or subjects concerned on the



basis of the term mark, or approve an Incomplete grade or a supplemental examination.

Graduate appeals must be made in writing to the Dean of Graduate Studies and Research, in accordance with the Graduate Appeals Policy as stated in Senate Bylaw 51.B. Appeals must be received no later than one month after the grade or decision has been released.

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#### 1.4.5 GRADUATION

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In order to allow the necessary time for the printing of the diploma and the Convocation program, the candidate's completed work must be approved by the Faculty of Graduate Studies and Research and the thesis or dissertation, if one is presented, must be received by the Graduate Office for transmission to the Leddy Library at least two weeks before Convocation.

Students wishing to graduate must be registered in the term preceding the proper deadline for Spring or Fall Convocation in order to be permitted to graduate.

Registration in any program does not constitute an application for a degree or diploma. An official application to graduate must be completed and filed in the Registrar's Office by the specified date prior to the Convocation at which the applicant expects to graduate.

## 1.5 THE DEGREE OF DOCTOR OF PHILOSOPHY

For levels of study, see 1.3.3.

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#### 1.5.1 ADMISSION REQUIREMENTS

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Graduates of the University of Windsor or of other recognized colleges or universities may apply for admission. In general, admission to graduate study is granted only to those students who have good academic records and who are adequately prepared to undertake graduate work in their field of specialization. In particular, an applicant for admission to a graduate pro-

gram leading to the degree of Doctor of Philosophy must have either a Master's degree or an honours Bachelor's degree, or the equivalent; his or her academic standing should be unquestionably superior.

Possession of the minimum requirements does not ensure acceptance.

Applications will be received from students in their final undergraduate year, but acceptance will be conditional until a satisfactorily completed undergraduate record is submitted.

*Candidacy:* Admission to graduate study does not imply admission to candidacy for a degree. Admission to candidacy for the degree of Doctor of Philosophy is granted by the Dean of Graduate Studies and Research, upon recommendation of the Department concerned, when a student has satisfied the requirements for candidacy of the Faculty of Graduate Studies and Research and of the Department, as these may be specified in departmental listings in the calendar. Admission to candidacy is normally to be regarded as recognition that a student has given adequate evidence of superior capability and achievement in graduate study. A student may not be admitted to candidacy for the degree of Doctor of Philosophy before passing a comprehensive examination in the field of specialization.

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#### 1.5.2 PROGRAM REQUIREMENTS

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*Residence:* Residence requirements are intended to provide for each student an adequate contact with the University, with the faculty in the field of specialization, and with the library, laboratories, and other facilities for graduate study and research. Every student in a program leading to the degree of Doctor of Philosophy must be registered in a full-time program of study for a minimum of three calendar years, normally in succession. Credit for one of these years may be given for the time spent in proceeding to a Master's degree in this University.

Credit for one of the three years of residence, but not more than one year, may be given for work done at another institution. In no case shall the student spend fewer than two of the



three required years of residence in full-time attendance at this University.

A full-time residence year indicates that a student is in full-time work under the direction of the Department at the University of Windsor. Persons who teach more than three hours a week or who demonstrate in laboratories to such an extent that the total time spent in preparation, demonstration and working exceeds ten hours a week cannot qualify for residence credit. Candidates working part-time outside the University must also stay under the ten-hour limit if residence credit is desired.

*Time Limit:* A student admitted to a Ph.D. program requiring full-time attendance for three years must complete all requirements for the Ph.D. within seven consecutive years.

A student admitted with one year's advanced standing (e.g., holders of Master's degrees) must complete all requirements within six consecutive years.

If an extension of the time limit becomes necessary, the student should address a petition to the Dean of Graduate Studies and Research giving reasons for the request and plans for the completion of the work. A student who exceeds the time limit may be required to take additional qualifying examinations or additional course work, or both.

*Language Requirements:* Some programs require reading knowledge of a language or languages other than English. Consult the departmental listings for specific language requirements.

*Course of Study:* Course requirements are specified in the departmental listings. Planning and direction of the student's course of study are the responsibility of the Head of the Department or a designated departmental advisor. A specific program of study should be worked out at the time of the student's first registration, in consultation with the Head of the Department or an advisor.

Since in several departments only a few courses listed will be offered each year, students are advised to inquire from the Department Head or academic advisor as to which courses will be offered in any given year.

Training in methodology may be required, at the discretion of the Department. It is expected that students working toward the degree of Doctor of Philosophy will maintain a superior average in all course work. Normally, graduate credit will be given only for A or B standing in a course. Concerning credit for C grades, see 1.4.3.

After consultation between student and professor and authorization by the latter's Department Head, a graduate course may be recorded INC (Incomplete) when:

- 1) The student has completed the class work but is unable to take the end of course examination because of illness or other acceptable reason or
- 2)
  - (a) the student is unable to complete the work for the course because of illness or other acceptable reason, and
  - (b) the student has done satisfactory work in the course, and
  - (c) in the opinion of the professor, the student can complete the normally required work of the course without repeating the course in class.

The granting of an Incomplete grade must follow discussion between the student and the course instructor concerning the nature of the work to be completed and the time period for completion. Courses recorded as Incomplete must be completed and a grade reported within twelve months of the original due date unless an earlier deadline has been established. If such courses are not completed within twelve months, they will remain designated as Incomplete on the student's transcript. Normally, a student may carry only one Incomplete grade at a time. Graduate students carrying more than one Incomplete grade at the end of a term will have their progress reviewed by their Department, and a recommendation will be forwarded in each case to the Faculty of Graduate Studies and Research.

Incomplete grades are not granted for dissertations (see 1.4.3).



*Committees:* Research undertaken as part of a doctoral program is normally directed and supervised by a doctoral committee. The Head of the Department will appoint the doctoral committee, which must be approved by the Executive Committee of the Faculty Council of Graduate Studies and Research.

Within one month after registration each student will be assigned a committee consisting of at least a research advisor and two other faculty members in the Department. Additional members may be added with the approval of the Department Head and the Executive Committee of the Faculty of Graduate Studies and Research. This committee will, from time to time, review the student's progress.

For the defense of the dissertation (final oral examination), the committee will be supplemented by one professor from another Department and an external examiner who, as an expert in the field in which the candidate's research is carried out, will appraise the dissertation and ordinarily will also be present at the final oral examination.

The doctoral committee is also charged with conduct of the final examination of the doctoral candidate (see below).

The external examiner will be selected by the doctoral committee, subject to the approval of the Department Head and the Dean of Graduate Studies and Research. The external examiner must not be involved in the preparation of the dissertation before it is submitted to him or her for final evaluation.

If the research involves human ethics, animal care, or biohazards, the supervisor of the dissertation is responsible for obtaining prior approval from the respective committees governing the above topics. (Consult the Office of Research Services.)

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### 1.5.3. THE DISSERTATION

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A dissertation embodying the results of an original investigation in the field of specialization is required of all candidates for the degree of Doctor of Philosophy. Before beginning the dissertation, the candidate should submit a prospectus, outlining the

problem proposed. Copies of this prospectus should be filed with the doctoral committee not later than four weeks after the student is admitted to candidacy. At the same time, the candidate will be required to validate a document supplied by the Department, a Copyright License, authorizing the University to make a single copy of the prospective dissertation, or substantial parts of it, at any given time at the request of a library user at this University or a library user at another university for actual cost of reproduction only. The regulations of individual departments or faculties should be consulted for details of their dissertation procedures.

The general format is prescribed in the Format for Dissertations/Theses/Major Papers, obtainable in the Graduate Office. Within the dissertation, the student should use forms approved for scholarly publication in the field of specialization and approved by the Department. Final checking of the general format of the dissertation is the responsibility of the Graduate Office, but the student should consult the doctoral committee for instructions as to the internal form of the dissertation.

Five copies of the completed dissertation must be submitted to the Department at least three weeks before the oral presentation of the dissertation. The oral presentation must be completed at least three weeks prior to the Convocation for which the candidate has applied to receive the degree. A public notice of defense must be posted in advance of the oral presentation. Copies of the corrected dissertation must be deposited with the Academic Assistant in the Graduate Office for transmission to the Leddy Library at least two weeks prior to Convocation.

The candidate must also submit at this time six copies of an abstract of no more than 350 words and five copies of a *vita*, which will be bound with the dissertation. The additional copy of the abstract is for publication in *Dissertation Abstracts International*. The title page of the dissertation, or a separate page immediately following the title page, must bear the Universal Copyright Convention symbol ©, plus the full name of the author and the year the doctoral degree was granted. Arrangements for binding the dissertation and



payment of fees connected with binding and microfilming should be made with the Academic Assistant in the Graduate Office. At such time as the Department gives approval, the Graduate Office will transmit the original copy of the dissertation to the National Library, accompanied by Form NL-0091, supplied by the Graduate Office and validated by the candidate, which authorizes the National Library to produce single microfilm copies for a nominal sum to cover costs, in response to a written request from an individual, a research institute, or a library.

If approved, the dissertation becomes the property of the University. Two copies, the original (after return from the National Library) and one other, will be filed in the Leddy Library, and the third copy in the Department.

After the granting of the degree, and at such time as the Department gives approval, the University will have the dissertation microfilmed. One microfilm copy will be deposited in the Leddy Library and will be available for interlibrary loan. The availability of the dissertation in film form will be announced by the published abstract sent to various libraries.

#### **Dissertation Requirements Synopsis:**

- 1) Dissertation format must be as prescribed by Format for Dissertations/Theses/Major Papers.
- 2) Five copies of Dissertation must be submitted to Department at least three weeks before oral presentation prior to Convocation at which candidate has applied to receive degree.
- 3) Six copies of Abstract (no more than 350 words) are to be filed, one to be bound with each copy of Dissertation. The extra copy of Abstract is for *Dissertation Abstracts International*. In addition, five copies of *vita* are required.
- 4) Following successful defense, the candidate will deposit three copies of Dissertation, Abstract, and *vita* in the Graduate Office for binding and distribution (two for the Leddy Library, one for the Department).
- 5) The candidate will validate Form NL-0091, supplied by the Graduate Office, authorizing the National Library to produce single microfiche copies. The title page of Disserta-

tion, or separate page following, must bear the Universal Copyright Convention symbol ©, plus full name of author and year doctoral degree was granted.

- 6) Fees for above are to be paid at time of deposit of Dissertation in the Graduate Office.

*Examinations:* In addition to the usual examinations on course work, there are three types of special examinations which may be required (see departmental regulations) in the program leading to the degree of Doctor of Philosophy:

- 1) *Qualifying Examinations:* A qualifying examination is one in which the student is asked to demonstrate a reasonable mastery of the fundamentals in the major subject; it is designed to test the student's preparation for advanced graduate work. If such an examination is required, it must be administered and passed within one year after a student enters a graduate program.
- 2) *Comprehensive Examinations:* The comprehensive examination is one in which the student is asked to demonstrate a reasonable mastery of the field of specialization; it is designed to test the student's command of knowledge and ability to integrate that knowledge, after completion of all or most of the graduate course work. Normally, this examination is completed at the end of the second year of graduate study and is a prerequisite to admission to candidacy.
- 3) *Final Examinations:* Traditionally, the final examination of a doctoral candidate is an oral defense of the dissertation. A Department may, however, permit as a substitute for this oral examination the delivery of a public lecture by the candidate for members of the Faculty and graduate students, on the subject of the research. In any case, the passing of this examination is taken to require a sufficient degree of attainment that grading is not necessary. Candidates who are found to lack a suitably high level of achievement may be required to repeat this examination. External examiners shall be invited to this examination, whatever form it may take.



## 1.6 THE MASTER'S DEGREE

For levels of study, see 1.3.3.

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### 1.6.1 ADMISSION REQUIREMENTS

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Graduates of the University of Windsor or of other recognized colleges or universities may be admitted to programs leading to the Master's degree. A student with an honours Bachelor's or its equivalent, with at least B standing in the final year and in the major subject, may be admitted to a one-year Master's program (II Master's Candidate). A student with a general Bachelor's degree, with at least B standing in the final year and in the major subject, may be admitted to a two-year Master's program (I Master's Qualifying followed by II Master's Candidate). A student holding an honours degree in another discipline may also be admitted to a two-year Master's program (II Master's Candidate) provided he or she has sufficient related credits.

Applicants are urged to apply as early as possible to enable the graduate committee to evaluate qualifications and work out a program.

Possession of the minimum requirements does not ensure acceptance.

*Candidacy:* A student in a one- or two-year II Master's Candidate program is also a candidate for the Master's degree. Students in the two-year I Master's Qualifying followed by II Master's Candidate program are not admitted to candidacy until they have satisfactorily completed the I Master's Qualifying program. A positive recommendation from a Department is required for a student to proceed to the II Master's Candidate program.

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### 1.6.2 PROGRAM REQUIREMENTS

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*Residence:* Residence requirements are intended to provide for each student an adequate contact with the University, with the faculty in the field of specialization, and with the library, laboratories, and other facilities for

graduate study and research. It is expected, therefore, that every student in a program leading to the Master's degree will undertake a full program of study for a minimum of one calendar year or its equivalent. Application and interpretation of the residence requirement is the responsibility of the Dean of Graduate Studies and Research. If a student does not expect to fulfill the residence requirement in the normal way, reasons for departing from the norm should be submitted in writing to the Dean and approval secured for the plan before beginning the graduate program. See also the section on "Duration of Study" below.

This requirement is not intended to apply to students admitted to graduate programs on a part-time basis.

*Duration of Study:* The normal minimum duration of study for the Master's degree is one calendar year beyond the honours Bachelor's degree, or its equivalent. Credit for graduate study previously undertaken may be given, but the duration of study at this University may not be reduced beyond the minimum of one year.

*Time Limit:* Work on a Master's degree must be completed within three consecutive calendar years after the student's first registration, except for certain Master's programs available on a part-time basis. In these latter programs, the time limit will depend on the nature of the program, but will not generally exceed five consecutive years. Please consult individual departmental regulations for information concerning the time limit of programs given on a part-time basis.

If a student seeks an extension of these time limits, a petition should be addressed to the Dean of Graduate Studies and Research, giving reasons for the request and plans for the completion of the work. A student who exceeds the time limit may be required to take additional qualifying examinations or additional course work or both.

*Language Requirements:* Some programs require reading knowledge of a language or languages other than English. Consult the departmental listings for specific language requirements.



*Course of Study:* Course requirements are specified in the departmental listings. Planning and direction of the student's course of study are the responsibility of the Head of the Department or a designated departmental advisor. A specific program of study should be worked out at the time of the student's first registration, in consultation with the Head of the Department or an advisor. Students are directed to obtain the approval of the Head or designated advisor for changes in the program of study.

Training in methodology may be required at the discretion of the Department. Students working toward the Master's degree must maintain at least a B average in all course work. A candidate for the Master's degree who does not obtain graduate credit in any course may repeat the course once only, and not more than one course may be repeated. Normally, graduate credit will be given only for A or B standing in a course. Concerning credit for C grades, see 1.4.3. Letter grades will be assigned for theses and major papers.

After consultation between student and professor and authorization by the latter's Department Head, a graduate course may be recorded as INC (Incomplete) when:

- 1) the student has completed the class work but is unable to take the end of course examination because of illness or other acceptable reason or
- 2)
  - (a) the student is unable to complete the work for the course because of illness or other acceptable reason, and
  - (b) the student has done satisfactory work in the course, and
  - (c) in the opinion of the professor, the student can complete the normally required work in the course without repeating the course in class.

The granting of an Incomplete grade must follow discussion between the student and the course instructor concerning the nature of the work to be completed and the time period for completion. Courses recorded as Incomplete must be completed and a grade reported

within twelve months of the original due date, unless an earlier deadline has been established. If such courses are not completed within twelve months, they will remain designated as Incomplete on the student's transcript. Normally, a student may carry only one Incomplete grade at a time. Graduate students carrying more than one Incomplete grade at the end of a term will have their progress reviewed by their Department, and a recommendation will be forwarded in each case to the Faculty of Graduate Studies and Research.

Incomplete grades are not granted for theses or major papers (see 1.4.3).

*Committees:* Research undertaken as part of a Master's program is normally directed and supervised by a Master's committee. The Head of the Department will appoint the chairperson of this committee not later than one month after registration in the student's final Candidate year, and the remaining members of the committee some time before the end of the first term of study. The committee is subject to approval by the Executive Committee of the Faculty Council of Graduate Studies and Research. The Master's Committee will include as a minimum the chief advisor as chairperson, and two other University of Windsor faculty members, one of whom shall belong to a Department other than the one in which the student is obtaining the degree. Additional members may be added with the approval of the Department Head and the Executive Committee of the Faculty of Graduate Studies and Research. The member(s) from outside the Department need not participate in the direction of research but shall contribute a judgement on its completion.

The Master's committee is also charged with conduct of the final examination of the Master's candidate (see below).

If the research involves human ethics, animal care, or biohazards, the supervisor of the thesis is responsible for obtaining prior approval from the respective committees governing the above topics. (Consult the Office of Research Services.)



### 1.6.3 THESIS OR MAJOR PAPER

A thesis incorporating the results of an investigation in the field of the major subject may be required of candidates for the Master's degree.

Candidates for some Master's programs may choose, instead of the course of study including a thesis, a program requiring additional course work and/or the submission of a major paper on which there will be a final evaluation. The regulations of individual departments or faculties should be consulted for details of their thesis or major paper requirements. Letter grades will be assigned for theses and major papers.

With the exception of the general format prescribed in the style manual cited below, regulations concerning full library binding, copyright application, and microfilming by the National Library, do not apply for the candidate who has elected the major paper program. One copy of the major paper may be required for library deposit by the Department, School or non-departmentalized Faculty. Major papers are available to library users for examination in the Reserve Reading Room of the Leddy Library.

Although in some cases it may be acceptable for more than one candidate to make use of a common set of data or research findings, each candidate is responsible for a single-authored thesis/major paper.

Not later than one month after registration in the student's final year, the candidate will be required to validate a document supplied by the Department, a Copyright License, authorizing the University to make a single copy of the prospective thesis, or substantial parts of it, at any given time at the request of a library user at this University or a library user at another university for actual cost of reproduction only.

The general format is prescribed in the Format for Dissertations/Theses/Major Papers obtainable in the Graduate Office. Within the thesis, the student should use forms approved for scholarly publication in the field of specialization and approved by the Department. Final checking of the general format of the thesis is the responsibility of the Graduate

Office, but the student should consult the Master's committee for instructions as to the internal form of the thesis.

Three copies of the completed thesis (four for M.Sc. candidates) must be submitted to the Department at least three weeks before the oral presentation of the thesis. The oral presentation must be completed at least three weeks prior to the Convocation at which the candidate expects to receive the degree. A public notice of defense must be posted in advance of the oral presentation. Copies of the corrected thesis must be deposited in the Graduate Office for transmission to the Leddy Library at least two weeks prior to Convocation. The candidate must also submit at this time three (or four) copies of an abstract of no more than 300 words and three (or four) copies of a *vita*, which will be bound with the thesis. The title page of the thesis, or a separate page immediately following the title page, must bear the Universal Copyright Convention symbol ©, plus the full name of the author and the year the Master's degree was granted. Arrangements for binding the thesis and payment of fees connected with binding and microfilming should be made with the Academic Assistant in the Graduate Office. At such time as the Department gives approval, the Graduate Office will transmit the original copy of the thesis to the National Library, accompanied by Form NL-0091, supplied by the Graduate Office and validated by the candidate, which authorizes the National Library to produce single microfilm copies for a nominal sum to cover costs, in response to a written request from an individual, a research institute, or a library.

If approved, the thesis becomes the property of the University. Two copies, the original (after return from the National Library) and one other, will be filed in the Leddy Library, and one copy (or two copies) in the Department.

#### Thesis/Major Paper Requirements Synopsis

- 1) Thesis format must be as prescribed by Format for Dissertations/Theses/Major Papers.
- 2) Three copies of Thesis for Master's degree (four for M.Sc. degree) must be submitted to



Department at least three weeks before oral presentation prior to Convocation at which candidate has applied to receive degree.

3) Three or four copies of Abstract (no more than 300 words) and of *vita* are to be filed, one to be bound with each copy of Thesis.

4) Following successful defense, the candidate will deposit all copies of Thesis, Abstract, and *vita* in the Graduate Office for binding and distribution (two for the Leddy Library, and one or two for the Department).

5) The candidate will validate Form NL-0091, supplied by the Graduate Office, authorizing the National Library to produce single microfiche copies. The title page of Thesis, or a separate page following, must bear the Universal Copyright Convention symbol ©, plus full name of author and year Master's degree was granted.

6) Copyright application and microproduction by the National Library do not apply for the major paper program. Only one copy is required for library deposit, the type of binding to be specified by the Department. Major papers are available to library users for examination in the Reserve Reading Room of the Leddy Library.

7) Fees for the above are to be paid at the time of deposit of Thesis or major paper in the Graduate Office.

*Examinations:* In addition to the usual examinations on course work, there are three types of special examinations in the program leading to the Master's degree:

1) *Qualifying Examinations:* A qualifying examination is one in which the student is asked to demonstrate a reasonable mastery of the fundamentals in the major subject; it is designed to test the student's preparation for advanced graduate work. If such an examination is required, it must be administered and passed before the student registers for the final year of Master's work.

2) *Comprehensive Examinations:* The comprehensive examination is one in which the student is asked to demonstrate a reasonable mastery of the field of specialization; it is designed to test the student's command of knowledge and ability to integrate that

knowledge, after completion of all or most of the graduate course work. Normally, this examination is written at the end of the student's final year of study for the Master's degree.

3) *Final Examinations:* Traditionally, the final examination of a candidate for a Master's degree is an oral defense of the thesis or major paper. A Department may, however, permit as a substitute for this oral examination an open seminar to be conducted by the candidate for graduate students and faculty in the Department on the subject of the research.

## 1.7 Research Institutes

### 1.7.1 THE GREAT LAKES INSTITUTE

The Great Lakes Institute of the University of Windsor is the only university-based agency in Canada devoted to Great Lakes studies. Its primary purpose is to solve environmental problems in the Lakes' ecosystem and to increase public awareness of environmental issues in the Great Lakes Basin.

The Great Lakes Institute provides opportunities for graduate study and participation in an interdisciplinary research program. Students enroll in the Faculty of Graduate Studies and Research, as degree candidates in the appropriate departments, and carry out their research in the Institute in close collaboration with its research staff with expertise in the following fields:

*Biology:* phytoplankton and zooplankton ecology, algal physiology, ecology of aquatic bacteria, biotoxicity studies;

*Chemistry:* atmospheric sources and sinks of atmospheric gases, concentrations of organic pollutants;

*Civil Engineering:* disposal of municipal and industrial waste waters, experimental and theoretical studies of hydraulic structures, river ice mechanics;

*Environmental Engineering:* studies of pollutant emission rates, modelling of long and short range transport of atmospheric gases;

*Geography:* water balance studies, beach erosion and shoreline management, lake ice, precipitation chemistry;



*Geology:* subsurface waste disposal, groundwater studies, heavy metal analysis;

*Social Sciences and Law:* public finance and development economics, macroeconomic modelling, environmental policies and administration, planning and management of public recreational sites, environmental law.

**Institute Staff**

- M. E. Sanderson, Ph.D. (Michigan)  
(Founding Director)
- C. J. Ball, Associate Professor of Education
- J. K. Bewtra, Ph.D. (Iowa), Professor of  
Civil Engineering
- N. Billington, Postdoctoral Fellow,  
Department of Biological Sciences
- D. A. Cotter, Ph.D. (Wisconsin), Professor  
of Biological Sciences
- W. J. I. Crawford, Ed. D. (Wayne State),  
Associate Professor of Education
- K. V. Fung, Ph.D. (U.C.L.A.), Professor of  
Mathematics and Statistics
- J. E. Gannon, Limnologist, International  
Joint Commission
- S. Graham, Associate Professor of Civil  
Engineering, University of Detroit
- G. D. Haffner, Ph.D. (London), Associate  
Professor of Biological Sciences  
(Associate Director)
- J. H. Hartig, Environmental Scientist,  
International Joint Commission
- T. M. Heidke, Associate Professor of Civil  
Engineering, Wayne State University
- M. Holder-Franklin, Ph.D. (McGill), Adjunct  
Associate Professor of Biological  
Sciences
- F. C. Innes, Ph.D. (McGill), Professor of  
Geography
- P. LaValle, Ph.D. (State U. of Iowa),  
Associate Professor of Geography
- J. Leach, Ph.D. (Aberdeen), Research  
Scientist, Ontario Ministry of Natural  
Resources
- J. G. W. Manzig, Lic.Jur, Dr.iur. (Cologne),  
Professor of Law
- J. A. McCorquodale, Ph.D. (Windsor),  
Professor of Civil Engineering (Interim  
Director)
- J. D. McKenney, Ph.D. (Ottawa), Associate  
Professor of Chemistry and Biochemistry

- R. Mendels, Ph.D. (Wisconsin), Associate  
Professor of Economics
- S. Nepszy, Fisheries Biologist, Ontario  
Ministry of Natural Resources
- T. Price, Ph.D. (Queens's), Associate  
Professor of Political Science
- K. G. Pryke, Ph.D. (Duke), Professor of  
History
- F. Simpson, Dr. Nat. Sc. (Jagiellonian U.,  
Krakow), Professor of Geology
- M. G. Sklash, Ph.D. (Waterloo), Associate  
Professor of Geology
- P. Sonnenfeld, Dr. Rer. Nat. (Charles U.,  
Prague), Professor of Geology
- D. G. Wallen, Ph.D. (Simon Fraser),  
Associate Professor of Biological  
Sciences
- A. E. P. Watson, Ph.D. (Bristol),  
Scientist-Research Manager,  
International Joint Commission
- I. M. Weis, Ph.D. (Iowa), Assistant  
Professor of Biological Sciences

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**1.7.2 FLUID DYNAMICS RESEARCH  
INSTITUTE**

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The Fluid Dynamics Research Institute was founded with the object of fostering inter-departmental and inter-faculty research and postgraduate teaching related to the dynamics of fluids in the most general sense of the term. The founding members are drawn from six different departments with expertise in the fields listed below. Graduate students affiliated with Institute members in their research will complete the degree programs through these departments.

*Civil and Environmental Engineering:* hydraulics, water resources; rheology and flow of polymers;

*Computer Science:* computational fluid dynamics;

*Electrical Engineering:* electro- and magneto-hydrodynamics;

*Mechanical Engineering:* fluid control, aerodynamics, and turbulent flow;

*Mathematics and Statistics:* computational fluid dynamics, magneto-hydrodynamics, mechanics of suspensions.



## Institute Staff

- R. M. Barron, Ph.D. (Carleton), Professor of Mathematics & Statistics (Director)
- G. W. Rankin, Ph.D. (Windsor), Associate Professor of Mechanical Engineering
- O. P. Chandna, Ph.D. (Windsor), Professor of Mathematics & Statistics
- K. L. Duggal, Ph.D. (Windsor), Professor of Mathematics & Statistics
- E. N. Glass, Ph.D. (Syracuse), Professor of Physics
- P. N. Kaloni, Ph.D. (Indian Inst. of Tech.), Professor of Mathematics & Statistics
- J. A. McCorquodale, Ph.D. (Windsor), Professor of Civil Engineering
- T. W. McDonald, Ph.D. (Purdue), Professor of Mechanical Engineering
- A. C. Smith, Ph.D. (Dublin), Professor of Mathematics & Statistics
- K. Sridhar, Ph.D. (Toronto), Professor of Mechanical Engineering
- H. Towes, Ph.D. (Windsor), Assistant Professor of Computer Science
- A. Watson, Dr. Rer. Nat. (Kassel, W. Germany), Professor of Electrical Engineering
- N. G. Zamani, Ph.D. (Brown), Professor of Mathematics & Statistics

## 2 BIOLOGICAL SCIENCES

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### 2.1.1 OFFICERS OF INSTRUCTION

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#### Professor Emeritus

Benedict, Winfred; C.D., M.Phil. (Leeds), B.A. (Windsor), B.S.A., Ph.D. (Toronto), F.L.S.—1957.

#### Professors

Doyle, Robert; B.A., M.A. (Western Ontario), M.S. (Michigan State), Ph.D. (Wayne State), R.M. (C.C.M.)—1948.

Petras, Michael; B.Sc. (Assumption), M.Sc. (Notre Dame), Ph.D. (Michigan)—1956. (Head of the Department).

Pillay, Dathathry T. N.; B.Sc. Ag. (Osmania), M.S., Ph.D. (Cornell)—1963. (Dean, Faculty of Science).

Habowsky, Joseph E. J.; Diplom-Landwirt (Munich), M.S.A., Ph.D. (Toronto)—1964.

Sabina, Leslie; A.B. (Cornell), M.S., Ph.D. (Nebraska), R.M. (C.C.M.)(A.A.M.)—1965.

Warner, Alden; B.A. (Maine), M.A., Ph.D. (Southern Illinois)—1965.

Thomas, Donovan D.; B.S. (Natal), M.S., Ph.D. (Florida)—1968.

Fackrell, Hugh B.; B.Sc., M.Sc. (Western Ontario), Ph.D. (Manitoba)—1974.

Cotter, David; B.S. (Penn State), M.S., Ph.D. (Wisconsin)—1975. Franklin, Mervyn; B.Sc. (Reading, England), Ph.D. (McGill)—1978.

#### Associate Professors

M'Closkey, Robert T.; B.A. (U.C.L.A.), M.A. (California State), Ph.D. (U. of California)—1970.

Wallen, Donald G.; B.Sc., B. Ed. (Dalhousie), M.Sc., Ph.D. (Simon Fraser)—1970.

Taylor, Paul; B.Sc. (George Williams, Chicago), Ph.D. (Toledo)—1975.

Dufresne, Michael J. P.; B.Sc. (York), Ph.D. (Alberta)—1976.

Weis, Ivan Michael; B.Sc. (Syracuse), M.Sc., Ph.D. (Iowa)—1976.



Haffner, Gordon Douglas; B.Sc. (Queen's) Ph.D. (London)—1986. (Associate Director, Great Lakes Institute).

Lovett Doust, Jonathan N.; B.Sc. (Queen's), Ph.D. (Wales)—1988.

#### Assistant Professors

Ciborowski, Jan J. H.; B.Sc., M.Sc.(Toronto), Ph.D. (Alberta)—1984.

Crease, Theresa J.; B.Sc., M.Sc. (Windsor), Ph.D. (Washington)—1989.

Zielinski, Barbara; B.Sc., M.Sc. (Waterloo), Ph.D. (Manitoba)—1989.

#### Assistant Professor—Great Lakes Institute Appointment

Weider, Lawrence J.; B.S. (St. Bonaventure), Ph.D. (Illinois)—1988.

#### Adjunct Professor

Perrin, Eugene V.D.; A.B. (Wayne State), M.D. (Michigan)—1988.

#### Adjunct Associate Professors

Holder-Franklin, Maxine A.; B.Sc., M.Sc. (Dalhousie), Ph.D. (McGill)—1978.

Tu, Jui-Chang; B.Sc., M.Sc. (National Taiwan U.), Ph.D. (Washington State)—1982.

Corkum, Lynda D.; B.A., M.A. (Drake), Ph.D. (Toronto)—1987.

Weaver, Susan E.; B.A. (Boston), Ph.D. (Western Ontario)—1987.

Lovett Doust, Lesley; B.Sc. (Edinburgh), Ph.D. (Wales)—1988.

## 2.2 Programs of Study

### 2.2.1 THE DOCTOR OF PHILOSOPHY DEGREE

In addition to the general requirements outlined in 1.5, the following requirements must be met by all students proceeding to the Ph.D. degree.

#### Admission Requirements

Applicants with an honours degree in Biology or related field and who have been judged to be outstanding students may be admitted directly into the Ph.D. program. Applicants

holding an M.Sc. degree or equivalent from the University of Windsor or from another recognized university or college may be admitted to the Ph.D. program with advanced standing in course work as described below.

#### Program Requirements

*Course Work:* Students proceeding toward the Ph.D. degree will follow one of the programs given below:

1) Students proceeding directly to the Ph.D. from an Honours B.Sc. degree will be expected to:

- (a) comply with the general regulations outlined in 1.5;
- (b) present a seminar in Biology 55-600 each year of full-time registration;
- (c) attend and participate in a Selected Readings course in each year of full-time registration;
- (d) successfully complete a minimum of six additional graduate courses, two of which may be in a cognate area. Mathematics 65-453 (Statistics for Life Sciences) may be allowed as a cognate course;
- (e) complete a dissertation embodying the results of an original investigation;
- (f) defend the dissertation at a public lecture or seminar.

(2) Students entering into a Ph.D. program with an M.Sc. degree will be expected to:

- (a) comply with the general requirements outlined in 1.5;
- (b) present a seminar in Biology 55-600 each year of full-time registration;
- (c) attend and participate in a Selected Readings course in each year of full-time registration;
- (d) successfully complete a minimum of three additional graduate courses, one of which may be taken in a cognate area;
- (e) complete a dissertation embodying the results of an original investigation;
- (f) defend the dissertation at a public lecture or seminar.



**Grading:** A student must maintain at least B standing in each course in Biology and at least a B average in any non-Biology courses. Any student whose performance is deemed unsatisfactory in course work or research will be asked to withdraw.

**Doctoral Committee:** Within two weeks of the student's arrival on campus, the Department Head will, in consultation with the Dean of Graduate Studies and Research, assign a temporary advisor to assist the student in planning the program. Within nine months of the student's arrival on campus the doctoral committee will be formed except for the external examiner who is to be appointed during the student's final year of study/research. The full committee will consist of at least five members; one must be from outside the University, one from the University faculty but outside the Department, and three must be members of the Department of Biological Sciences. The research advisor will act as chairperson of this committee.

The doctoral committee must meet for the following:

- (a) to prepare and administer the qualifying examination within the first twelve to fifteen months of the student's registration in the program;
- (b) to discuss the student's course work within two months after the qualifying examination. (The extramural committee member need not participate.);
- (c) to review and approve the research proposal no less than six months before the comprehensive examination is written;
- (d) To set the comprehensive examinations which must be given at least six months before the student's final oral examination. (The extramural committee member need not participate.);
- (e) to discuss the student's research and dissertation at least two months before the anticipated time of the final oral examination;
- (f) the final oral examination.

**Dissertation:** At least six months prior to the comprehensive examination, a candidate must submit a Research Progress Report to the doctoral committee and at least two months before the anticipated date of the final oral examination the student must review the research and dissertation in a meeting with the committee.

A dissertation embodying the results of an original investigation in the student's major field is required of all candidates. The dissertation is expected to be of a quality suitable for publication in a refereed biological journal.

**Examinations:**

- (a) **Qualifying Examinations:** The student in the Ph.D. program will be required to write a qualifying examination before the end of the first year of registration in this program. The student must complete successfully the qualifying examination to continue in the doctoral program.
- (b) **Comprehensive Examinations:** A comprehensive examination also will be administered in both major and minor fields by the doctoral committee at least six months prior to the expected date of the final oral examination. This examination must be passed successfully before the student will be permitted to complete the dissertation.
- (c) Finally, the student will be requested to defend the dissertation orally at a public lecture or seminar (final oral examination).

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### 2.2.2 MASTER OF SCIENCE DEGREE

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#### Admission Requirements

- 1) Applicants with an honours degree in Biology or a related field may be admitted into a one-year (minimum duration) Master's program.
- 2) Applicants with a general B.Sc. degree in Biology or a related field may be admitted to a two-year (minimum duration) Master's program.

#### Program Requirements

- 1) Students admitted to the one-year Master's program will be expected to:



- (a) comply with the general requirements outlined in 1.6.2;
- (b) present a seminar in Biology 55-600 each year of full-time registration;
- (c) attend and participate in a Selected Readings Course in each year of full-time registration;
- (d) successfully complete a minimum of two additional graduate courses, one of which may be in a cognate field;
- (e) complete an original research project and embody it in a thesis;
- (f) defend the thesis orally at a public lecture or seminar.

2) Students admitted to the two-year Master's program, besides meeting the minimum requirements of the one-year program, are expected in the first year of the two-year program to achieve a level of qualification equivalent to an honours degree through research and a minimum of four courses.

3) *Grading:* A student must maintain at least a B average in each Biology course and at least a B average in any non-Biology courses.

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### 2.3.1 COURSE DESCRIPTIONS

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All courses listed will not necessarily be offered each year.

#### 55-515. Genetic Engineering and Its Applications

An advanced lecture and laboratory course dealing with current aspects of molecular biology and biochemistry. Topics include the manipulation of genes using recombinant DNA technology, cloning vehicles including T1 plasmids, genomic libraries, sequencing specific gene fragments, R-DNA and T-DNA. (Prerequisite: consent of instructor). (2 lecture, 3 laboratory hours a week).

#### 55-516. Methods in Biology

A course designed to introduce the student to a variety of biochemical and biophysical techniques. This course is composed of seven topics: chromatography I, chromatography II, centrifugation, electrophoresis, radioisotope methods, spectroscopy and tissue culture. (Students are required to participate in a min-

imum of four of the above topics which should be chosen in consultation with their major advisor). (Prerequisite: consent of instructors). (2 lecture, 16 laboratory hours for selected experiments during the year, both semesters). (One semester course credit).

#### 55-517. Electron Microscopy

Mainly a laboratory course to learn and apply the methodology and analysis necessary to examine biological material. (Prerequisites: 55-228 and consent of instructor). (2 lecture, 4 laboratory hours a week, second semester). (Limited enrollment).

#### 55-520. Selected Readings in Molecular and Developmental Biology

Current journal articles of potential significance in Molecular/Developmental Biology and in the student's area of study will be chosen for oral presentation and discussion. This course is intended for graduate students in Biology only and is required during each year of full-time registration in both the M.Sc. and Ph.D. programs. (1 hour a week for two semesters). (Offered on a Pass/Non-Pass basis).

#### 55-528. Molecular Biology of Growth and Development I

An analysis at the molecular level of the growth and development of prokaryotes, lower eukaryotes, and their plasmids. (3 lecture hours a week).

#### 55-529. Molecular Biology of Growth and Development II

An analysis at the molecular level of the growth and development of plants and animals. (3 lecture hours a week).

#### 55-534. Plant Hormones

Nature, physiological effects and mechanism of action of plant hormones. (Prerequisite: consent of instructor). (3 lecture hours a week).

#### 55-540. Microbial Physiology

Cytochemistry, nutrition, metabolism and population kinetics of micro-organisms. (2 lecture, 4 laboratory hours a week).

#### 55-542. Virology and Cell Culture

An advanced course to acquaint students in cell culture methodology, evaluation of culture dynamics, virus production and purifica-



tion, and emphasis on the design and critical evaluation of antiviral compounds. (1 lecture, 6 laboratory hours a week).

#### **55-546. Immunochemistry**

Antigens; immunoglobulins; purification and characterization; mammalian cell membrane antigens; antibody interaction with soluble and cellular antigens; complement. (Prerequisite: 57-227; corequisite: Chemistry 59-360). (2 lecture, 3 laboratory hours a week).

#### **55-547. Advanced General Microbiology**

An exploration of the biological activities and interrelationships of micro-organisms in their natural environments with emphasis on procaryotes. (Prerequisite: consent of instructor). (2 lecture, 3 laboratory hours a week).

#### **55-552. Mammalian Genetics**

The genetic control of morphological and biochemical variants, quantitative traits and certain developmental phenomena in mammals. (Prerequisite: 55-229 and consent of instructor). (3 lecture hours a week).

#### **55-554. Tumor Biology**

This course deals with the cellular and molecular (including genetic and biochemical) basis of tumorigenesis in humans; topics include epidemiological and etiological studies of cancer as well as the biochemistry of treatment. (2 lecture, 1 tutorial seminar hour a week).

#### **55-555. Foreign Chemicals and Physiological Processes**

The principles of pharmacology/toxicology will be presented using selected drugs, industrial chemicals, and environmental contaminants as model compounds. The emphasis will be placed on absorption, distribution, mechanism of action, biotransformation, and excretion in mammalian systems. (Prerequisite: consent of instructor). (3 lecture hours a week).

#### **55-556. Endocrinology**

Hormonal integration and regulation in animals; mechanisms of hormone action at the molecular level; biosynthesis and metabolism of hormones; particular emphasis on human endocrinology. (Prerequisite: consent of instructor). (Same as 59-480). (3 lecture hours a week).

#### **55-560. Selected Readings in Environmental and Population Biology**

Current journal articles of potential significance in Environmental/Population Biology and in the student's area of study will be chosen for oral presentation and discussion. This course is intended for graduate students in Biology only and is required during each year of full-time registration in both the M.Sc. and Ph.D. program. (1 hour a week for two semesters). (Offered on a Pass/Non-Pass basis).

#### **55-570. Population Genetics**

The genetics of populations composed of diploid organisms. (Prerequisites: 55-341 and consent of instructor). (3 lecture hours a week).

#### **55-580. Stream Ecology**

The physical and biotic structure of running water systems including morphometry, energy processing, morphological/behavioural adaptations of organisms to life in running water, and interactions among biota at the microhabitat level. (2 lecture, 3 laboratory hours a week, 1 to 2 weekend field trips).

#### **55-581. Community Ecology**

Major topics include niche and diversity theory, trophic complexity and community stability, and assembly of guilds. (3 lecture/discussion hours a week).

#### **55-583. Advanced Topics in Biogeography**

Topics of current interest including species equilibrium, species turnover, colonization-extinction probabilities and combination rules. (3 lecture/discussion hours a week).

#### **55-588. Population Ecology**

Major topics will include demography, life history theory, and the theory of optimal resource use. (3 lecture/discussion hours a week).

#### **55-595. Evolutionary Ecology**

Major topics include the evolution of breeding systems, genetic variation in ecological parameters and the relationship between niche width and genetic variation. (Prerequisite: 55-341). (1 discussion, 3 lecture hours a week).



### 55-600. Graduate Seminar

Oral presentation or discussion of current problems in the Biological Sciences. (1 hour a week over two semesters; one semester course credit). This course will be required during each full year of registration in either the M.Sc. or Ph.D. program.

### 55-601. Special Topics in Biology I

### 55-602. Special Topics in Biology II

### 55-603. Special Topics in Biology III

### 55-604. Special Topics in Biology IV

### 55-797. Thesis Research

An original research project embodied into a concisely written thesis which conforms to the style and format of a recognized journal in the field of specialization. The student should register for this course during each semester (including summer) of residency at the University; however, this course may not be used for credit toward fulfilling the course requirements in the Master's program.

### 55-798. Dissertation Research

An original research investigation the results of which will be embodied in a concisely written dissertation conforming in style and format to a recognized journal in the field of specialization. The final paper should be of the highest quality possible and suitable for publication. The doctoral student should register for this course commencing the summer semester of the first year of residency and subsequently for each semester during which dissertation research will be carried out. In no case, however, may this course be used for credit toward fulfilling the course requirements in the Ph.D. program.

## 3 FACULTY OF BUSINESS ADMINISTRATION

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### 3.1.1 OFFICERS OF INSTRUCTION

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#### Professors

Zin, Michael; B. Comm. (Assumption), M.B.A. (Michigan), Ph.D. (Michigan State), F.C.G.A.—1956.

Brownlie, J. Maxwell; B.A. (Western Ontario), M.B.A. (Michigan)—1958.

Ragab, Megeed Ali; B. Comm. (Cairo), M.B.A. (Boston), Ph.D. (American U.)—1969.

Rosenbaum, Edward; B.A. (Wayne State), M.S., Ph.D. (Wisconsin), J.D. (Detroit College of Law), C.F.A.—1969.

Lam, Wai P.; B. Comm. (St. Mary's), M.B.A., Ph.D. (Michigan State), C.A.—1973.

Crocker, Olga Lillian; B.Ed., M.B.A. (Alberta), Ph.D. (U. of Washington, Seattle)—1976.

Andiappan, Palaniappan; B.A., M.A., M. Litt. (Madras), M.S. (Massachusetts), Ph.D. (Iowa)—1980.

Solomon, Norman A.; B.S. (Cornell), M.A., Ph.D. (Wisconsin)—1982. (Associate Dean).

West, Eric; B.Sc. (Royal Military College of Canada), M.Sc., Ph.D. (Iowa State University)—1983. (Dean of the Faculty).

Aneja, Yash Paul; M.S., B.S. (Indian Statistical Inst.), Ph.D. (Johns Hopkins)—1984.

Bart, John T.; B. Eng. (The Royal Military College of Canada), M.B.A., Ph.D. (Western Ontario)—1984.

#### Associate Professors

Haque, Mohd. Razaul; B.Sc., M.Sc. (Aligarh Muslim U.), M.Sc. (Southern Illinois), Ph.D. (Wayne State)—1967.

Johnston, D. Ross; B. Comm. (Alberta), M.B.A. (McMaster), F.C.A.—1968.

Musson, Harold Douglas; B. Comm. (Windsor), M.B.A. (Michigan State)—1968.

Neal, George H.; B.S., M.A. (Memphis State), D.B.A. (Michigan State)—1970.



### 3 FACULTY OF BUSINESS ADMINISTRATION

- Freeman, Jack L.; B.S. (Michigan State), M.B.A. (Wayne State), Ph.D. (Michigan State)—1972.
- Faria, Anthony John; B.S., M.B.A. (Wayne State), Ph.D. (Michigan State)—1975.
- Henrie, Edward E.; B.A. (Trinity), M.B.A. (Oregon)—1975.
- Dickinson, John R.; B.S.B.A., M.B.A., D.B.A. (Indiana)—1980.
- Cattaneo, R. Julian; Licenciado (Buenos Aires), Ph.D. (Michigan)—1980.
- Shastri, T.; B. Comm. (Osmania), LL.B (Bombay), Dip. Mgmt. (McGill), M.B.A. (McMaster), C.A. (Quebec & Ontario), R.I.A.—1982.
- Thacker, James W.; B.A. (Winnipeg), M.A. (Wayne State), Ph.D. (Wayne State)—1982.
- Kantor, Jeffrey; B. Bus. Sc., B. Comm. (Hons.) (Capetown), C.P.A., C.A. (Ontario), Ph.D. (Bradford, England)—1983.
- Chandra, Ramesh; B.S. (Bihar Institute of Tech.), M.S. (Mississippi), M.S., Ph.D. (Union College)—1984.
- Estrin, Teviah L.; B. Comm. (British Columbia), M.S., Ph.D. (California)—1984.
- Templer, Andrew; B.A. (Hons.), M.A. (South Africa), M.Sc. (London), Ph.D. (Witwatersrand)—1984.
- Fields, Mitchell; B.A. (Maryland), M.A., Ph.D. (Wayne State)—1985.
- Forrest, Anne; B.Sc., M.I.R. (Toronto), Ph.D. (Warwick)—1985.
- Singh, Jang; B.A. (Toronto), M.A. (College of St. Thomas), M.A., Ph.D. (Toronto)—1986.
- Withane, Sirinimal; B.Sc. (Sri Jayawardenapura), M.Sc. (Moratuwa University), M.A. (Carleton), Ph.D. (Rockefeller College, SUNY)—1986.
- Uegama, Walter; B. Comm. (British Columbia), M.B.A. (University of California-Berkley), Ph.D. (Oregon)—1987. (Director of Continuing Education).
- Lui, Kui-On; Dip. (Madrid), M.S. (Illinois State), Ph.D. (Michigan), B. Comm., M.B.A. (Windsor)—1980.
- Gunay, Erdal; B.S. (Middle East Technical University), M.B.A., Ph.D. (Syracuse)—1984.
- Rieger, Fritz; B.S. (Manhattan), M.B.A. (Columbia), Ph.D. (McGill)—1984.
- Jacob, Satish; B. Eng. (Jabalpur), B. Comm., M.B.A. (Windsor)—1985.
- Punnett, Betty-Jane; B.A. (McGill), M.B.A. (Marist College), Ph.D. (New York University)—1985.
- van Kooten, Ignatius; Cand., Drs. (Tilburg), M.B.A., Ph.D. (York)—1985.
- Chaouch, A.; B.Sc. (Algiers), M.Sc. (Stanford), Ph.D. (Waterloo)—1986.
- Okechuku, Chike; B.A.Sc., M.A.Sc. (Toronto), M.B.A., Ph.D. (York)—1986.
- Prince, Michael; B.A.Sc., M.B.A. (Windsor), Ph.D. (Bradford)—1986.
- Wellington, William; B.Sc. (Western), M.B.A. (Windsor), A.B.D. (Michigan State)—1986.
- MacIntosh, John C. C.; B.Sc. Agric, Cert. in Acct. (Natal), M. Comm. (Capetown), D. Comm. (South Africa)—1987.
- Seck, Diery; Diplome d'Ecole Superieur de Commerce de Toulouse (DESCAF), M.Sc. (Sherbrooke), Ph.D. (Laval)—1987.
- Stassen, Marjorie; B.S., M.L.H.R. (Ohio State)—1989.
- Ursel, Nancy D.; B. Comm. (McGill), M.B.A. (Concordia)—1989.
- Benjamin, Harry E.; B.S. (Syracuse), M.S. (California), M.B.A. (Wyoming)—1989.

#### Lecturers

- Freeman, Claudia; B.A., B. Comm., M.B.A. (Windsor)—1989.
- Lan, George W. P.; B.S. (Beloit), M.A. (Smith), M.B.A. (Tulane)—1989.
- Roth, Sharon; B. Comm., M.Ed. (Windsor), C.A.—1989.

#### Assistant Professors

- Miller, Peter; B. Eng. (McGill), M.B.A. (Toronto)—1977.



## 3.2 Programs of Study

### 3.2.1 THE MASTER OF BUSINESS ADMINISTRATION DEGREE

The purpose of the Master of Business Administration program is to provide broad graduate study in the general field of business administration.

Graduate students have the opportunity of expanding their accounting, administrative, finance, marketing, and management science expertise. The program emphasizes knowledge that prepares students for careers in private industry and business, for the public service, and for doctoral studies.

#### Admission Requirements

1) Applicants who have secured satisfactory standing (at least a B average) in their undergraduate work may be admitted. Major consideration is given to the performance during the last two years of the undergraduate program. Possession of the minimum requirements for admission does not ensure acceptance.

Other factors such as graduate courses taken elsewhere, suitable business experience, and Graduate Management Admission Test (GMAT) scores are considered.

Students must write the GMAT before applying for admission to the Faculty. (Details of the Test may be obtained from The Educational Testing Service, Princeton, New Jersey, 08540.) The order form for the Bulletin of Information for the GMAT is available in the Office of Graduate Studies.

2) Graduates from a four-year Honours program in Commerce or Business Administration who, in the opinion of the Faculty of Business Administration, have covered an adequate program of studies, may be admitted to the candidate year of the program provided they have obtained satisfactory standing in their undergraduate degree.

3) Graduates from other four-year programs may be given advanced standing for courses taken within the degree program which are equivalent to 500-level courses.

4) Students will be admitted to the candidate year if they have maintained a B average or better in the first year of the program.

5) Students in the candidate year who maintain a B average or better will qualify for the M.B.A. degree.

#### Prerequisites:

- (a) at least two semesters of university-level Economics;
- (b) at least one semester of university-level Mathematics

Students lacking prerequisites may be admitted and permitted to complete the appropriate undergraduate courses in their first semester.

#### Part-time Students

Provision is made for students in full-time employment to spread the work for the degree over a number of years. Normally it is expected that the program will be completed within six calendar years from first registration at II Master's level.

#### Professional Accounting Designation

Students who are interested in pursuing both a professional accounting designation (i.e. C.A., C.M.A., or C.G.A.) and the M.B.A. are advised to complete their accounting course requirements while being registered in the Bachelor of Commerce for University Graduates program and then to apply for admission directly to the candidate year of the M.B.A. program.

#### Course Requirements and Term Planning

Each Qualifying Year course will be worth four credits; each Candidate Year course will be worth three credits.

No student may take more than six courses a semester while enrolled in the M.B.A. program, nor may a student be registered for the Major Paper (75-796) and take more than five courses.



**QUALIFYING YEAR**

**First Semester**

- 70-550.
- 71-540.
- 72-570.
- 73-500.
- 74-530.

**Second Semester**

Courses from at least 3 areas must be taken, including:

73-501.

and four 500-level courses to be selected from the following areas:

*Accounting*

- 70-551.
- 70-552.

*Administrative Studies*

- 71-541.
- 71-542.

*Finance*

- 72-571.
- 72-572.

*Management Science*

73-502.

*Marketing*

- 74-531.
- 74-532.

*Policy and Strategy*

75-590.

**CANDIDATE YEAR**

**First Semester**

four 600-level courses

**Second Semester**

75-698.

three 600-level courses, and  
75-796. Major Paper

**Courses Required of all Students**

75-698. Business Policy and Strategy  
(three credit hours)

*plus at least one of the following  
strategy/capstone courses (three credit  
hours):*

- 70-653. Contemporary Accounting Theory
- 70-658. Contemporary Thought in  
Management Accounting
- 72-673. Corporate Financial Strategy and  
Policy
- 73-602. Current Topics in Operations  
Management
- 74-639. Seminar in Marketing Strategy and  
Planning
- 75-685. Strategic Planning
- 75-686. Industry Analysis and Competitive  
Strategy

*and one of the following business research  
methodology courses (three credit  
hours):*

- 70-652. Research Methods in Accounting
- 71-649. Research Methods in  
Administrative Studies
- 74-632. Seminar in Marketing Research
- 75-691. Research Methodology for  
Managers

*and, depending upon the program option  
selected, additional courses as follow:*

Course Option: seven additional 600-level  
Business courses (twenty-one credit hours)

Major Paper Option: five additional 600-  
level Business courses (fifteen credit hours)

Thesis Option: three additional 600-level  
Business courses (nine credit hours)

Major Paper: (six credit hours)

Thesis: (twelve credit hours)

**SUMMARY**

Course Option: ten courses

Major Paper Option: eight courses plus the  
Major Paper



Thesis Option: six courses plus the Thesis  
Required Courses: nine hours under all options  
Total Hours Required: thirty under all options  
*THE MAJOR PAPER*

All students choosing this option must have a detailed major paper proposal approved by at least two faculty members in Business. These two faculty members will have primary responsibility for supervising the student's work. The approved proposal application form must be submitted to the Assistant to the Dean in order to register for the major paper (75-796). An oral defence will be required.

The major paper will be graded and will receive six credits.

*THE THESIS*

All students choosing this option must have a detailed thesis proposal approved by at least two faculty members in Business and by one faculty member external to the Business but from within the University. An oral defence will be required (see 1.6.2, *Committees*).

The thesis will be graded and will receive twelve credits.

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**3.2.2 COOPERATIVE (WORK-STUDY)  
M.B.A.**

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This program integrates the four study semesters required in the full-time non-Co-op M.B.A. program with three work semesters. All study semesters coincide with the University's regular Fall, Winter and Summer semesters. This program design allows students in the co-op option the same course selection as regular M.B.A. students. Students with a four-year honours degree in business administration or commerce are not eligible for the Co-op Program.

The first work semester placement begins immediately following the completion of the first ten 500-level courses. Students have the opportunity to experiment with various areas of interest in a generalist capacity, or to focus on a specific area of interest. Although the Faculty will make every effort to match students with suitable employment, students are not guaranteed positions, and the availability of

positions may vary with the state of the labour market.

Following the completion of each work semester, a work report is required. These reports focus on a problem or problems at work as analyzed by the student in a significant academic analysis. These reports serve to develop solid communication skills. The specific content and format of the reports are decided upon by the student's Faculty advisors and the Faculty Co-op coordinator, in consultation with the student. One report is required for each completed work semester for a total of three reports. The reports may be used as a substitute for the major paper requirement of the M.B.A. program upon the recommendation of the Graduate Program Committee.

In addition to the normal admission requirements, students seeking admission to the Co-op program will be required to have an interview with the representatives from the Faculty of Business Administration.

*WORK-STUDY PROGRAM SEQUENCE*

The scheduling of work terms will be subject to the availability of suitable employment placements.

**Year 1**

Fall Semester: Study  
Winter Semester: Study  
Summer Semester: Work

**Year 2**

Fall Semester: Work  
Winter Semester: Study  
Summer Semester: Work

**Year 3**

Fall Semester: Study

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**3.2.3 INTEGRATED M.B.A./LL.B.  
PROGRAM**

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This special program provides students interested in a career which combines legal and business management skills with an opportunity to complete both the M.B.A. and the LL.B. degrees in four years.



It is administered by a Committee of Directors composed of the Deans of the Faculties of Business Administration and Law, and three members of each Faculty.

### Admission Requirements

The admissions procedure for the integrated program consists of two stages. At the first stage, students applying to the program must meet the admission requirements of both faculties. Therefore separate applications must be submitted to the Faculty of Law and the Faculty of Graduate Studies and Research for admission to the regular degree programs in Law and Business Administration. To facilitate academic and career planning, it is strongly suggested that these applications be made simultaneously. Students who are accepted to both the M.B.A. and LL.B. programs, and have indicated a desire to follow the integrated program, will proceed to attend first year in either Faculty. Such students will be granted a deferred admission to the other Faculty in the program contingent upon acceptance to the integrated program after the first year of study.

While attending first year, the student must apply to the Committee of Directors for admission to the M.B.A./LL.B. program. The intensity of the program demands a committed and highly motivated student, and accordingly, certain minimum academic requirements have been established. Students applying to the program at this stage must achieve standing in the top one third of the first-year class in the school in which they have enrolled and must meet the grade standards set out below. Students who do not meet this requirement will not be considered for the integrated program, but are free to complete their studies in the Faculty attended, or re-apply for admission to the second Faculty for the regular course of study.

The Committee of Directors will interview all eligible applicants and selection of candidates will be made on the basis of the following criteria:

- (a) the applicant's career plan and its appropriateness to the program;

- (b) an assessment of the applicant's ability to complete a rigorous course of study successfully;
- (c) all relevant elements of the applicant's profile compared with those of all other candidates.

Successful candidates will receive an acceptance to the integrated program subject to the condition that to remain in the program he or she must complete the second year of the program with a standing in the top one third of the class and meet the grade standard.

The Committee of Directors will also consider the applications of persons for entry to the program who have not earlier complied with the foregoing procedures, and who are enrolled in either of the Faculties of Law or Graduate Studies and Research; these persons will have demonstrated high academic achievement and appropriate vocational and personal commitment.

### Application Deadlines

Faculty of Law—February 1 (LL.B.)

Faculty of Graduate Studies and Research—June 1 (M.B.A.)

For application materials please contact each faculty separately at the following addresses:

Admissions  
Faculty of Law  
University of Windsor  
Windsor, Ontario  
N9B 3P4

Faculty of Graduate Studies and Research  
MBA Admissions  
University of Windsor  
Windsor, Ontario  
N9B 3P4

### TERM PLANNING

#### **First and Second Years**

The first two years of study of the integrated program will consist of the regular first-year programs of each faculty.

#### **Third and Fourth Years**

The third and fourth years of the integrated program will be devoted to required and elec-



tive courses offered in both the Faculty of Law and the Faculty of Business Administration.

In the Faculty of Business Administration, program students will be required to take five candidate-level courses. These must include Business Policy 75-698 and four courses selected from a minimum of two of the following areas: Accounting, Administrative Studies, Finance, Management Science, Marketing, and Policy and Strategy. In addition, the M.B.A. major paper or thesis must have a substantial legal component.

In the Faculty of Law, the student will enroll in courses for a minimum of forty credits. These must include Torts, Civil Procedure, one course from the Legal Perspectives Group, and one course requiring a substantial paper that must account for at least 50% of the student's grade in the course. The M.B.A. paper will ordinarily satisfy this requirement, subject to the approval of the Faculty of Law Academic Programs Committee.

In addition to the requirements outlined above, the candidate must choose three additional candidate-level M.B.A. courses or a further three law courses totaling at least nine credit hours or any equivalent combination. The student's elective choices shall be reviewed by the Committee of Directors in light of the student's personal and career objectives, and the necessity of scheduling core business and law courses.

#### ADVANCEMENT

**First and Second Year:** Standing in the top third of the class; no Faculty of Law course grade lower than C.

**Third and Fourth Year:** In courses taken in the Faculty of Business Administration, candidates must attain at least one A- grade and not receive any grades below B. In courses taken in the Faculty of Law, candidates must attain in each year at least one grade of B or above and must not receive any grade lower than C.

Candidates who fail to meet the above standards may be advanced upon the approval of the Committee of Directors if such action is warranted. Candidates who either fail to advance from Second Year to Third Year or who choose to leave the program will be free to

continue on for both degrees, but within normal degree requirements, and subject to any conditions set out by the two Faculties. Students leaving the program after Third Year and who have taken the appropriate electives, may petition the Faculty of Business Administration for the M.B.A. degree.

YEAR	LAW STREAM	BUSINESS STREAM
I	Law I	Qualifying Year —MBA
II	Qualifying Year —MBA	Law I
III*	Candidate Year —MBA Law II & III	Candidate Year —MBA Law II & III
IV*	Candidate Year —MBA Law II & III	Candidate Year —MBA Law II & III

\* During Stages III and IV, students will be registered in the Faculty of Graduate Studies and Research.

#### Students with an Honours Bachelor of Commerce Degree

Students holding an Honours B.Comm. degree may obtain both the LL.B. and M.B.A. degrees without the assistance of a special integrated program. However, by submitting applications simultaneously to both the Faculty of Law and the Faculty of Graduate Studies and Research and indicating an interest in the program, such students may be granted a deferred admission to whichever degree program he or she elects to take second. This special deferred admission will be revoked if the applicant's performance in the first program fails to meet the first-year academic standards of the program. In such case the applicant may re-apply for regular admission to the second degree program.

*Note:* The University reserves the right to make changes in the integrated program and any rules or regulations applying to it.



### 3.3 Course Descriptions

Courses below are listed according to the informal administrative units of the Faculty.

All courses listed will not necessarily be offered in a particular semester or year.

Special permission to enter courses without the stated prerequisites must be arranged with the Dean and the instructor involved.

All 500-level courses are four lecture hours per week. All 600-level courses are three lecture hours per week.

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#### 3.3.1 ACCOUNTING

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##### 70-550. Financial Accounting— Introductory

An introduction to the accounting process emphasizing accounting concepts, standards and procedures that guide the preparation, interpretation and reporting of financial accounting information. The specific purposes of the course are to:

- 1) examine the objectives and characteristics of financial information reports;
- 2) gain an understanding of accounting control systems necessary in order to generate accounting information reports that are useful to internal and external users, taking into consideration the costs vs. the benefits; and
- 3) provide a strong foundation for subsequent courses in accounting and finance. (4 lecture hours a week).

##### 70-551. Financial Accounting— Intermediate

An intermediate financial accounting course covering the theory and practice of financial statement preparation and reporting. The emphasis will be on asset valuation and the related impact on income measurement, problems related to the movement of liabilities and the accounting for income taxes, and the measuring and reporting of shareholders' equities. (Prerequisite: 70-550 or 70-152 or equivalent with a minimum C grade). (4 lecture hours a week).

##### 70-552. Managerial Accounting

The development and use of accounting information in performing the managerial func-

tions of planning, controlling, decision-making and performance evaluation. Emphasis is on the practical applications of cost accumulative systems in the decision-making process. (Prerequisite: 70-550 or 70-256 or equivalent with a minimum C grade). (4 lecture hours a week).

##### 70-650. Contemporary Thought in Accounting

Evaluation of contemporary accounting thought. (Prerequisite: 70-552 or equivalent with a minimum B grade.)

##### 70-651. Accounting Theory Development

An examination of the nature, objectives, methodology, and problems of accounting theory instruction and verification, and the objectives of financial statements in order to provide a frame of reference with which to evaluate current developments in accounting theory. (Prerequisite: 70-551 or equivalent with minimum B grade).

##### 70-652. Research Methods in Accounting

An empirical analysis of the properties of accounting data through the use of research techniques applied within the discipline of accounting. (Prerequisite: Permission of the instructor).

##### 70-653. Contemporary Accounting Theory

Evaluation of contemporary theory in the measurement and reporting of income. Coverage includes an examination of various valuation concepts and arguments related to their use. Related topics also included are general price-level accounting and capital maintenance concepts. (Prerequisite: 70-551 or equivalent with a minimum B grade).

##### 70-654. Auditing I

An introductory course in auditing which encompasses theoretical and practical approaches to auditing. Study is given to generally accepted auditing standards, internal control, audit procedures and reports, other related auditing topics, as well as the legal and professional responsibilities of the auditor. (Prerequisite: 70-551 or 70-352 or equivalent with a minimum C grade).

##### 70-655. Auditing II

The study of the auditing profession and the general concepts of auditing. Emphasis is



placed on theory rather than practice. (Prerequisite: 70-654 or 70-460 or equivalent with a minimum B grade).

**70-656. Taxation I**

Designed to provide the student with a knowledge and understanding of the Canadian federal income tax structure with respect to personal and corporate taxation and other tax topics. The course examines both the theoretical aspects and practical problems in these areas. (Prerequisite: 70-550 or 70-152 or equivalent with a minimum C grade).

**70-657. Taxation II**

Theory and practice of Canadian income tax. Special emphasis is placed on the taxation of corporations. (Prerequisite: 70-656 or 70-461 or equivalent with a minimum B grade).

**70-658. Contemporary Thought in Management Accounting**

Evaluation of contemporary accounting thought as a basis for planning and control. (Prerequisite: 70-552 or equivalent with a minimum B grade).

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**3.3.2 ADMINISTRATIVE STUDIES**

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**71-540. Management and Organizational Behaviour**

A contingency view of management as the process of organizing resources to set and accomplish organizational goals. Three approaches are emphasized and integrated: the systems approach (environmental issues); the process approach (the functions of planning, organizing, controlling and leading); and the behavioural approach (individual and group performance in organizations). Cases and readings are used, especially in the behavioural approach. (4 lecture hours a week).

**71-541. Personnel Management**

This course is concerned with the management of human resources in the organization and the role of the personnel function in this task. The emphasis is on imparting an overall understanding of the personnel function and on discovering ways of increasing the contribution of human resource management towards the achievement of organizational effectiveness. Class discussion and exercises will cover such topics as human resource

planning, recruitment and selection, orientation and development, performance appraisal, compensation and employee services. (Prerequisite: 71-540). (4 lecture hours a week).

**71-542. Labour-Management Relations**

This course is concerned with the most important issues of labour-management relations. Particular attention is given to the history and structure of labour unions, labour legislation, the development and administration of labour agreements (including contract negotiation through collective bargaining, grievance procedures, and arbitration), and the resolution of labour-management conflicts. (Prerequisite: 71-540). (4 lecture hours a week).

**71-640. Organization Theory and Design**

This course examines structures and processes within organizational systems and organization/environment systems. It includes the following topics: the nature of organizations; the impact of external factors such as environment and technology; the impact of internal factors such as size, goals, social structure, differentiation, integration, professionalism and control. (Prerequisite: 71-540 or equivalent).

**71-641. Organizational Behaviour and Development**

The course uses theoretical and practical frameworks to analyze the behaviour of individuals and groups within organizations. Special emphasis is placed on the management of change and organizational development. (Prerequisite: 71-540 or equivalent).

**71-642. Interpersonal Dynamics in Administration**

A wide range of readings (both business and non-business) is used to develop insights into human resource problems encountered at the middle and upper levels of management. Each problem is illustrated with a case, and the insights from the readings are applied to the case to make recommendations in a situation where there is no single answer. (Prerequisite: 71-540 or equivalent).

**71-643. Cross-Cultural Issues in Management**

The course focuses on the cross-cultural problems and issues that confront North



American managers both at home and in the environment of international business. Background material, readings, cases, and exercises will involve the student in the issues that confront the international manager. A major objective is to develop a sensitivity that will enhance the student's ability to operate in the complex environment of multi-cultural business. (Prerequisite: 71-540 or equivalent).

#### **71-644. Personnel Selection and Criterion Development**

The objectives of this course are to provide the advanced student with a thorough understanding of the various selection processes and methods of measuring performance. Topics will include: recruitment; various selection methods such as paper and pencil tests; work performance, subjective and objective; job analysis; validity issues; testing issues; affirmative action and discrimination as they relate to the Canadian Human Rights legislation. Emphasis will be on class discussion and group exercises to facilitate understanding. (Prerequisite: 71-541 or equivalent).

#### **71-645. Reward Administration and Planning**

The course focuses on the application of current behavioural research to the management of reward systems within organizations. Special emphasis is given to the administration and planning of salaries, wages, contingent pay, benefit and non-financial rewards and to the clarification of the linkages between rewards and desired behaviours. (Prerequisite: 71-541 or equivalent).

#### **71-646. Labour Relations and Public Policy**

A graduate seminar concerned with the role of government in union-management relations. Review and evaluation of agencies established by the state to implement those social policies which are designed to promote industrial peace. (Prerequisite: 71-541 or equivalent).

#### **71-647. Discrimination in Employment**

This course will include lectures and cases on discrimination in employment on the basis of sex, race, age, religion, handicap and other protected categories. The role of the union and management in dealing with issues such

as discrimination in hiring, affirmative action, equal pay, discrimination in training and promotion will be discussed. The human rights legislation in Canada and the U.S. will provide the framework for examining these issues. (Prerequisite: 71-541 or 71-542 or equivalent).

#### **71-648. Topics in Administrative Studies**

A reading and research seminar dealing with major concepts and important current problems in the areas covered by Administrative Studies, viz. Industrial Relations, Organizational Behaviour and Personnel Management. The precise topic to be covered in a particular semester will vary according to current interest and faculty availability, and will be announced in the previous semester. Interested students should consult the Administrative Studies Area Head to identify the particular offering for a given semester. (Prerequisite: Consent of Instructor).

#### **71-649. Research Methods in Administrative Studies**

The course focuses on the role of behavioural research in personnel and industrial relations management decision-making. Emphasis is placed on the definition of information needs, research design, and the evaluation of research results. This course is strongly recommended for students who wish to do an empirical study in the Administrative Studies area. (Prerequisite: 71-443 or equivalent).

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### **3.3.3 FINANCE**

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#### **72-570. Introduction to Financial Management**

Basic requirement of all students enrolled in MBA program. Topics include the institutional environment; long-term investment decisions; long-term sources of funds; short- and intermediate-term sources of funds; dividends and valuation; financial analysis and control; working capital management; external expansion and risk-return relationships in finance. (4 lecture hours per week).

#### **72-571. Financial Management and Policy**

An intermediate-level course incorporating short- and long-term considerations. Topics



include working capital management; capital and budgeting; risk and uncertainty; long-term financial decisions. (Prerequisite: 72-570). (4 lecture hours a week).

**72-572. Investment Principles**

A course covering financial markets, investment alternatives, the concepts of risk and return, market efficiency; and an introduction to portfolio theory and management. (Prerequisite: 72-570). (4 lecture hours a week).

**72-670. Investment Analysis and Management**

Economic background to securities analysis; types of corporate securities for investment; theory and mechanics of investment; general analysis and valuation procedures; valuation of fixed income securities and common stocks; procedures in analysis of government, industrial, financial and public utility securities; portfolio management. (Prerequisite: 72-572).

**72-671. Portfolio Management**

Objectives of individual and institutional portfolios. Security selection, diversification, marketability, risk, and return in portfolio construction. Timing and formula plans, bond portfolio problems, performance measurement, trading problems, tax planning, supervision, quantitative techniques for portfolio management, regulations. (Prerequisite: 72-572).

**72-672. Financial Management (Short- and Intermediate-Term)**

The working capital problems of business enterprises; function and theory of working capital; sources of working capital; factors determining working capital needs; techniques of forecasting needs. (Prerequisite: 72-571).

**72-673. Corporate Financial Strategy and Policy**

The course incorporates a conceptual and practical evaluation of the long-term financial decisions of the firm. Emphasis is placed on the implications of various long-term decisions on the value of investors' wealth. Questions such as the efficient allocation of scarce resources, optimal capital structure, and dividend policy among others will be dis-

cussed from both a corporate and capital market perspective. Market response and whether the market is efficient with respect to corporate financial decisions will also be considered. (Prerequisite: 72-571).

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**3.3.4 MANAGEMENT SCIENCE**

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**73-500. Quantitative Methods For Business**

This course is designed to equip students with some of the analytic tools which are necessary for the study of decision-making processes in a business organization. Topics include statistical tools such as the presentation of data, probability and probability distributions, estimation, hypothesis testing, analysis of variance, regression, correlation, and operations research techniques such as linear programming, decision analysis and inventory control. (4 lecture hours a week).

**73-501. Introduction to Computers for Management**

An introduction to the computer and its role in the management of organizations. Topics include computer software, hardware, and their integration into effective management information systems. Students will be instructed in a programming language and be introduced to common computerized applications such as statistical packages, word processing, spreadsheets, linear programming, transportation, PERT/ CPM and simulation. (Prerequisite: 73-500). (4 lecture hours a week).

**73-502. Production Management**

A study of problems in and managerial techniques for designing and operating production and operations systems. Topics may include capacity planning, location and layout of facilities, production planning, scheduling, quality control, materials management, MRP and forecasting. (Prerequisite: 73-500). (4 lecture hours a week).

**73-600. Advanced Statistical Techniques in Management**

An advanced course in statistical tools of decision-making. Topics include non-parametric statistics, multiple regression analysis and other multivariate techniques, and forecasting. (Prerequisite: 73-500 or equivalent).



**73-601. Advanced Management Science**

A study of quantitative techniques for management decision-making and their applications. Topics include non-linear programming, dynamic programming, integer programming, goal programming, network models, inventory models, queueing models and Markov decision processes. Individual presentations from students may be required. (Prerequisites: 73-501 and 73-502 or equivalents).

**73-602. Current Topics in Operations Management**

A study of the more recent issues in operations management and their impact on the traditional production/operations management. The course will examine the role of manufacturing in the corporate strategy; the corporate, national and international environments of operations management. Topics discussed may include such recent developments as Group Technology (GT), Just-in-Time Production (JIT), Factory-of-the-Future (FOF), Computer-Integrated-Manufacturing and Manufacturing Strategy. The emphasis is on competing through manufacturing. Individual reports from students may be required. (Prerequisite: 73-502 or equivalent).

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**3.3.5 MARKETING**


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**74-530. Introduction to Marketing Management**

An introduction to the macro and micro environment of marketing. The course will review marketing's role in the economy as well as marketing's function within the business firm. Emphasis will be placed on the major elements of the marketing mix (i.e., product, price, place and promotion). Objectives of the course are to provide an overview of the marketing process and an introduction to management decision-making in marketing. (4 lecture hours a week).

**74-531. Consumer Behaviour**

An analysis of the concepts and theories of human behaviour as they relate to the purchase and consumption of products and services and their implications for marketing decisions. (Prerequisite: 74-530). (4 lecture hours a week).

**74-532. Research Methods in Marketing**

An introduction to the theory and methods of marketing research with the aim of supporting marketing strategy decision-making. Stressing the philosophy of science, the course addresses research design and planning, data collection, and data analysis techniques. (Prerequisites: 74-503 and 73-500 or equivalent). (4 lecture hours a week).

**74-631. Seminar in Consumer Behaviour**

A study of analytical concepts and research techniques derived from the behavioural sciences or developed from consumer behaviour research. A significant objective of the course is the application of such concepts and techniques to the solution of marketing problems. (Prerequisite: 74-531).

**74-632. Seminar in Marketing Research**

An advanced course assuming familiarity with the conceptual research process, characteristics of basic data collection modes and measurement, hypothesis testing, regression analysis, and analysis of variance. Utilizing a discussion format, the course offers a review of current marketing research literature concerning:

- 1) examinations of properties of familiar data collection and analysis techniques;
- 2) examples of their application; and
- 3) introduction to more advanced data collection and analysis methods. (Prerequisite: 74-532).

**74-633. Marketing Channels and Logistics Management**

A seminar covering all major issues relating to distribution activities at a micro and macro level. Topics covered include the development of channel systems, the behavioural and legal aspects of channel relationships, and approaches to total distribution system management. (Prerequisite: 74-530).

**74-635. International Marketing Strategy**

A study of the problems faced by Canadian businesses when exploring and distributing to foreign markets. A significant objective of the course is to explore, through research findings, strategies that would improve Canada's international marketing efforts. (Prerequisite: 74-530).



**74-636. Advanced Advertising Management**

An advanced study of the management of the advertising function. Topics for discussion will include the development of the overall promotional plan, determination of the advertising budget, formulation of the advertising campaign, media selection, timing of expenditures, and evaluating advertising effectiveness. Consideration is also given to public policy issues including the legal, social and ethical aspects of advertising. (Prerequisite: 74-530).

**74-638. Special Topics in Marketing**

This course is of varying content dealing with topical issues in marketing. The course might focus on a specific functional area in marketing or a particular environment for the application of marketing concepts. Administration of the course varies as appropriate with its content and might take on a literature survey, research project, experiential, or other format. (Prerequisite: Candidate-year standing and permission of the instructor).

**74-639. Seminar in Marketing Strategy and Planning**

An analysis of the formation of marketing strategies and plans. Topics covered will include business definitions, developing marketing objectives, selecting market targets, developing all aspects of the marketing mix, and evaluating marketing performance. Marketing decision models, portfolio techniques, generic strategies, PIMS, and related topics will also be covered. (Prerequisite: Candidate-year standing and a minimum of four previous marketing courses).

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**3.3.6 BUSINESS POLICY AND STRATEGY**

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**75-590. The Legal Environment of Business**

A survey of the law as it applies to business administration in Canada. Lectures and case discussions are utilized to cover the key areas of the law including; the role of the courts, torts, contracts, special types of contracts, real property, forms of business organization, and credit transactions. (4 lecture hours a week).

**75-680. Managing the International Enterprise**

A strategic management approach to the analyses and integration of cultural, legal, political, economic, environmental and institutional factors as they relate to the problems of administering viable multinational and transnational enterprises. Particular emphasis is given to developing managerial perspective in international payments, technology, trade and investment areas through the use of models and case studies. (Prerequisite: Candidate-year standing).

**75-681. Global Business Strategy**

A critical evaluation of contemporary models, theories and processes as they apply to the international linkages of functional, business-unit and corporate levels in global strategic management and operational decision-making. Special attention is given to case studies regarding the process of developing and maintaining an effective strategic capability in a dynamic global environment. (Prerequisite: 75-680).

**75-682. Seminar in International Business**

An advanced research seminar in key problem areas of international business. Selected problems typical of those confronting contemporary multinational and transnational enterprises will be researched using models, theories, secondary information and empirical data collected from the inter-regional and international communities of the Windsor-Detroit area. Proposed solutions and recommendations will be presented for class discussion. (Prerequisite: 75-680).

**75-685. Strategic Planning**

A study of business strategic planning for an uncertain future. Utilizing a combination of case studies, lectures and research seminars, these topics will be covered: environmental analysis, scenario construction, strategic issues analysis, strategic plan development, strategic planning techniques, strategic planning systems and the politics of strategic planning in the context of the single business firm and the diversified corporation. (Prerequisite: Candidate-year standing).



**75-686. Industry Analysis and Competitive Strategy**

An in-depth study of business strategy for developing a profitable position in a given product-market segment that is defensible against competitors. The course aims at developing a working understanding of the fundamental determinants of competition in industries and the factors that shape the competitive success or failure of firms. It develops a framework for analyzing an industry and its array of competitors and provides analytic techniques for making the strategic decisions concerning capacity expansion, vertical integration, divestment and entry into new industries. (Prerequisite: Candidate-year standing).

**75-687. Strategies for Firms in Crisis in Mature and in Declining Industries**

As North America moves into the post-industrial era, many firms face crises brought on by declining growth rates, increased foreign competition, product substitution or rapid technological change. This course begins with a structural analysis of competition in hostile environments (e.g., mature and declining industries) and examines such topics as exit barriers, wars of attrition and organizational implications of maturity. The focus then shifts to the strategic alternatives available to firms including turnaround, retrenchment, merger, managed decline and divestiture.

**75-688. Strategic Management in Not-for-Profit Organizations**

This course is designed for the career manager (or those planning such) in public sector or private voluntary organizations. It begins with an examination of the overall process of strategic decision-making and strategy formation and then pursues in detail the following topics: structural problems of services, the behavioural theory of not-for-profit organizations (NPO's), the community network of NPO's, strategic planning process, organization design, control system and their impact on strategy, financial management, power and politics in and around NPO's. The course will include case analysis, seminar discussions with managers

of community organizations, site visits, and a community project. (Prerequisite: Candidate-year standing).

**75-689. Managing the Business-Government Interface**

An advanced study of administrative systems and processes linking public and private business sectors. This includes strategic use of relationships between private business firms and governments. Complex business-government systems and relationships are analyzed using information readily available from governmental sources, trade associations and case histories. (Prerequisite: Candidate-year standing).

**75-690. Small Business: New Venture Formation and Management**

A course designed for those who are contemplating a career in small business as entrepreneurs or consultants to the smaller firm. The course combines hands-on experience (through an internship in consulting at the Business Resource Centre) and field research. (Prerequisite: Permission of Instructor and all required M.B.A. courses).

**75-691. Research Methodology for Managers**

Research methodology and its role in business problem-solving. Topics include: problem formulation, research strategy and design, data analysis and report writing. The course also includes a user-friendly introduction to multivariate methods. (Prerequisite: Candidate-year standing).

**75-692. Independent Study**

An independent study course designed to allow students to pursue their own interests in important business areas which are not thoroughly covered in existing courses. The student will undertake an original paper or research project on a topic which would enhance his or her program of study. This independent study and the major paper must not substantially be one and the same. (Prerequisite: Candidate-year standing and permission of the respective instructor).

**75-698. Business Policy and Strategy**

As the capstone of the M.B.A. program this course integrates the knowledge of prior courses and focuses them on strategy-



making as the central function of general management. Concepts, theory, and current practice coordinated with selected cases from dynamic business situations are combined to study in depth the strategy formulation and implementation processes in the context of the single and multi-business firms. (Prerequisite: Candidate-year standing and all other required M.B.A. courses).

**75-701 M.B.A. Co-op Work Term I**

**75-702 M.B.A. Co-op Work Term II**

**75-703 M.B.A. Co-op Work Term III**

**75-796. Major Paper**

**75-797 Thesis**

## **4 CHEMISTRY AND BIOCHEMISTRY**

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### **4.1.1 OFFICERS OF INSTRUCTION**

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#### **University Professor**

Tuck, Dennis G.; B.Sc., Ph.D., D.Sc. (Durham), F.C.I.C., F.R.S.C. (U.K.)—1972.

#### **Professors**

Thibert, Roger J.; B.A. (Western Ontario), M.S. (Detroit), Ph.D. (Wayne State), F.C.I.C.—1953.

Wood, Gordon W.; B.Sc., M.Sc. (Mount Allison), Ph.D. (Syracuse), F.C.I.C.—1963. (Vice-President, Academic).

McKenney, Donald J.; B.Sc., M.Sc. (Western Ontario), Ph.D. (Ottawa)—1964.

McIntosh, John M.; B.Sc. (Queen's), Ph.D. (M.I.T.), F.C.I.C.—1968.

Drake, John E.; B.Sc., Ph.D., D.Sc. (Southampton), F.C.I.C.—1969. (Head of the Department).

McGarvey, Bruce R.; B.A. (Carleton College), M.A., Ph.D. (Illinois), F.C.I.C.—1972.

Taylor, Norman F.; B.A., M.A., D. Phil. (Oxon), F.R.S.C. (U.K.)—1973.

Aroca, Ricardo; B.Sc. (Chile), Ph.D. (Moscow State)—1985.

#### **Associate Professors**

Rumfeldt, Robert C.; B.Sc. (Loyola, Montreal), Ph.D. (Alberta)—1965. (Associate Dean of Science).

Hencher, J. Lawrence; B.A., Ph.D. (McMaster)—1967.

Taylor, Keith E.; B.Sc., Ph.D. (Toronto)—1976.

Mutus, Bulent; B.Sc., M.Sc. (Waterloo), Ph.D. (Manitoba)—1982.

Stephan, Douglas W.; B.Sc. (McMaster), Ph.D. (Western Ontario)—1982.

Loeb, Stephen J.; B.Sc., Ph.D. (Western Ontario)—1989.

#### **Assistant Professors**

Lee, Lana; A.B. (Mount Holyoke), Ph.D. (Alberta)—1986.



Adeli, K; B.Sc. (Tehran), M.Sc., Ph.D. (Ottawa), Dipl. Clin. Chem. (Toronto)—1988.

Cormier, James F.; B.Sc.(St. F. X.), Ph.D. (McGill)—1989.

Green, James R.; B.Sc. (Windsor), Ph.D. (Waterloo)—1989.

#### **Adjunct Professors**

Asselstine, Harold S.; B.Sc., M.D. (McGill), F.R.C.P., Medical Director, Medical Laboratories of Windsor—1969.

Draisey, Thomas F.; M.B., Ch.B. (Bristol), F.R.C. Path., Department of Pathology, Salvation Army Grace Hospital and Windsor Western Hospital Centre—1969.

Hyde, Trevor; M.B., Ch.B., M.D. (Liverpool), M.C. Path. (United Kingdom), F.R.C. Path., Department of Pathology, Hotel Dieu Hospital, Windsor—1969.

Zak, Bennie; B.S., Ph.D. (Wayne), Department of Pathology, Wayne State University School of Medicine—1975.

Findlay, Wallace I.; B.Sc. (Dalhousie), M.Sc., Ph.D. (McGill), Soil Scientist, Research Station, Harrow—1986.

#### **Adjunct Associate Professors**

Monforte, Joseph R.; B.A. (Rutgers), Ph.D. (Maryland); Wayne County Toxicologist—1978.

Foreback, Craig C.; B.A., Ph.D. (South Florida), Director of Clinical Chemistry, Henry Ford Hospital, Detroit—1986.

Yee, George E.; M.D. (Manitoba), F.R.C. Path., Director of Pathology Laboratories, Metropolitan General Hospital, Windsor—1986.

Cheung, Raphael M.; M.D. (Toronto); Medical Director, Lipid Clinic, Windsor Western Hospital—1988.

#### **Adjunct Assistant Professor**

Caines, Patrick S.; B.Sc., Ph.D. (Windsor), Clinical Biochemist, Metropolitan General Hospital, Windsor and Leamington District Memorial Hospital—1987.

## **4.2 Programs of Study**

The Department provides facilities for students wishing to proceed to the degrees of Master of Science and Doctor of Philosophy. Included in the offerings of the Department of Chemistry and Biochemistry are programs in Clinical Chemistry.

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### **4.2.1 THE DOCTOR OF PHILOSOPHY DEGREE**

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In addition to the general requirements outlined in 1.5.2, the following requirements must be met by all students proceeding to the Ph.D. degree:

1) *Course Work*: Candidates must complete successfully at least eight courses.

2a) *Required Courses in Biochemistry*: 59-564 (Biochemistry of Nucleic Acids). 59-565 (Membrane Biochemistry). 59-568 (Enzymology). 59-660 (Advanced Metabolism).

2b) *Required Courses in Chemistry*: There are no required courses in Chemistry.

The remaining courses will be chosen from the available graduate offerings in the student's field or from related and cognate courses, with the approval of the Department. Advanced credit up to a maximum of two courses may also be given for equivalent courses taken as an undergraduate, provided that a grade of at least A- was achieved in the courses.

3) *Seminars*: In addition to the above course work, students must attend the regular department Seminar (59-795) throughout their Ph.D. studies and present at least one seminar on their research as a fulfillment of this requirement.

4) *Dissertation*: The principal requirement for the Ph.D. degree is the presentation of a dissertation which embodies the results of an original investigation (59-798). For general requirements of the dissertation, see 1.5.3.

A student who fails to achieve satisfactory performance in all aspects of the program (e.g., course work, seminars and dissertation work) may be required to withdraw.



5) *Doctoral Committee*: The Ph.D. committee is chosen in the manner described in 1.5.2. This committee will meet with the student annually to review his or her progress. As part of this review the student will present a short seminar on his or research progress.

6) *Examinations*: In addition to examinations connected with course work, all students proceeding to the Ph.D. degree must meet the following requirements:

(a) *Comprehensive Examination*: A reasonable mastery of the field of specialization will be tested by an examination which will normally be given not later than the end of May of a student's second year of graduate study.

(b) *Final Examination*: Each candidate will take a final oral examination in defense of the dissertation on the recommendation of the doctoral committee. An external examiner, chosen for acknowledged scholarship in the appropriate field of chemistry, biochemistry or clinical chemistry, will normally be present during the oral examination. The external examiner will be selected by the doctoral committee, subject to the approval of the Head of the Department and the Dean of Graduate Studies and Research. The examination will be public and will involve a short seminar presentation by the candidate. The examination will be chaired by the Head of the Department or delegate.

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#### 4.2.2 DOCTORAL PROGRAM IN CLINICAL CHEMISTRY

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In addition to the general requirements outlined in 1.5.2. and departmental requirements outlined in 4.2.1. (excluding section 2) Required Courses), the following requirements must be met by all students proceeding to the Ph.D. degree in Clinical Chemistry.

Ph.D. candidates in Clinical Chemistry will be required to take the following core courses: 59-680, 59-681, 59-682, 59-683, 59-684, 59-685, 59-686, 59-580.

Candidates who have completed the M.Sc. program in Clinical Chemistry would be given credit for those courses already taken. Ph.D. candidates will also participate in a Hospital Rotation Program (Clinical Chemistry Research and Development 59-689).

Clinical Chemistry is approved by the certification committee of the Canadian Academy of Clinical Chemistry as fulfilling all of the academic requirements, and one year of the required practical experience. The Ph.D. program is also accredited by the Commission on Accreditation in Clinical Chemistry (U.S.A.).

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#### 4.2.3 THE MASTER OF SCIENCE DEGREE

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In addition to the general requirements and stipulations outlined in 1.6.2 for the Master's degree, the following requirements must be met by students proceeding to the M.Sc. degree.

1) *Course Work*: Candidates must complete successfully at least four courses.

2a) *Required Courses in Biochemistry*: Biochemistry students are required to take two courses selected from: 59-564, 59-565, 59-568, 59-660.

2b) *Required Courses in Chemistry*: There are no required courses in chemistry.

The remaining courses will be chosen from the available graduate offerings in the student's field or from related and cognate courses, with the approval of the Department. Advanced credit up to a maximum of two courses may be given for equivalent courses taken as an undergraduate, provided a grade of at least A- was achieved in the course.

3) *Seminars*: In addition to the above course work, students must attend the regular departmental Seminar (59-795) throughout their M.Sc. studies and present at least one seminar on their research as a fulfillment of this requirement.

4) *Thesis*: A student must undertake original research and embody the results in a thesis (59-797). The student will then be examined by a committee.



A student who fails to achieve satisfactory performance in all aspects of the program (e.g., course work, seminars, thesis work or major critique) may be required to withdraw.

5) *Master's Committee and Final Examinations*: The Master's committee is chosen in the manner described in 1.6.2. The final examination will take the form of an open seminar in the presence of the Master's committee (see 1.6.2). The examination will be open to the public.

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#### 4.2.4 MASTER OF SCIENCE PROGRAM (CLINICAL CHEMISTRY)

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In addition to the general requirements and stipulations outlined in 1.6.2. for the Master's degree and departmental requirements in 4.2.3. (excluding section 2, Required Courses), the following requirements must be met by students proceeding to the M.Sc. degree in Clinical Chemistry.

M.Sc. candidates in Clinical Chemistry will be required to take the following core courses: 59-680, 59-681, 59-682, 59-683, 59-684, 59-685, 59-686. These candidates will also take a Practical Laboratory Methodology course (59-589). With the permission of the Department, a student in the Clinical Chemistry program may substitute for the thesis a Major Clinical Chemistry Critique (59-796) upon which the student will be examined by the Committee.

The M.Sc. program in Clinical Chemistry is accredited by the Commission on Accreditation in Clinical Chemistry (U.S.A.). This program has been approved by the National Registry in Clinical Chemistry (U.S.A.) as fulfilling all of the academic requirements and a portion of the practical experience for certification by examination at the Clinical Chemist level.

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#### 4.2.5 POSTDOCTORAL DIPLOMA PROGRAM IN CLINICAL CHEMISTRY

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##### Admission Requirements

Postdoctoral trainees will be selected from candidates who hold a Doctor of Philosophy

in Biochemistry or Chemistry. Trainees may also be chosen from graduates in the field of medicine, provided that their training in chemistry and biochemistry is demonstrably adequate.

##### Program Requirements

1) *Residence Requirements*: The postdoctoral diploma program is of two years duration on a full-time basis, i.e., twenty-four months. This period may not be counted as residence for a Ph.D. program at the University of Windsor.

2) *Course Work*: Trainees in this program must successfully complete the following minimum course work:

- (a) Clinical Chemistry (59-680/681), Clinical Biochemistry (59-682/683), Principles of Disease (59-684) and Diagnosis of Disease (59-685) or Analytical Toxicology (59-581).
- (b) Seminar (59-795) to be taken each year in which the trainee is registered.
- (c) Clinical Chemistry Laboratory Methodology (59-589) and Clinical Chemistry Research and Development (59-689) for a total of 1500 hours. These courses will be in the form of practical laboratory experience at one or more of the following hospitals in Windsor: Grace Hospital; Windsor Western Hospital Centre; Hotel Dieu Hospital; Metropolitan General Hospital, and Henry Ford Hospital (Detroit, Michigan).

Trainees will be expected to undertake an original piece of research of publishable standard and to be prepared to present it at a scientific meeting. The research may be in the fields of Clinical Chemistry, Biochemistry of Disease, or Biochemistry.

3) *Additional Course Requirements*: A trainee may be required to take a minimum of six courses from the list given below. These courses will be assigned to the trainees as required in order to give them a thorough background in the appropriate areas of Chemistry, Biochemistry, and Biology. Ad-



vanced standing will normally be granted for courses previously taken.

- 58-302. Mammalian Physiology I
- 58-303. Mammalian Physiology II
- 59-321. Principles of Instrumental Analysis
- 59-365. Protein and Nucleic Acid Chemistry
- 59-520. Radiochemistry
- 59-560. Intermediary Metabolism I
- 59-561. Intermediary Metabolism II
- 59-563. Intermediary Metabolism II
- 59-564. Biochemical Lesions and Lethal Synthesis
- 59-565. Biological Transport and Membranes
- 59-566. Methods in Biology and Biochemistry
- 59-568. Enzymology
- 59-580. Endocrinology
- 59-660. Regulation and Control of Metabolism
- 59-661. Special Topics in Biochemistry
- 60-105. Introduction to Programming in FORTRAN
- 65-253. Statistics for the Sciences
- 71-540. Management and Organizational Behaviour

Any trainee who fails to maintain satisfactory standing in course work, Clinical Chemistry Laboratory Methodology (59-589) and Clinical Chemistry Research and Development (59-689), or research, may be required to withdraw.

4) *Diploma Committee*: The Head of the Department will establish the trainee's diploma committee in consultation with the Dean of Graduate Studies and Research. This committee will consist of four members, three of whom will be chosen from the Chemistry Department, and will include the Adjunct Professor at the appropriate hospital. The committee will meet with the trainee to review his or her progress as necessary.

#### **Plan of Work for Postdoctoral Training Program**

##### *First Year (12 months)*

September—April: course work and initiation of a research project. May—August: Clinical Chemistry Laboratory Methodology (59-589), 700 Hours minimum. This latter portion of

time (17 weeks) will be spent obtaining practical experience in a hospital laboratory under the joint direction of a faculty member of the University and the pathologist, who is an Adjunct Professor in the Department of Chemistry and Biochemistry at the University. During this period the trainee will be required to obtain a reasonable mastery of the various operations of a clinical chemistry laboratory. Rotation through the various areas of the laboratory, as well as various sections of the clinical chemistry laboratory, will be required. At this stage orientation regarding administration of the laboratory will be carried out.

##### *Second Year (12 months) September—August*

Remaining course work, if any, will be completed during the second year, and research will be continued. The time distribution between the hospital experience and University/Hospital research (59-689) will be on a 40%/ 60% basis in all the following periods:

- 1) Two months will be spent in special and developmental chemistry, and further experience in laboratory administration will be gained.
- 2) Four months will be spent in developmental chemistry, and the administration of a section of the clinical chemistry laboratory will be undertaken.
- 3) Six months will be spent in the administration of the clinical chemistry laboratory (gradually taking over the major administrative function of the entire clinical chemistry laboratory) under the supervision of the Adjunct Professor.

In order to ensure that the trainees obtain maximum experience in all the phases of clinical chemistry available in Windsor, rotation from hospital to hospital will occur as required during the latter training period.

*Participation in Professional Meetings*: During the second year, trainees will be strongly encouraged to attend a meeting of clinical chemists (e.g. Canadian Society of Clinical Chemists, American Association for Clinical Chemistry) and present a paper on the subject of their research. The subject of this paper will, if possible, be submitted for publication.



Trainees will also be required to participate in and give conferences dealing with Clinical Chemistry or Clinical Biochemistry on a regular basis along with other clinical chemists, graduate students in Clinical Chemistry and the Adjunct Professors from the affiliated hospitals.

The Postdoctoral Diploma is approved as fulfilling all of the academic requirements and the required practical experience by the certification committee of the Canadian Society of Clinical Chemists. The Postdoctoral Program is accredited by the Canadian Society of Clinical Chemists and the Commission on accreditation in Clinical Chemistry (U.S.A.).

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#### 4.3.1 COURSE DESCRIPTIONS

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All of the courses listed will not necessarily be offered in any one year. Special topics courses may be taken several times provided the course content is different. Where prerequisites are not stated, consent of the instructor is required.

##### 59-500. Seminar

Discussion of selected topics from current literature. (1 hour a week, both semesters; one semester course credit). (This course must be taken by all students unless they have credit for 59-400 or its equivalent).

##### 59-520. Radiochemistry

Application of radiochemical techniques to various aspects of chemistry and related sciences. (3 lecture hours a week).

##### 59-521. Special Topics in Analytical Chemistry

(Prerequisite: 59-321. (2 lecture hours a week).

##### 59-531. Special Topics In Organic Chemistry

Topics may include polymer chemistry, natural product chemistry or design and execution of organic syntheses. (Prerequisite: 59-331 or consent of instructor). (2 lecture hours a week).

##### 59-535. Advanced Organic Chemistry

The use of spectroscopic techniques in organic chemistry. (Prerequisite: 59-331 or consent of instructor). (2 lecture hours a week).

##### 59-541. Statistical Thermodynamics

Development of statistical thermodynamics and its application to theories of gases, condensed states and chemical equilibria. (2 lecture hours a week).

##### 59-542. Fourier Transform Nuclear Magnetic Resonance Spectroscopy

Theory and applications of FT NMR in chemical problems, special techniques such as T1, T2 measurements, cross polarization, "magic angle" spinning, 2D spectroscopy, DEPT pulse sequences and others will be covered. (2 lecture hours a week)

##### 59-545. Special Topics in Physical Chemistry

(2 lecture hours a week).

##### 59-546. Advanced Topics in Spectroscopy

Electronic and vibrational spectroscopy of solids. (2 lecture hours a week).

##### 59-550. Applications of Group Theory

Various applications of group theory to the study of inorganic and organometallic systems. (3 lecture hours a week).

##### 59-552. Topics in Inorganic Chemistry and Organometallic Chemistry

Topics to be arranged by the instructor, based primarily upon new developments in the field as illustrated by the current research interests of the faculty, as well as by a study of the current literature. (2 lecture hours a week).

##### 59-553. X-ray Crystallography

Theoretical and experimental aspects of single crystal X-ray diffraction methods for the determination of molecular structures. (2 lecture hours a week).

##### 59-564. Biochemistry of Nucleic Acids

An advanced lecture course dealing with molecular biochemistry of DNA and RNA. Emphasis will be given to the mechanisms of gene expression at the transcriptional and translational levels. The theory and practical aspects of recombinant DNA technology and genetic engineering will also be discussed. (Prerequisite: 59-360/361 or equivalent). (2 lecture hours a week).



**59-565. Membrane Biochemistry**

The structure and function of artificial and natural membranes. Emphasis will be placed on the biochemistry of mitochondrial, bacterial and mammalian membranes. Special consideration will be given to the identification and function of membrane proteins. (Prerequisite: 59-360/362 or 59-361/363 or equivalent). (2 lecture hours a week).

**59-568. Enzymology**

Advanced topics related to enzyme mechanisms will be presented through detailed consideration of case studies on individual enzymes. Topics included will be transient kinetics, physical organic models for catalysis, isotope effects and applications of physical methods to enzyme mechanisms. (Prerequisite: 59-365 and 59-464 or consent of instructor). (2 lecture hours a week).

**59-570. Advanced Quantum Chemistry**

Perturbation and variation theories. Theories of many electron atoms and general theories of chemical bonds in diatomic and polyatomic molecules. (Prerequisite: 59-341 or equivalent). (3 lecture hours a week).

**59-580. Endocrinology**

Hormonal integration and regulation in animals; mechanisms of hormone action at the molecular level; biosynthesis and metabolism of hormones; particular emphasis on human endocrinology. (Prerequisite: consent of instructor). (Same as Biology 55-556). (3 lecture hours a week).

**59-581. Analytical Toxicology**

Analysis of drugs and other toxic substances in biological fluids. The metabolism of drugs as well as the symptomology of poisoning of common therapeutic drugs and the more common industrial chemicals will be discussed. (Prerequisite: 59-562/563 or 59-360/361 or consent of instructor). (2 lecture hours a week).

**59-589. Clinical Chemistry Laboratory Methodology**

A detailed study of the existing clinical chemistry laboratory procedures. Seminars, papers, and field trips will be required. (Minimum 700 hours).

**59-600. Directed Special Studies**

A special course of studies with content and direction approved by the student's research advisor and supervisory committee. Although there may be no formal lecture requirements, the course will be equivalent to three one-hour lectures a week for one semester. The student will be required (a) to produce a critical review which will be assessed by his or her supervisory committee; the presentation and standard of the review must be appropriate for publication in a scientific journal; (b) to spend one semester working in an agreed industrial setting; the quality of work will be assessed by the Supervisory Committee; or (c) to spend one semester mastering the experimental methodology of X-ray crystallography and applying this methodology to a research problem. This work may be related to but not part of the research undertaken in 59-797 or 59-798. (Prerequisite: approval of the Department).

Only Doctoral students may register for this course under (a) above; the course cannot be repeated for credit under this condition. Under normal circumstances, M.Sc. students may take this course only once; (b) Ph.D. students may register for two semesters of this industrial experience.

**59-620. Analytical Spectroscopy of Surfaces**

Surface spectroscopic techniques and their application to the analysis of chemisorbed and physisorbed species and monomolecular layers. (Prerequisite: 59-321 or equivalent). (2 lecture hours a week).

**59-630. Synthetic Methods in Organic Chemistry**

A study of some important organic reactions with emphasis on their practical application in synthesis. (Prerequisite: 59-330/331 or consent of instructor). (2 lecture hours a week).

**59-631. Planning and Execution of Organic Syntheses**

The design, planning and execution of total syntheses of complex molecules will be described. Emphasis will be placed on both retrosynthetic pathways and execution. (Prerequisite: 59-330/331 or consent of instructor). (2 lecture hours a week).



**59-633. Organic Stereochemistry**

Basic concepts of stereochemistry and applications of stereoelectronic effects will be discussed. (Prerequisite: 59-330/331 or consent of instructor). (2 lecture hours a week).

**59-634. Advanced Topics in Organic Chemistry**

Special topics in organic chemistry will be described. Some of these may include natural product chemistry, organometallic chemistry or heterocyclic chemistry. (Prerequisite: 59-330/331 or consent of instructor). (2 lecture hours a week).

**59-636. Advanced Topics in Physical Organic Chemistry**

A survey and determination of structure and mechanism. (Prerequisite: 59-330/331 or consent of instructor). (2 lecture hours a week).

**59-651. Organometallic Chemistry**

A detailed study of selected advanced topics in organometallic chemistry. Typical subjects include (at the discretion of the instructors) main group organometallic chemistry; thermochemical methods in organometallic chemistry; catalysis by organometallics, detailed structural studies. (2 or 3 lecture hours a week).

**59-653. Advanced Topics in Organometallic Chemistry**

Topics to be arranged by the instructor, based primarily upon new developments in the field as illustrated by the current research interests of the faculty, as well as by a study of the current literature. (2 lecture hours a week).

**59-655. Selected Topics in Inorganic Chemistry**

Spectroscopic applications to inorganic systems. Typical of topics covered from year to year are optical spectroscopy, vibrational spectroscopy and normal coordinate analysis, ESR and NMR spectroscopy, and photoelectron spectroscopy. (2 lecture hours a week).

**59-660. Advanced Metabolism**

The regulation and control of anabolic and catabolic flux in bacterial and mammalian metabolism. Emphasis will be given to the identification and regulatory role of allosteric and covalently modified enzymes, hormones and

secondary messengers. (Prerequisite: 59-360/362 or 59-361/363 or equivalent). (2 lecture hours a week).

**59-661. Special Topics in Biochemistry**

(Prerequisite: 59-360/361 or 59-362/363 or equivalent). (2 lecture hours a week).

**59-663. Protein Chemistry**

The structure and function of proteins. Selected topics in this course will include (a) glycoprotein structure and biological function; (b) thiol-disulfide chemistry as related to protein structure and function, and (c) protein engineering and/or methods of protein microcharacterization. (Prerequisite: 59-365 or equivalent). (2 lecture hours a week).

**59-671. Special Topics in Theoretical Chemistry**

Topics to be selected by registrants but will generally be molecular orbital calculations for organic and inorganic chemists. (2 lecture hours a week).

**59-680. Clinical Chemistry I**

A study of the chemistry, significance, and applications of current techniques in clinical chemistry. Term paper, field trips, and seminars will be required. (Prerequisite: 59-560/562 or equivalent and 59-321 or equivalent). (2 lectures a week).

**59-681. Clinical Chemistry II**

The continuation of Clinical Chemistry I. (Prerequisite: 59-680). (2 lecture hours a week).

**59-682. Clinical Biochemistry I**

A discussion of the biochemistry of human disease, including various aspects of physiological chemistry. Term paper and/or seminars will be required. (Prerequisite: 59-560/561 or 59-562/563 or equivalent). (2 lecture hours a week).

**59-683. Clinical Biochemistry II**

The continuation of Clinical Biochemistry I. (Prerequisite: 59-682). (2 lecture hours a week).

**59-684. Principles of Disease**

Introductory course in human pathology with special emphasis on chemical aspects of disease. An examination of the interrelationships and homeostatic control of the major biochemical parameters in health, and the cause and nature of the anomalies of these



parameters occurring in disease. (Prerequisite: Biology 55-110/111, 59-560/562 or equivalent and the consent of the instructor). (2 lecture hours a week and demonstrations).

#### **59-685. Diagnosis of Disease**

An advanced course in human pathology with special emphasis on the chemical aspects of disease. A case-oriented approach to the diagnosis of disease based primarily on examination of the biochemical parameters, with the aim not only of identifying the disease, but also of explaining the significance of the pertinent biochemical parameters. (Prerequisite: 59-684 and/or consent of instructor). (2 lecture hours a week).

#### **59-686. Special Topics in Clinical Chemistry**

(Prerequisite: 59-560/562 or equivalent). (2 lecture hours a week).

#### **59-689. Clinical Chemistry Research and Development**

Original research and comparative studies leading to the development of new clinical chemistry methods. Seminars and papers will be required. (Prerequisite: 59-589). (Minimum 800 hours).

#### **59-795. Seminar**

#### **59-796. Major Clinical Chemistry Critique**

#### **59-797. Master's Thesis**

#### **59-798. Doctoral Dissertation**

## **5 COMMUNICATION STUDIES**

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### **5.1.1 OFFICERS OF INSTRUCTION**

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#### **Professor Emeritus**

Romanow, Walter I.; B.A. (Saskatchewan), M.A. (Windsor), Ph.D. (Wayne State)—1965.

#### **Professors**

Cunningham, Stanley B.; B.A. (Manitoba), M.S.L. (Pontif. Inst. of Mediaeval Studies), M.A., Ph.D. (Toronto)—1961.

Selby, Stuart A.; B.A. (Hamilton College, N.Y.), M.A., Ed.D. (Columbia)—1970.

Edmunds, Hugh H.; B.A., B.Ed. (Saskatchewan), M.Ed. (Wayne State)—1971.

Carney, Thomas F.; B.A., Ph.D. (London), D.Litt.et Phil. (UNISA)—1977.

Surlin, Stuart H.; B.S. (Roosevelt), M.S. (Illinois), Ph.D. (Michigan State)—1977.

Cuthbert, Marlene; B.A. (Queen's), M.A. (Columbia), Ph.D. (Syracuse)—1984.

#### **Associate Professors**

Gerace Gold, Mary; B.A., M.A. (Windsor), M.A. (Wayne State), J.D. (Detroit)—1967. (Head of the Department).

Linton, James M.; B.A. (York), M.A. (Pennsylvania)—1972.

King, Christopher R.; B.A. (Grinnell College), M.A., Ph.D. (Wisconsin) M.B.A. (York)—1974.

Winter, James P.; B.J., M.J. (Carleton), Ph.D. (Syracuse)—1981.

Lewis, Richard F., B.S. (Loyola College), M.S., Ph.D. (Syracuse)—1983.

Marzotto, Esio J.; B.S.I.E., M.S.I.E. (Wayne State), Ed.D. (Wayne State)—1973.

#### **Assistant Professors**

Goldman, Irvin; B.A. (Winnipeg), M.S. (Purdue), Ph.D. (Iowa)—1981.

Hammer, Rhonda; B.A., M.A. (Simon Fraser)—1989.

Hassanpour, Amir; B.A., M.A. (Tehran), Ph.D. (Illinois)—1989.



## 5.2 Programs of Study

### 5.2.1 THE MASTER OF ARTS DEGREE

In addition to the general requirements outlined in 1.6.2, the following requirements must be met by all students proceeding to the Master's degree.

#### Admission Requirements

Admission to the final year of the program is from an honours Bachelor's degree in Communication Studies or its equivalent from another university, including evidence of familiarity with basic quantitative research methods and communication theory. Students with a general degree, or an honours degree in another discipline, may be admitted to a minimum two-year Master's program requiring selected make-up courses.

In addition to the requirements given in 1.3, complete application for admission includes the following:

- (a) three Confidential Report Forms;
- (b) a statement of purpose in pursuing graduate studies of about 250 words;
- (c) acceptable performance in the Graduate Record Examination (GRE);
- (d) for students whose native language is not English, a score of at least 575 on the TOEFL (Test of English as a Foreign Language).

Deadline for September admission is April 15th. Although not encouraged, owing to timing of course offerings, students occasionally may be admitted in January. Deadline for completion of January applications is October 15th.

#### Program Requirements

1) After receiving counselling within the Department, the candidate may proceed toward the degree in one of the following programs of study:

- (a) six courses including Communication Studies 40-500, a graduate-level research methods course, a graduate-level theory course, plus

a thesis or thesis media production. At least four courses must be at the 500 level in Communication Studies; the others may be at the 400 level and/or in a cognate field;

- (b) eight courses including Communication Studies 40-500, a graduate-level research methods course, a graduate-level theory course, plus a major project. At least six courses must be at the 500 level in Communication Studies; the others may be at the 400 level and/or in a cognate field.

2) The thesis or thesis media production will be the normal requirement, but in place of a thesis students may apply, with departmental permission, to substitute two additional courses and a major project, which they must defend. The thesis media production will be a social sciences production equivalent to a research thesis, but may be submitted primarily in non-print form with appropriate scholarly documentation.

### 5.3.1 COURSE DESCRIPTIONS

All courses listed will not necessarily be offered in any given year.

#### 40-500. Graduate Proseminar

A survey of the discipline of communication studies, and of current theory and research in the field. Required of all graduate students. (3 lecture hours, 1 laboratory hour a week).

#### 40-505. Production Research and Design

An advanced practical study of production methods and problems examined in the context of recent theoretical developments. (2 seminar hours, laboratory hours to be arranged).

#### 40-520. Theory and Practice in Facilitating Small Group Communication

An examination of current theory, research, and methods in behavioural and communication modes within small group settings. (3 hours a week).



**40-521. Theory and Practice Within Organizational Settings**

Cross-cultural and international influences and the impact of emerging communications technologies are studied in the context of organizational settings. (3 hours a week).

**40-522. Mass Media Marketing Communication and Consumer Behaviour**

An examination of consumer reactions to marketing communication strategies. Particular attention will be paid to the development of "consumerism" in the light of mass media behaviour. (3 hours a week).

**40-526. Theories and Principles of Instructional Communication**

An examination of current informational, social and behavioural theories of instruction, with emphasis on the principles of systems design. (Prerequisite: consent of the Department). (3 hours a week).

**40-527. Instructional Communication Design**

The design, application, and testing of instructional audiovisual modules. (Prerequisite: 40-326, 40-526 or permission of instructor). (3 hours a week).

**40-530. Mass Media and Social Interest**

An examination of current practices and developments in the mass media within the context of social values and responsibilities. (2 hours a week).

**40-535. Communication Research Methodology**

An examination of the role of quantitative approaches to the study of communication and mass communication, including such topics as content analysis, experimental and survey research, and the use of bivariate and multivariate statistics. (3 hours a week).

**40-537. Qualitative Approaches to Communication Research**

An examination of humanistic and critical approaches to the study of communication and mass communication. Topics will be selected from a range of cultural studies and interpretive sources. (3 hours a week).

**40-552. The Press and Global Newsflow**

An examination of the social effects of the global flow of press news information in the

context of technological innovations. The efforts and experiments in various countries, especially in the Third World, to adapt Western news concepts and technologies to local and regional requirements are studied. (2 hours a week).

**40-555. The Development of Canadian Communication Policy**

An examination, in an historical context, of the factors influencing the development of policy toward the mass media. (2 hours a week).

**40-557. Current Problems in Canadian Communication Policy**

An examination of the interaction of governmental, corporate, and public interests in telecommunication, viewed in a legal and constitutional framework. (2 hours a week).

**40-560. Communication and Development**

A study of the relationship between the development of nations and cultural groupings and the development of communication systems with a focus on both national and international structural constraints. (3 hours a week).

**40-561. International Communications Policy**

A study of communication policy issues and processes at the international level with particular reference to the implications of transnational data flows. Relevant international organizations, as well as national/regional/international constraints impinging upon the formation of policy, are also discussed. (3 hours a week).

**40-562. Intercultural Communication**

An investigation into communication, nationally and internationally, between people of different cultures in mediated and personal, non-verbal and verbal contexts. Drawing on communication theory and other insights, the course examines film, literature, historical documents, business case studies and other data, and emphasizes practical as well as theoretical approaches. (2 lecture, 1 laboratory hour a week).



**40-565. Mass Persuasion and the Propaganda Process**

An examination of the operation and effects of propaganda and persuasion strategies in mass society. (3 hours a week).

**40-570. New Technologies in Telecommunication**

An inquiry into the effects and policy implications of emerging telecommunication technologies. (2 hours a week).

**40-575. Advanced Communication Theory**

An examination of current theories of mass communication. (2 hours a week).

**40-576. Traditions in Canadian Communication Theory**

An examination of the impact of current economic, social, cultural, and political factors on the operation, function and structure of the mass media and telecommunication industries. (2 hours as week).

**40-590/591. Selected Topics in Communication Studies**

Specialized treatment of topics of current interest which may vary from year to year. Consult the Department for specific offerings in any given semester.

**40-595. Directed Research and Readings**

An individual tutorial in a topic not already covered in other graduate course listings. (By consent of Department only). (3 hours a week).

**40-795. Thesis Media Production**

**40-796. Major Project**

**40-797. Thesis**

## 6 COMPUTER SCIENCE

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### 6.1.1 OFFICERS OF INSTRUCTION

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#### Professors

Alam, Mansoor; B.Sc. Eng.(Hons) (Aligarh Muslim U.), M.E., Ph.D. (I.I.Sc., Bangalore)—1982.

Bandyopadhyay, Subir; B.Sc., B. Tech., M. Tech. (Calcutta), M. Math. (Waterloo), Ph.D. (Calcutta)—1984.

Frost, Richard A.; B.Sc.(Hons.) (London), M.Sc. (Aberdeen), Ph.D. (Strathclyde)—1987. (Director of the School).

#### Associate Professors

Kent, Robert D.; B.Sc. (U.B.C.), M.Sc., Ph.D. (Windsor)—1982.

Tsin, Yung H.; B.Sc. (Nanyang), M.Sc. (Calgary), Ph.D. (Alberta)—1985.

#### Assistant Professor

Morrissey, Joan; B.Sc., Ph.D. (Dublin)—1989.

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### 6.2.1 THE MASTER OF SCIENCE DEGREE

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#### Admission Requirements

Graduates of the University of Windsor or of other recognized colleges or universities may be admitted to programs leading to the Master's degree. A student with an honours Bachelor's degree or equivalent with adequate specialization in Computer Science and with at least B standing in the major subject may be admitted to a one-year Master's program (II Master's Candidate). A student with a general Bachelor's degree with a major in Computer Science or an honours Bachelor's degree in a related subject and with at least B standing in the major subject may be admitted to a two-year Masters's program (I Master's Qualifying followed by II Master's Candidate) or to a two-year II Master's Candidate program depending upon prior qualifications.

Students with deficiencies in some areas of Computer Science may be required to make up those deficiencies by registering in under-



graduate courses prior to or as part of their graduate program or by following a program of supervised reading.

### Program Requirements

- 1) The requirements for the degree of Master of Science may be satisfied by pursuing a program of studies consisting of either eight approved courses and a major paper or six approved courses and a thesis. (A thesis is a major research project which must involve substantial innovative work generally culminating in original results. Students intending to pursue a higher degree after successful completion of the Master's program are advised to take the thesis option.)
- 2) Courses 60-510 and 60-520 will be required of all candidates.
- 3) With prior approval, candidates may be permitted to include at most one advanced undergraduate computer science course in their program.
- 4) With prior approval, candidates may be permitted to include graduate courses offered by other departments in their program.
- 5) No student will be allowed to include in his or her program, a course which substantially overlaps a course previously taken.
- 6) All candidates' programs are subject to approval by the graduate coordinator.

A student who fails to achieve satisfactory performance in all aspects of the program (course work, thesis or major paper) may be required to withdraw.

The Master's committee is chosen in the manner described in 1.6.2 of this Graduate Calendar. The final examination will take the form of an open seminar in the presence of the Master's committee. The examination will be open to the public.

Each student must obtain approval of his or her program, in writing, from the graduate coordinator within three weeks of registration. Subsequent changes require written approval from the graduate coordinator.

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### 6.3.1 COURSE DESCRIPTIONS

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Not all of the courses listed below will necessarily be offered in any one year. A component

of certain courses will be offered in conjunction with an advanced undergraduate course; in such cases the undergraduate course work will comprise one half of the graduate course.

#### 60-510. Background Reading

The purpose of this course is to prepare students for conducting the specific research on which their major paper or thesis will be based. Students are required to complete a thorough literature search on the general area in which they intend to conduct research and to undertake extensive supervised reading. Students must submit a comprehensive survey of relevant research, together with an annotated bibliography of important papers, theses, books, and conference proceedings. The survey should include a "citation lattice" indicating clearly the major papers in the area. The bibliography should include names and current addresses of scientists working in the student's chosen area and also a list giving details of relevant forthcoming conferences and workshops relevant to the student's chosen research area.

#### 60-520. Seminars and Computing Tools

Candidates are required to attend the School seminars throughout their M.Sc. studies and, during each academic year, to present one seminar on a topic approved by the graduate coordinator. Students are also required to investigate, through reading and experimentation, eight "computing tools" including, for example, parser generators, database management packages, simulators, typesetters, synthesizer generators, VLSI design packages, and state-of-the-art programming languages. Each candidate will be required to submit a report comprising summary descriptions and evidence of successful non-trivial use of the eight tools investigated, together with critical reviews of four particular tools. The selection of tools to be investigated will be made by the student with the approval of the graduate coordinator. (This course has the same weight as the other courses, but is extended over a full academic year.)

#### 60-535. Advanced Performance Evaluation

Current developments in the theory and practice of system performance evaluation.



**60-537. Selected Topics in Database Management**

Current developments in selected aspects of database management. Topics covered may include data models, database languages, database logics, database machines and transaction management.

**60-538. Information Retrieval Systems**

Fundamental principles and advanced topics in the design of information retrieval systems. Theoretical as well as practical aspects will be discussed.

**60-541. Foundations of Programming Languages**

Current developments in the theory and practice of programming language design and implementation. Various languages will be considered and may include imperative, applicative, logic, constraint, object-oriented and equational languages.

**60-552. Advanced Computer Graphics**

Current developments in computer graphics. Topics covered will include hardware, software, human interfaces, graphics standards, rendering techniques and computational geometry.

**60-553. Advanced Theory of Computation**

Study of the limitations and complexity of computation.

**60-560. Advanced Computer Architecture**

Current developments in computer architecture. Topics will include parallel processing architectures and application/language specific architectures.

**60-572. Topics in Artificial Intelligence**

A programming-oriented introduction to selected topics in artificial intelligence. Topics to be covered may include: AI programming techniques, pattern matching systems, knowledge representation schemes, AI software engineering tools and developments in software/hardware integration.

**60-588. Application and Implementation of Pure Functional Languages**

Current developments in the design, application and implementation of pure lazy functional programming languages.

**60-589. Advanced Knowledge Base Systems**

Current developments in the theoretical and practical aspects of knowledge base systems. In particular, the course will be concerned with the integration of database and AI theories and technologies.

**60-590. Directed Special Studies**

With approval of the graduate coordinator, a student may undertake to write an original paper on a specialized topic which would enhance his or her program of study. The course will involve directed supervised reading and informal discussion with the graduate supervisor. The work undertaken in fulfilling the requirements for this course will not be counted directly for credit in the evaluation of either 60-595 Major Paper or 60-596 M.Sc. Thesis. (May be repeated more than once, with permission of the graduate coordinator, provided the topics are different).

**60-592. Selected Topics**

Selected advanced topics in Computer Science. (May be repeated more than once, with permission of the graduate coordinator, provided the topics are different.)

**60-796. Major Paper**

(Prerequisite: 60-510).

**60-797. M.Sc. Thesis**

(Prerequisite: 60-510).



## 7 ECONOMICS

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### 7.1.1 OFFICERS OF INSTRUCTION

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#### Professor Emeritus

Phillips, William Gregory; B.A., M.A., Ph.D. (Toronto)—1950.

#### Professors

Fallenbuchl, Zbigniew Marian; B.Sc. (Econ.) (London), M.A. (Montreal), Ph.D. (McGill), D. hon. causa (Aix-Marseille-III)—1959. (Dean of the Faculty of Social Science).

Gillen, William John; B.A. (Assumption), M.A. (Toronto)—1959.

Kovacs, Aranka Eve; B.A. (McMaster), M.A. (Toronto), Ph.D. (Bryn Mawr)—1961.

Strick, John Charles; B.A. (Manitoba), M.A. (Assumption), Ph.D. (Alberta)—1965.

Guccione, Antonio; Laurea (Palermo), Ph.D. (California)—1967.

Fortune, J. Neill; B.Sc.A. (Toronto), M.A. (Western Ontario), Ph.D. (Indiana)—1969.

Brown, Alan Andrew; B.A. (City College of New York), M.A., Ph.D. (Harvard)—1971.

Primorac, Emile; B.A., M.Comm. (Toronto), Ph.D. (London)—1971.

#### Associate Professors

Burrell, Peter R.; B.A. (Assumption), M.A. (Pennsylvania)—1965.

Kolinski, Ralph; B.S. (Marquette), M.A., Ph.D. (Wayne State)—1966.

Mendels, Roger P.; B.Comm., M.A. (McGill), M.Sc., Ph.D. (Wisconsin)—1969.

Meyer, Benjamin S.; B.A. (City College of New York), M.A., Ph.D. (State U. of New York, Buffalo)—1970.

Sydor, L.P.; B.A. (Western Ontario), Ph.D. (Princeton)—1972.

Charette, Michael F.; B.A., M.A. (Windsor), Ph.D. (Western Ontario)—1976. (Head of the Department).

Bajic, Vladimir; B.A., M.A. (Belgrade), M.A. (Williams College), Ph.D. (Toronto)—1984.

#### Assistant Professors

Meng, Ronald; B.Sc. (Trent), M.A., Ph.D. (Carleton)—1987.

Yeung, David; B.Soc.Sci. (Hong Kong), M.A., Ph.D. (York)—1987.

Akhand, Hafiz; B.A., M.A. (Dhaka), M.A., Ph.D. (Queen's)—1988.

Anglin, Paul; B.A. (Toronto), M.A., Ph.D. (Western Ontario)—1988.

Fan, Yanqin; B.Sc. (Jilin), M.A. (Western Ontario)—1989.

Homapour, Nasser; B.A., M.A. (Tehran), Ph.D. (SUNY-Binghamton)—1989.

Hong, Chansik; B.A. (Seoul), Ph.D. (Chicago)—1989.

Zaralis, George; B.A. (Athens), M.Sc. (London), Ph.D. (Concordia)—1989.

## 7.2 Programs of Study

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### 7.2.1 THE MASTER OF ARTS DEGREE

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#### Admission Requirements

1) A student with an honours Bachelor's degree in Economics or its equivalent, with at least a major average of B, may be admitted to a one-year Master's program. Applicants are expected to have completed one course in each of calculus, linear algebra and statistics. Applicants who have not completed the above mathematics requirements are encouraged to do so prior to beginning their graduate course work.

2) A student with a general degree, or an honours graduate in another discipline, with at least a B standing, may be admitted to a minimum two-year Master's program.

#### Program Requirements

1) Students in the two-year program are required to take a make-up or qualifying year in their first year of the M.A. program. Selection of courses is to be made in consultation with a departmental graduate advisor.

2) Students in the one-year M.A. program (Candidate year) are required to complete:



- (a) eight graduate courses and a major paper normally to be in conjunction with one of the courses;
- (b) at least one course in microeconomics, one in macroeconomics and one in econometrics. Students intending to enter a Ph.D. program are advised to take 41-501, 41-502, 41-503, 41-504, 41-541 and 41-582.

**41-516. Labour Economics I**

The demand and supply analysis; human capital; trade unions and collective bargaining; wage structures; labour mobility.

**41-517. Labour Economics II**

Employment and unemployment; wage adjustment; distribution of income; selected policy issues.

**41-519. Cost-Benefit Analysis**

This course covers the theory and practice of social cost-benefit analysis. Attention is given to "shadow pricing", externalities, discount rates, and other issues arising from evaluation of public sector projects.

**41-531. Industrial Organization**

A theoretical and empirical analysis of firms and markets.

**41-541. Econometric Theory I**

The general linear model, selected single equation problems, and an introduction to simultaneous equations methods.

**41-542. Econometric Theory II**

Additional topics in econometric theory (Prerequisite: 41-541).

**41-543. Applied Econometrics**

The specification, estimation and testing of economic models. Emphasis will be on the classical linear regression model, the implications or violations of its basic assumptions and diagnostic testing. (This course is not intended for students who take 41-541.)

**41-550. Monetary Theory**

A survey of advanced topics and recent developments in the theory of money.

**41-551. Monetary Policy**

A survey of the theory and practice of monetary policy and the effectiveness of the various instruments of monetary control.

**41-560. Public Sector Expenditure**

Selected topics in public expenditure theory such as public goods, externalities, public choice, and bureaucratic behaviour.

**41-561. Public Sector Finance**

Optimal taxation, efficiency, equity, and fiscal effects of taxes; tax structure, user charges, government debt and borrowing.

**41-564. Economic Development: Theory**

The macroeconomics of growth and instability in the less developed countries; the

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**7.3.1 COURSE DESCRIPTIONS**


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All courses listed will not necessarily be offered in every semester. Courses are normally three hours a week.

**41-501. Microeconomics**

An intensive review of the theory of the firm and consumer theory.

**41-502. Macroeconomics**

An intensive review of theories of the determination of aggregate output, employment and price level.

**41-503. Microeconomic Theory II**

Additional topics in microeconomic theory.

**41-504. Macroeconomic Theory II**

Additional topics in macroeconomic theory.

**41-510. Theory of International Trade**

A survey of classical and modern trade theories.

**41-511. International Monetary Economics**

A survey of balance-of-payments and exchange-rate theories, problems, and policies.

**41-514. Canadian Labour Relations**

Selected seminar topics dealing with industrial relations, international unionism, impact of technological change, comparable worth, strikes and collective bargaining issues. Emphasis will be on current institutional research and quantitative analysis.

**41-515. Canadian Labour Problems and Policies.**

Selected seminar topics covering public sector organization, quality of working life plans, flexible working time, labour force, worker participation, labour-management consultation. Focus will be on current research and analysis.



stages of economic growth; dualism; industrialization and agricultural development; foreign trade and the balance of payments problems; international investment and aid; technology transfer; economic integration and economic development.

### **41-565. Economic Development Policy**

The design and implementation of policies to promote economic development. Examples drawn from particular developing economics will be discussed.

### **41-575. Comparative Economic Systems**

The organization, operation and performance of alternative economic systems in theory and practice.

### **41-576. Performance of Centrally Planned Economies**

An in-depth study of one or more centrally planned economies. Countries studied will vary from year to year but will be selected from among the USSR and other Eastern European countries.

### **41-581. Mathematical Economics**

The formal properties of selected economic models. Includes an examination of the problems of existence, uniqueness and stability of solutions.

### **41-582. Selected Topics in Advanced Theory**

An examination of the most recent literature on one or two selected topics in theory.

### **41-590. Regional Economics**

Theoretical and policy issues relating to large regions, including, for example, distribution of wealth, distribution of productive resources, and migration.

### **41-591. Urban Economics**

Theoretical and policy issues relating to urban areas, including, for example, urban growth and land use.

### **41-594. Special Studies in Economics**

Research and reading course in a selected field approved by the Department.

### **41-796. Major Paper**

Students are expected to attend the major paper seminar in at least two semesters.

Head to form part or all of the requirements for the first year of the two-year graduate program, may be found in the University of Windsor *Undergraduate Calendar* (see 4.5.3).

Undergraduate senior courses, which may be assigned at the discretion of the Department



## 8 EDUCATION

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### 8.1.1 OFFICERS OF INSTRUCTION

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#### Professors

Crawford, W. J. Ian; B.Sc. (Windsor), M.A. (Ed.) (Ottawa), M.Ed., Ed.D. (Wayne State)—1973. (Coordinator of the Pre-Service Program).

Awender, Michael A.; B.A., M.A. (Windsor), M.Ed. (Toronto), Ph.D. (Claremont)—1975. (Dean of the Faculty of Education).

#### Associate Professors

Innerd, Wilfred L.; B.A., Dip. Ed., M.Ed. (Durham), Ph.D. (Pittsburgh)—1976.

Laing, Donald A.; B.A., M.A., Ph.D. (Toronto)—1976. (Coordinator of Graduate Studies).

Meyer, John R.; A.B. (St. John's, Minn.), M.A. (Strasbourg), Ph.D. (Iowa)—1976.

Williams, Noel H.; B.A. (Sir George Williams), M.Ed. (McGill), Ph.D. (Alberta)—1976. (Coordinator of the In-Service Program).

Kuendiger, Erika; Staatsexamen (Aachen), D. Phil. (Saarbruecken)—1984.

Jefferson, Anne; B.Ed., M.Ed., Ph.D. (Alberta)—1988.

#### Assistant Professor

Morton, Larry; B.Th. (O.B.C./O.T.S.O.), B.A. (Waterloo), M.A., Ph.D. (Toronto)—1988

## 8.2 Programs of Study

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### 8.2.1 THE MASTER OF EDUCATION DEGREE

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The courses and programs leading to the academic professional degree of Master of Education are designed with two objectives: first, to provide the candidate with an opportunity to acquire advanced knowledge of the theoretical bases of education as expressed in philosophical concepts and elucidated by research findings and, secondly, to bridge the gap between theory and practice through increased understanding of educational issues and problems.

#### Admission Requirements

1) In addition to the requirements set forth in 1.3 and 1.6.1 for admission to the Faculty of Graduate Studies and Research, and to programs leading to a Master's degree, applicants to the Master of Education program must:

- (a) present an undergraduate degree from an approved university with at least B standing in the final two years of study;
- (b) present a Bachelor of Education degree or the equivalent professional preparation;
- (c) have at least one year of successful professional experience in education;
- (d) submit a "Statement of Personal Objectives" outlining the applicant's professional background and reasons for seeking a graduate degree in education.

2) In exceptional cases, the Faculty may admit applicants holding an honours Bachelor's degree or the equivalent with at least a B standing in the final two years of study who can demonstrate experience, interests and motivation that otherwise make them appropriate applicants to the program.

3) *Advanced Standing*: Applicants may be granted credit for up to two graduate semester courses completed before application to the Master of Education program and taken in another Faculty at the University of Windsor or at another accredited institution. Requests for advanced standing will be considered only at the time of application and only for graduate courses completed with at least B standing.

4) Admission to the Master of Education program is to the II Master's Candidate level.

#### Program Requirements

1) Candidates for the Master of Education degree will pursue studies in one of two areas of concentration:

- (a) Curriculum Studies;
- (b) Educational Administration.



2) Candidates will follow either a major paper or a thesis program. Those who wish to include a thesis in their program must request approval from the Graduate Committee of the Faculty. Normally, the Committee will not consider such requests until after four courses have been completed.

Additional information concerning the procedures for theses and major papers may be obtained from the Coordinator of Graduate Studies.

3) In addition to the general requirements for a Master's degree set forth in 1.6.2 and 1.6.3, all candidates are required to complete successfully the equivalent of a minimum of ten semester courses and the comprehensive examination in Education. The ten courses must include:

- (a) two compulsory courses, 80-527 (Research in Education) and 80-510 (Statistics in Education);
- (b) a research project resulting in either a major paper (80-796), with the value of two semester courses or a thesis (80-797), with the value of four semester courses;
- (c) in the case of candidates in Curriculum Studies proceeding to the degree by major paper, two courses must be selected from 80-524, 80-554 and 81-503, and an additional four courses must be selected from those listed under Curriculum Studies;
- (d) in the case of candidates in Curriculum Studies proceeding to the degree by thesis, two courses must be selected from 80-524, 80-554 and 81-503, and an additional two courses must be selected from those listed under Curriculum Studies;
- (e) in the case of candidates in Educational Administration proceeding to the degree by either major paper or thesis, at least four courses must be selected from those listed under Educational Administration.

4) Candidates with previous courses in research methods or statistics may request the

Graduate Committee of the Faculty for permission to substitute other courses for either one or both of 80-527 and 80-510.

5) *Transfer Credit:* While the student is registered in the M.Ed. program, credit for up to two graduate semester courses normally may be applied towards the degree from another Faculty at the University of Windsor or transferred from another accredited institution. Candidates must receive the approval of the Dean of the Faculty of Education or designate before taking such courses. Credit will be granted only for courses completed with at least a B standing.

6) Full-time candidates must complete all requirements for the degree within three years of their first registration.

7) Part-time students may not carry more than two courses in any term and must complete all requirements for the degree within five years of their first registration.

*STUDIES IN THE AREA OF CONCENTRATION*

**Curriculum Studies**

*Foundations*

- 80-524. Fundamentals of Curriculum Theory and Development
- 80-554. Fundamentals of Instructional Design
- 81-503. The Psychology of Learning and Teaching

*Applications*

- 80-534. Individual Reading
- 81-537. Language Arts in the Elementary School
- 81-539. Second Language Teaching: Theories and Applications
- 81-541. The Social Sciences Curriculum
- 81-547. Learning in Science
- 81-551. Microcomputers for Educators
- 81-553. The Teaching and Learning of Mathematics
- 81-556. Approaches to Literacy Development



- 81-557. English Education in the Intermediate and Senior Divisions  
 81-558. Psychology of Learning Problems  
 81-572. Theory and Practice in Early Childhood Education

### **Educational Administration**

- 80-531. Supervision of the Instructional Process  
 80-534. Individual Reading  
 80-555. Strategies for the Implementation of Changes in Education  
 82-529. Theories of Educational Administration  
 82-532. Organization and Administration of the School  
 82-535. Organizational Behaviour in Educational Institutions  
 82-560. Politics of Education  
 82-561. Legal Aspects of Education  
 82-562. Educational Finance  
 82-565. Sociological Aspects of Educational Administration  
 82-566. Interpersonal Relationships in Education

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### **8.3.1 COURSE DESCRIPTIONS**

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All courses will not necessarily be offered each year.

#### **80-510. Statistics in Education**

This course will deal with the following: descriptive and inferential statistical procedures; commonly used one- and two-sample tests; an introduction to analysis variance and corresponding research designs. (Prerequisite: 80-527). (3 lecture hours a week).

#### **80-524. Fundamentals of Curriculum Theory and Development**

A survey of the major theories of curriculum that have influenced education in North America and an outline of the techniques employed in curriculum development. This will include the creation of outlines and plans for implementation and feedback. Attention will be given to sources of influence and control, specification of aims and objectives, selection and coordination of activities, strategies, resources and evaluation. (3 hours a week).

#### **80-527. Research in Education**

An overview of educational research methods: e.g., the interpretation of research literature, the identification and use of data bases, the design of research proposals and the application of specific methods to research projects. (3 lecture hours a week).

#### **80-531. Supervision of the Instructional Process**

A practice-oriented course designed to develop administrative competency in the supervision of instruction. The focus will be threefold: (1) awareness and recognition of specific teaching skills (use of micro-teaching), (2) the development of competence in supervisory, interpersonal and group skills, and (3) an examination of approaches to program evaluation. (3 lecture hours a week).

#### **80-534. Individual Reading**

The Individual Reading course is intended to permit students with special interests in, and knowledge of, particular areas of education not covered in sufficient depth in available courses to pursue those interests through independent, supervised study. (Permission of an advisor and of a subcommittee of the Graduate Studies Committee is required.)

#### **80-554. Fundamentals of Instructional Design**

This course will consider current principles, research, theory and practice in the design, development, implementation and evaluation of instruction within various learning and teaching settings. (3 hours a week).

#### **80-555. Strategies for the Implementation of Changes in Education**

Procedures for dissemination, adoption, implementation, and integration of changes for teachers, administrators, and leaders of professional organizations. Attention will be given to theoretical models and their applications, change agency, and modification of organizational climate and structure. (3 hours a week).

#### **80-796. Major Paper**

Conducted under the guidance of at least two members of the Faculty, a major paper may analyze and evaluate a substantial body of scholarly literature or describe or interpret a research project undertaken by the student.



The major paper is subject to an oral examination (see Thesis or Major Paper, 1.6.3, and Program Requirements, 8.2.1).

#### **80-797. Thesis**

(See Thesis or Major Paper, 1.6.3, and Program Requirements, 8.2.1.)

#### **81-503. The Psychology of Learning and Teaching**

This course will provide students with an in-depth view of psychological theory and research towards the understanding of learning and teaching. While both behavioural and cognitive perspectives will be discussed, the emphasis will be upon cognitive theory and application. Topics will include behaviourism, behaviour modification, information processing, metacognition, cognitive behaviour modification, cognitive strategy training, motivation and individual differences. (3 lecture hours a week).

#### **81-537. Language Arts in the Elementary School**

This course will examine issues in language arts instruction in the light of current language theories. The focus is on the practical application of language arts with special emphasis on language arts methods of instruction, teacher strategies, student activities and evaluation practices. (3 lecture hours a week).

#### **81-539. Second Language Teaching: Theories and Applications**

This course reviews current thinking on the nature of language, communication and second-language learning and examines practical applications to teaching methods and curriculum design. (3 lecture hours a week).

#### **81-541. The Social Sciences Curriculum**

An examination of trends and development of social science curricula. Curriculum theory will be applied to one or more of the social sciences within the context of provincial guidelines and the academic and professional qualifications of the students. (3 lecture hours a week).

#### **81-547. Learning in Science**

This course will consider current research and theory in the promotion of science as a process. Included will be a critical survey of

several recent issues in science education. The focus will be on their implications for curriculum and practice at the classroom level. An examination of some of the major difficulties in the design, development, implementation and evaluation of science curricula also will take place. (3 lecture hours a week).

#### **81-551. Microcomputers for Educators**

A comprehensive survey of the uses of microcomputers in the classroom; course ware evaluation; computer-managed instruction; implementing computer education; current issues in the use of microcomputers by educators. (3 lecture hours a week).

#### **81-553. The Teaching and Learning of Mathematics**

This course will examine research into students' learning and the teaching of mathematics. First, the motivational aspects of teaching and learning will be considered, including those related to the topic "Women in Mathematics." Second, specific mathematical topics will be dealt with, selected according to the interests of students. (3 lecture hours a week).

#### **81-556. Approaches to Literacy Development**

This course will consider current research and theory in the development of reading and writing abilities, and will examine some aspects of assessing literacy development. (3 lecture hours a week).

#### **81-557. English Education in the Intermediate and Senior Divisions**

This course will offer a critical survey of several recent theories and issues in English education. The focus will be on their implications for curriculum and practice at the classroom level. Current issues at the local or provincial level, determined by the group, will be examined in detail. (3 lecture hours a week).

#### **81-558. Psychology of Learning Problems**

This course reviews current theories of learning disabilities and learning problems. Various approaches to diagnosis and remediation are presented. Students are expected to present case study examples



during the course, and to develop a particular interest area to great depth. (Prerequisite: 81-503 or permission of instructor). (3 lecture hours a week).

### **81-572. Theory and Practice in Early Childhood Education**

An examination of theory and current practice in Early Childhood Education. The emphasis will be on the translation of theory into sound educational practice. Organization and management of Early Childhood programs will be of concern as well as teaching procedures. (3 lecture hours a week).

### **82-529. Theories of Educational Administration**

This course is designed to examine and contrast the traditional and organizational administrative patterns of management and to discuss their application to the institutions of education. Focus will also be placed on a problem-solving approach in dealing with actual administrative problems such as morale, leadership, staff development, and decision-making. (3 lecture hours a week).

### **82-532. Organization and Administration of the School**

An analysis of the laws and regulations governing the administration of schools. Focus will be placed upon the problems of day-to-day operation, and the processes of change. (3 lecture hours a week).

### **82-535. Organizational Behaviour in Educational Institutions**

A study of theory and research in the socio-behavioral sciences which concerns the behavior of individuals and groups in educational settings. Attention is given to the implications of such theory and research for administration in educational institutions.

### **82-560. Politics of Education**

This course will examine the administration of education from a political perspective. Both the legal and extra-legal factors that influence educational outcomes will be examined. Their roles will be viewed in terms of comparative forms of educational administration. Finally, several administrative decisions will be analyzed using the perspectives gained

throughout the course. (3 lecture hours a week).

### **82-561. Legal Aspects of Education**

This course will focus on legislation and court decisions dealing specifically with the educational process. Both the historical and philosophical basis of these and the practical application of the same in a contemporary setting will form the primary emphasis for the course. (3 lecture hours a week).

### **82-562. Educational Finance**

This course will concern itself with the application of principles of public fiscal policy to education. It will examine the sources and methods of distribution of public school revenue at the various levels of government. Provincial and state school grant systems, school budgeting and salary scheduling will be major areas of focus for the course. (3 lecture hours a week).

### **82-565. Sociological Aspects of Educational Administration**

This course will examine the school and its occupants and their relationship to the contemporary social order. Analysis of topics such as student culture, learning and social class, roles within the school setting will occur. The focus will be on theoretical positions, representative research findings and representative research methods. (3 lecture hours a week).

### **82-566. Interpersonal Relationships in Education**

This course will analyze the importance and dynamics of interpersonal behaviour. Students will be given the opportunity to develop their own skills in this area. Emphasis will also be placed upon a practical orientation toward influencing change. (3 lecture hours a week).



## 9 ENGINEERING

### 9.1 Programs of Study

Ph.D. and M.A.Sc. degrees are offered in Civil Engineering, Electrical Engineering, Engineering Materials, Environmental Engineering and Mechanical Engineering. The M.A.Sc. degree is offered in Geological Engineering and Industrial Engineering.

Program requirements common to these Departments and supplementary to the general requirements of the Faculty of Graduate Studies and Research are listed below.

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#### 9.1.1 THE DEGREE OF DOCTOR OF PHILOSOPHY

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##### Areas of Specialization

The areas of specialization are listed by Department.

##### Admission Requirements

An applicant for admission to a course of graduate studies leading to the Doctor of Philosophy degree in Engineering must normally be a graduate of a recognized university with a Master's degree in Engineering or Applied Science. Applicants with degrees in related fields will be considered but will normally require strengthening of their background in Engineering. At the discretion of the Department, Graduate Record Examinations (GRE) will be required.

All applicants whose native language is not English are normally required to satisfy the English proficiency requirement as described in 1.3.

Possession of the minimum requirements does not automatically ensure acceptance.

**Candidacy:** Admission to graduate study does not imply admission to candidacy for a degree. The candidacy of a student normally will be determined within the second year after initial registration in the doctoral program.

Candidacy will be granted to students who meet all of the following requirements:

- (a) satisfactory completion of the comprehensive examination;
- (b) demonstration to the doctoral committee of ability to conduct independent research;
- (c) acceptance by the doctoral committee of the research proposal.

The doctoral committee will assess the student's competence to continue research on the basis of (a), (b) and (c), and make a recommendation to the Department Head.

##### Program Requirements

The specific minimum program requirements for the Ph.D. include the successful completion of:

- 1) *Course Requirements:* Satisfactory completion of at least four courses, comprising a minimum of eight semester hours, beyond the courses required for the Master's degree.
  - 2) A comprehensive examination.
  - 3) Satisfactory progress in research within each review period. The doctoral committee will establish by periodic review, which will include at least one formal seminar a year, that adequate progress in research has been accomplished by the candidate. The doctoral committee will also grant permission to write the dissertation when it decides the candidate has achieved sufficient competence in carrying out research, and when the candidate has done substantial research.
  - 4) A dissertation on the research. Each candidate will be required to make an oral presentation of the dissertation research and will be examined orally on the subject of the dissertation and related fields.
- Residence and Time Limits:* Every student will undertake a full program of study for a minimum of three years beyond the Baccalaureate of Engineering or its equivalent. Credit for one of these years may be given for the time spent in proceeding to a Master's degree. Credit for one of these years may also be given for work done at another institution. However, in no case shall the student spend fewer than two of the three required years of



residence in full-time attendance at the University of Windsor.

A student admitted to a Ph.D. program requiring the student's attendance for a minimum of three years must complete all requirements within seven years. Students admitted to a program requiring a minimum of two years' residence must complete all requirements within six years.

*Committees:* Research undertaken as part of a doctoral program is normally directed and supervised by a doctoral committee. Whereas the student's advisor provides day-to-day guidance and direction, the committee is ultimately responsible for the overall supervision to ensure that adequate progress is being maintained. The doctoral committee will consist of at least four members, with the student's advisor as chairperson. At least one member shall be from a department within the University of Windsor other than the one in which the student is majoring.

The student's advisor will propose the names of members for the doctoral committee, and these will be subject to the approval of the departmental Graduate Committee and the Executive Committee of the Faculty of Graduate Studies and Research. Within one month after initial registration, each student will be assigned to a doctoral committee.

The final appraisal of the dissertation and the conduct of the final oral examination of the dissertation will be carried out by an examining committee. The examining committee will consist of the doctoral committee, the Dean of Engineering (or designate) as chairperson (non-voting), and an external examiner.

*Examinations:* At the discretion of the doctoral committee a qualifying examination may be required. A qualifying examination is one in which the student is asked to demonstrate a reasonable mastery of the fundamentals in the major subject; it is designed to test the student's preparation for advanced graduate work. If such an examination is required, it must be administered and passed before the student registers for the second year of Ph.D. work.

In addition to the usual examinations on course work, all students must meet the following requirements:

1) *Review of Progress on Research:* Within the first year, the student will present in the form of a seminar an outline of his or her proposed thesis research. This will be presented to the doctoral committee who must approve, with or without modifications, or reject the proposal. Thereafter, at least once a year the student will report his or her progress in the form of a seminar.

2) *Comprehensive Examination:* Students who have previously obtained a Master's degree must attempt this examination within twelve months of registering for the Ph.D. program. Other students must take it within twenty-four months of registration for the Ph.D. program. This set of examinations requires the students to demonstrate an adequate background in the general discipline of engineering, and an advanced knowledge in their fields of specialization. The comprehensive examination will be conducted by a departmental comprehensive committee in two sections:

- (a) a scheduled, supervised written portion, of at least three hours' duration, designed to test the student's general knowledge on core subjects in the field of study, with questions set and answers evaluated by the departmental comprehensive committee;
- (b) an oral examination to be evaluated by the departmental comprehensive committee. The objective of this part of the examination is to test the student's ability to integrate general knowledge from different areas of the field of study in order to solve problems the student has not previously encountered.

The student's overall success on the comprehensive examination will be determined by the departmental comprehensive committee. If the student is unsuccessful, the committee may require:

- (a) that the student repeat all or part of the comprehensive examination at a specified time,
- (b) that the student take and pass remedial coursework before repeating all or part of the examination, or



- (c) after consultation with and approval by the doctoral committee, that the student withdraw from the program.

3) *Final Examination:* The passing of the final oral examination of the dissertation requires both an adequate dissertation and a satisfactory defense of the dissertation. This examination will be conducted by the examining committee. Following the acceptance and provisional approval of the dissertation by the doctoral committee, a date for the oral examination can be set. Except under very unusual circumstances, the external examiner must be present at the oral examination. If the examining committee cannot arrive at a unanimous decision to award a passing grade, the majority decision will be accepted provided that there is no more than one dissenting vote. However, if the dissenting vote is that of the external examiner, a new external examiner will be appointed and another oral examination required. If the new examiner also gives a dissenting vote, the dissertation will not be accepted.

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### 9.1.2 THE DEGREE OF MASTER OF APPLIED SCIENCE

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#### Areas of Specialization

The areas of specialization are listed by Department.

#### Admission Requirements

A candidate for the degree of Master of Applied Science shall hold the degree of Bachelor of Applied Science from this University or an equivalent degree in Engineering or Applied Science. In addition, the applicant must have at least second-class standing or its equivalent in the final year and be recommended by the department in which the candidate plans to undertake studies.

Applicants with degrees in related fields will be considered but will normally require strengthening of their background in Engineering. At the discretion of the Department, Graduate Record Examinations (GRE) will be required.

All applicants whose native language is not English are required to satisfy the English proficiency requirement as described in 1.3.

Possession of the minimum requirements does not automatically ensure acceptance.

#### Degree Requirements

The specific minimum program requirements for the M.A.Sc. include the successful completion of:

1) *Course Requirements:* Satisfactory completion of courses comprising between twelve and twenty-four semester hours, depending on the semester hour equivalence assigned to the mandatory thesis or major paper. A thesis may be equivalent to as many as eighteen semester hours, and a major paper to as many as six semester hours of the total minimum requirement of thirty semester hours.

2) Either a thesis or a major paper as specified below:

- (a) *Thesis:* A thesis incorporating the results of an original investigation is required of all candidates except those students who are doing non-thesis research toward a major paper. Before writing the thesis the student must meet with the Master's committee to obtain permission to write the thesis. The Master's committee will grant this permission when the student has shown sufficient competence and has accomplished substantial research. After completion of the thesis, each candidate will be required to make a satisfactory oral presentation and defense of the thesis as described below.

- (b) *Major Paper:* For those candidates doing non-thesis research, a major paper is required. The topic of the major paper is normally research based on the existing literature in the field of study. The candidate will be required to make an acceptable oral presentation to the Master's committee based on the major paper (see below).



*Residence and Time Limits:* The minimum period of study for a Master's candidate is twelve months. The maximum duration of full-time study as a Master's candidate is three years. Part-time Master's candidates will undertake the equivalent of a minimum of one year of full-time study. For a part-time Master's candidate the maximum time limit generally will not exceed five calendar years. Master's candidates who expect to require an extension of these time limits must petition their Department Head, giving reasons for the request and plans for completion of the work. The Department Head will then make a recommendation to the Dean of Graduate Studies and Research.

*Committees:* Research undertaken as part of a Master's program is normally directed and supervised by a Master's committee. Whereas the student's advisor provides day-to-day guidance and direction, the committee is ultimately responsible for the overall supervision to ensure that adequate progress is maintained. The Master's committee will consist of at least three members with the student's advisor as chairperson. At least one member shall be from a department within the University of Windsor other than the one in which the student is majoring. The student's advisor will propose the names of the Master's committee and these will be subject to the approval of the departmental Graduate Committee and the Executive Committee of the Faculty of Graduate Studies and Research. Within one month after registration, each student will be assigned to a Master's committee.

The final appraisal of the thesis and the conduct of the final oral examination of the dissertation will be carried out by the examining committee. The examining committee will consist of the Master's committee and the Department Head (or designate) as chairperson (non-voting).

*Examinations:* At the discretion of the departmental Graduate Committee a qualifying examination may be required. A qualifying examination is one in which the student is asked to demonstrate a reasonable mastery of the fundamentals in the major subject; it is designed to test the student's preparation for

advanced graduate work. If such an examination is required, it must be administered and passed before the student registers for the final candidate year of Master's work.

In addition to the usual examination on course work, all students must meet the following requirements:

1) *Review of Progress on Research or Major Paper:* Within the first year a full-time student will present in the form of a seminar an outline of his or her proposed thesis research or outline the content of his or her major paper. This will be presented to the Master's committee, who must approve, with or without modifications, or reject the proposal. Thereafter, at least once a year, the student will report his or her progress in the form of a seminar.

2) *Final Examinations:* The passing of the final oral examination on the thesis (or the major paper) requires both an adequate thesis (or major paper) and a satisfactory defense. The examination will be conducted by the examining committee and the thesis defence will be chaired by the Department Head or appointed designate. If the examining committee cannot arrive at a unanimous decision to award a passing grade, a majority decision will be accepted provided there is no more than one dissenting vote. If there is more than one dissenting vote, the student may be required to carry out additional work if the thesis is judged to be adequate in all other respects, or the student may be required to withdraw.

*Grading:* The grading system is outlined in 1.4.3.

The Faculty of Engineering requires that students maintain at least a B average at all times.

Courses in which a grade of B or higher is received will be accepted for graduate credit. In addition, upon the positive recommendation of the Department Head and advisor concerned, credit may be granted by the Faculty of Graduate Studies and Research for not more than two semester courses in which a grade of C or C<sup>+</sup> has been obtained.

If a student fails to obtain credit in a course, the course may be repeated only once, at the discretion of the Department concerned and



the Dean of Graduate Studies and Research. No student may repeat, or replace with another course, more than two semester courses in which credit was not obtained.

All research work for which a letter grade is assigned must be graded B or better to receive credit.

Make-up courses will not count for graduate credit. Make-up courses are those courses required to compensate for deficiencies in the student's academic background.

In exceptional cases, at the discretion of the Department Head and the advisor, a graduate student may take one undergraduate course for credit.

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### 9.1.3 RESEARCH IN OUTSIDE INSTITUTIONS

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Research for the Ph.D. or M.A.Sc. degree, in part or in whole, may be carried out in an outside institution (e.g., industrial, governmental, or academic university). A student who does research at an outside institution must fulfill the same requirements as a student doing on-campus research. The only exception is that the time spent doing the off-campus research relevant to the thesis or dissertation will be credited toward the residence requirement. In addition to the general requirements, a student applying for permission to do research at an outside institution must provide:

- 1) A detailed statement of the research proposal, including arrangements for supervision, and of the circumstances under which the research is to be carried out;
- 2) Evidence that the institution has adequate facilities for the research; and that the applicant will be able to pursue independent research;
- 3) A proposed time schedule;
- 4) A letter of support from a responsible person in the outside institution giving approval of the proposal and accepting these regulations.

## 10 CIVIL AND ENVIRONMENTAL ENGINEERING

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### 10.1.1 OFFICERS OF INSTRUCTION

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#### University Professor

Kennedy, John B.; B.Sc. (Hons.) (Cardiff), Ph.D. (Toronto), D.Sc. (Wales), F.A.S.C.E., F.C.S.C.E., P.Eng.—1963.

#### Professor Emeritus

Demarco, Frank A.; B.A.Sc., M.A.Sc., Ph.D. (Toronto), F.C.I.C., P.Eng.—1946.

#### Professors

Gnyp, Alex William; B.A.Sc., M.A.Sc., Ph.D. (Toronto), P.Eng.—1958.

Laba, Jan Tadeusz; Dip. Ing. (London), M.A.Sc., Ph.D. (Windsor), P. Eng.—1961.

Monforton, Gerard R.; B.A.Sc. (Assumption), M.A.Sc. (Windsor), Ph.D. (Case Inst.), F.C.S.C.E., P.Eng.—1962. (Dean of the Faculty of Engineering).

MacInnis, Cameron; B.Sc. (Dalhousie), B.E. (Hons.) (Nova Scotia Technical College), Ph.D. (Durham), F.E.I.C., F.A.C.I., P.Eng.—1963.

Stager, Robert A., B.A.Sc., M.A.Sc (Toronto), Ph.D. (Illinois)—1963.

St. Pierre, Carl Clifford; B.A.Sc., M.A.Sc. (Assumption), Ph.D. (Northwestern), P.Eng.—1964.

McCorquodale, John Alexander; B.E.Sc. (Western Ontario), M.Sc. (Glasgow), Ph.D. (Windsor), P.Eng.—1966.

Abdel-Sayed, George; B.Sc., M.Sc. (Cairo), Dr. Ing. (T. U. Karlsruhe), P. Eng.—1967.

Chee, Sek Por; B.C.E. (Melbourne), Ph.D. (Aberdeen), P. Eng., C. Eng.—1967.

Bewtra, Jatinder K.; B.E. (Roorkee), M.S., Ph.D. (Iowa), P. Eng.—1968.

Powley, Maurice Bruce; B.A.Sc., M.A.Sc. (British Columbia), P.Eng.—1968.

Temple, Murray Clarence; Diploma (R.M.C., Kingston), B.A.Sc. (Toronto), S.M. (M.I.T.),



Ph.D. (Toronto), F.E.I.C., F.C.S.C.E., P.Eng.—1969.

Madugula, Murty K.S.; B.E. (Hons.), M. Tech., Ph.D. (I.I.T., Kharagpur), P.Eng.—1979.

#### Associate Professors

Asfour, Abdul-Fattah Aly; B.Sc. (Hons.), M.A.S.c. (Alexandria), Ph.D. (Waterloo), P.Eng.—1981.

Biswas, Nihar; B.E. (Calcutta), M.A.Sc., Ph.D. (Ottawa), P.Eng.—1981.

#### Adjunct Professors

Becker, Norbert Karl; B.A.Sc., Ph.D. (Windsor), P.Eng.—1981.

Viswanathan, S.; B.Tech. (Madras), M.A.Sc., Ph.D. (Windsor)—1983. (Assistant Vice-President, Clayton Environmental Consultants Ltd.).

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### 10.2.1 AREAS OF SPECIALIZATION

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The Department of Civil and Environmental Engineering offers programs of graduate studies and research leading to the degree of Doctor of Philosophy and Master of Applied Science. Both the Ph.D. and M.A.Sc. degrees may be obtained in the areas of Environmental Engineering, Structural Engineering, and Water Resource Engineering. In Environmental Engineering research focuses on air and water quality, sanitation and environmental impact. In Water Resources, research is in hydraulics, hydrology, water quality and wastewater treatment. In Structures, research encompasses steel, concrete, and timber structures, concrete technology, soil mechanics, foundations and soil-metal structures.

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### 10.3.1 COURSE DESCRIPTIONS— CIVIL ENGINEERING

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Courses offered by Civil and Environmental Engineering at the graduate level are listed below. Students may, with the permission of the Department Head and the advisor, take courses from departments other than the one in which the student is registered.

All courses listed will not necessarily be offered in any given year.

#### 87-500. Theory of Elasticity and Plasticity

Analysis of stress and strain; elastic and plastic stress-strain relations; general equations of elasticity; yield criteria; applications to elastoplastic problems, including rotating disks, thick-walled tubes, reinforced disks, torsion of various shaped bars; stress concentration. (3 lecture hours a week).

#### 87-501. Advanced Analysis of Structures

Matrix methods for various deformable bodies and structural systems; direct and energy formulations; finite element method; computer-oriented solution techniques. (3 lecture hours a week).

#### 87-502. Analysis and Design of Shell Structures

General theory of thin shells. Membrane stresses in shells of revolution and shells of double curvature. Bending stresses in shells of revolution, cylindrical shells and folded plates. Design of cylindrical shell roofs. (Prerequisite: 87-500 or equivalent). (3 lecture hours a week).

#### 87-504. Theory of Plates

Small deflection of laterally loaded rectangular and circular, isotropic and orthotropic plates with various edge conditions, Navier and Levy solutions, energy methods, finite difference approximation, plates under combined action of lateral loading and forces in its plane, local buckling of column elements, buckling of plates under pure shear and under bending stresses, post-buckling strength in plates. (3 lecture hours a week).

#### 87-505. Theory of Stability

This course is designed to give an insight into the basic phenomenon of structural stability. Elastic and plastic flexural-buckling of columns with axial and eccentric loads is studied. Energy and numerical methods are used. Stability functions are introduced and used to study trusses and rectangular frames, with and without sidesway. Some discussion of torsional and torsional-flexural buckling, lateral buckling of beams. (3 lecture hours a week).

#### 87-506. Advanced Structural Steel Design

This course is designed to develop and expand the design concepts in steel structures;



multiple-storey frames, sway and non-sway frame systems; beam-columns; laterally unbraced beams; local buckling of flanges and webs; plate girders; plastic analysis and design; characteristics of light gauge steel components; design of cold-formed steel structures. (3 lecture hours a week)

#### **87-510. Reinforced Concrete Structures**

Critical examination of design Code requirements for: flexure, shear, bond, eccentrically loaded columns; yield line theory, strip method, and design of slabs. Design of hyperbolic paraboloid shells, domes, cylindrical tanks and rigid-frame structures. (3 lecture hours a week).

#### **87-511. Prestressed Concrete**

Materials, principles of prestressing systems; prestressing losses; analytical treatment of the effect of shrinkage, creep of concrete, and cable friction on stresses; analysis and design of statically determinate and indeterminate structures; design codes; research background; introduction to prefabricated concrete structures. (3 lecture hours a week).

#### **87-512. Concrete Technology**

Cementing materials—basic constituents and manufacture, hydration of cement, structure of hydrated cement paste, physical properties of fresh and hardened paste. Aggregate materials—geology and petrography of concrete aggregates, aggregate problems, e.g., alkali-aggregate reactivity. Admixtures—accelerators, air-entraining, set-retarding and water-reducing agents. Concrete mix design. Properties and tests of fresh and hardened concretes. Statistics applied to the control of concrete quality and the design of experiments. Special concretes, e.g., light-weight and heavy-weight concretes. (3 lecture hours a week).

#### **87-519. Advanced Soil Mechanics and Applications**

Properties of soils, stresses, consolidation, settlements, bearing capacity, flownets and seepage, stability of slopes with drained and undrained conditions, special foundation problems. (3 lecture hours a week).

#### **87-520. Multiphase, Multicomponent Flows**

A thorough treatment of the basic techniques for analyzing one-dimensional multiphase, multicomponent flows in order to predict flow regimes, pressure drop, etc. Practical applications in fluidization, sedimentation and boiling heat transfer. (3 lecture hours a week).

#### **87-521. Hydrology**

Analysis and synthesis of the hydrograph. Streamflow routing. The hydrograph as a function of drainage characteristics; estimation of runoff from meteorological data. Snow-melt. Flow in rivers with an ice cover. Infiltration theory. Sea water intrusion in coastal aquifers. Application of hydrologic techniques including statistical methods. (3 lecture hours a week).

#### **87-522. River Mechanics**

Theory and analysis of uniform, gradually varied, rapidly varied and steady and unsteady flow in open channels; fluvial processes; design of channels; design of hydraulic control structures. (3 lecture hours a week).

#### **87-523. Ground Water and Seepage**

Theory and analysis of flow through porous media. Application to ground water flow problems. Confined and unconfined flow. Seepage below dams. Well problems. Theory of models. (3 lecture hours a week).

#### **87-524. Advanced Hydromechanics**

Dimensional analysis, similarity and model testing in hydraulic structures and hydraulic machinery; special model laws and practical applications. (3 lecture hours a week).

#### **87-525. Hydraulic Analyses**

This course deals with advanced methods of analyzing hydraulics and water resource systems. Exact and approximate methods are reviewed. The formulation and solution of problems by finite difference and finite element methods is a major part of the course. Typical examples from open channel and ground water flows are included. The method of characteristics is applied to transient flow in open channels and closed conduits. (3 lecture hours a week).

#### **87-526. Sediment Transport**

Regime approach; turbulence theories; suspended sediment; tractive force method;



bedforms and bedload transport; the Einstein method; modified Einstein method; reservoir siltation; recent developments; design of mobile bed channels; design of sedimentation basins; channel degradation. (3 lecture hours a week).

#### **87-527. Coastal Engineering**

Introduction to linear and nonlinear wave theory. Wave transformation: shoaling, refraction, defraction, reflection and breaking. Wave interaction with piles, walls and rubble mounds. Computation of forces and moments. Stability analysis. Wave generation and prediction. Computation of design water levels. Statistical nature of wind-generated waves in deep and shallow waters. Littoral zone processes. Computation of longshore transport. Effect of shore structures on littoral processes. Design of shore protections. Design of small harbours. This course involves the use of microcomputers and physical models. (3 lecture hours a week).

#### **87-540. Traffic Engineering**

Basic characteristics of traffic, road users, vehicles, speeds, volumes, etc.; traffic surveys; basic considerations in traffic regulation; control devices and aids; factors in traffic design; traffic engineering functions and organizations. (3 lecture hours a week).

#### **87-590. Special Topics In Civil Engineering**

Selected advanced topics in the field of civil engineering. (3 hours a week).

#### **87-796. Major Paper**

#### **87-797. Thesis**

#### **87-798. Dissertation**

and recycling of wastewater. (3 lecture hours a week).

#### **93-531. Advanced Water Pollution Control**

Discussion on recent advances in the design of water and wastewater treatment plants and new developments in water pollution control practices. (Prerequisite: 87-530 or equivalent). (3 lecture hours a week).

#### **93-532. Engineering and the Environment**

Man and his environment; evaluation of biosphere; ecological balances; pollution and environment; impacts of engineering activities on the environment—land, air, water, vegetation and other living beings; criteria, standards and goals; environmental factors to be considered in the engineering designs. Consideration and discussion of typical examples. (3 lecture hours a week).

#### **93-533. Solid Wastes Handling and Disposal**

A study of municipal and industrial solid wastes, quantities, composition, methods of disposal or reclamation, and the economic viability of the various methods related to the quantities involved. (3 lecture hours a week).

#### **93-590. Special Topics In Environmental Engineering**

Selected advanced topics in the field of environmental engineering. (3 hours a week).

#### **93-796. Major Paper**

#### **93-797. Thesis**

#### **93-798. Dissertation**

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### **10.3.2 COURSE DESCRIPTIONS— ENVIRONMENTAL ENGINEERING**

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#### **93-530. Water Pollution Control**

Water quality criteria; methods of wastewater disposal and their effects on ecology; theory and design of different unit operations and processes for water purification; theory and design of different design operations and processes of wastewater treatment; reuse



# 11 ELECTRICAL ENGINEERING

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## 11.1.1 OFFICERS OF INSTRUCTION

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### Professors

Miller, William C.; B.S.E. (Michigan), M.A.Sc., Ph.D. (Waterloo), P.Eng.—1968. (Director of the CAD/CAM Centre).

Jullien, Graham A.; B.Tech. (Loughborough), M.Sc. (Birmingham), Ph.D. (Aston), P.Eng.—1969.

Hackam, Reuben; B.Sc. (Technion, Israel), Ph.D. (Liverpool), P. Eng.—1978.

Raju, G.R. Govinda; B.E. (Mysore), Ph.D. (Liverpool), P. Eng.—1980. (Head of the Department).

Watson, Alan; B.Sc., M.Sc. Tech. (Manchester), D.U.S. (Southampton), Dr. rer. nat. (Kassel, W. Germany), P.Eng.—1977.

Ahmadi, Majid; B.Sc. (Tehran, Iran), D.I.C., Ph.D. (Imperial College)—1981.

### Associate Professors

Alexander, Philip H.; B.A.Sc. (Assumption), M.A.Sc. (Windsor), P.Eng.—1964.

Soltis, James; B.Sc. (Windsor), M.Sc., Ph.D. (Michigan), P.Eng.—1974.

Sid-Ahmed, Maher A.; B.Sc. (Alexandria, Egypt); M.A.Sc., Ph.D. (Windsor)—1978.

Kwan, Hon K.; B.Sc. (London), M. Phil. (Chinese U. of Hong Kong), D.I.C., Ph.D. (London)—1988.

### Research Professor

Perz, Matthias Casimir; M.Sc. (Poznan, Poland), Dipl. Eng. (Ecole Sup. d'Elect., Paris), P. Eng.—1968.

### Adjunct Professors

Loh, Nan K.; B.S.E. (Taiwan), M.A.Sc., Ph.D. (Waterloo)—1979. (Professor, School of Engineering, Oakland University).

Ramachandran, V.; B.Sc. (Mysore), D.I.I.Sc., M.E., Ph.D. (Indian Institute of Science)—1983. (Professor of Electrical Engineering, Concordia University).

Cherney, E.A.; B.Sc., Ph.D. (Waterloo), M.Sc. (McMaster), P.Eng.—1981. (Special Projects Engineer, Ontario Hydro).

Chikhani, Aziz Y.; B. Sc., M. Sc. (Cairo), Ph.D. (Waterloo), P. Eng.—1985. (Royal Military College, Kingston).

Shridhar, Malayappan; B.Sc. (Bombay), D.M.I.T., M.S. (Brooklyn), Ph.D. (Aston), P.Eng.—1969. (Head, Electrical Engineering Department, University of Michigan, Dearborn).

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## 11.2.1 AREAS OF SPECIALIZATION

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The Department of Electrical Engineering offers graduate programs leading to the degrees of Doctor of Philosophy (Ph.D.) and Master of Applied Science (M.A.Sc.). Research is carried out in the two broadly defined areas of (a) Digital Signal Processing and (b) Power and High Voltage Engineering.

Within the area of Digital Signal Processing such research topics as speech processing, image processing, digital filtering, discrete transforms, number theory and hardware realizations of signal processing-related devices are investigated. Within this research area the VLSI Research Group investigates modern VLSI implementations of high speed digital signal processing algorithms.

Research within the Power and High Voltage area deals with such topics as power systems, high voltage technology, electrical arcs, insulation and electric and magnetic field calculations.

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## 11.3.1 COURSE DESCRIPTIONS

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The graduate course offerings in the Department of Electrical Engineering are designed to complement the two major areas that define the research orientation of the department. Course requirements for the Ph.D. and M.A.Sc. degrees in Electrical Engineering will be selected from the courses listed below and related courses in other departments.

Graduate students in the Department will be associated with one of the two major areas of research and their program of studies will be formulated in consultation with the



departmental graduate advisors and approved by the Department Head.

Only a selected number of the courses listed below will be available each year and the current list will be provided by the departmental Coordinator of Graduate Studies. The following courses all are two hours a week for one semester.

#### **88-510. Advanced Electromagnetic Theory**

Advanced theory and applications of electromagnetic fields and wave propagation.

#### **88-511. Electrical and Magnetic Materials**

Selected topics in the properties of electrical, electronic, dielectric and magnetic materials. Measurement techniques of the properties and applications of the materials.

#### **88-513. High Voltage Technology**

Generation and measurement of high voltages, non-destructive and destructive testing techniques.

#### **88-514. Advanced Power Systems**

High voltage surges, origins, propagation and reflections; transients in power equipment; protection of substations.

#### **88-515. Electric and Magnetic Field Calculations**

Development and application of analytic and numerical techniques for calculating electromagnetic and electrostatic fields. Computer-oriented approaches are emphasized and a project is required.

#### **88-516. High Voltage Phenomena**

Ionization and decay processes, electrical breakdown mechanisms in gaseous, liquid and solid insulation.

#### **88-517. Electrical Arcs in Power Apparatus**

Thermodynamics of gaseous plasmas. Elenbass-Heller description of the steady state arc. Current zero phenomena in power circuit interruption. Theory of unsteady and transient arc columns. Low and high pressure arcs and their radiative properties. Cathode, anode and wall phenomena. Vacuum arcs in rectifiers and circuit breakers. Arc gas heaters and plasma torches. Thermionic arcs in searchlights and thyratrons. Glow to arc transition.

#### **88-518. Electric Machine Dynamics**

Generalized theory of electric machines based on coupled circuit theory, transformation from three-phase to the d-q-o reference frame. Analysis of the performance of electric machines, including the effect of exciter, governor and stabilizer control loops. State-of-the-art digital computer methods for time domain analysis of machines.

#### **88-521. Digital Signal Processing**

Discrete processes, Z-transform, recursive and non-recursive digital filters, quantization effects, hardware implementation.

#### **88-522. Applied Time Series Analysis**

Sampling theorem, statistical concepts, Fourier transforms, power density spectrum, correlation functions, convolution.

#### **88-523. System Theory**

Continuous and discrete time systems, state formulation techniques, controllability and observability concepts.

#### **88-524. Stochastic Processes**

Development and applications of probability models in the analysis of stochastic systems; review of probability, random variables and stochastic processes; correlation functions applications to filtering, prediction, estimation and system identification.

#### **88-525. 2-Dimensional Digital Signal Processing**

Fundamental of 2-D signals and transforms; Laplace, Z, Fourier, etc. Design, stability, stabilization and implementation of 2-D LSI systems. Reconstruction of signals from their projections.

#### **88-526. Computer Graphics**

2-dimensional transformation: translation, scaling, rotation. Clipping and windowing. Transformation system. Interactive graphics. 3-D computer graphics. 3-D transformation. Wire frame perspective display. Hidden line and shading. Display devices, vector generators, display files.

#### **88-527. Speech Processing**

Physiology of human speech production and hearing; mathematical models for vocal tract; estimation of speech parameters; computer synthesis of speech; machine recognition of speech and speakers through speech analysis; applications.



## 12 ENGINEERING MATERIALS

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### 12.1.1 OFFICERS OF INSTRUCTION

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#### Professors

Youdelis, William V.; B.Sc. (Alberta), M.Eng., Ph.D. (McGill), P.Eng.—1965.

Watt, Daniel Frank; B.Sc. (Alberta), Ph.D. (McMaster), P.Eng.—1969.

Northwood, Derek Owen; B.Sc. (Eng.), A.R.S.M. (London), M.Sc. (Part I), Ph.D. (Surrey), F.I.M., F.A.S.M., P. Eng.—1976.  
Yamauchi, Hisao; B.Eng. (Tokyo), M.S., Ph.D. (Northwestern), P.Eng.—1980.

#### Assistant Professor

Alpas, Ahmet T.; B.Sc., M.Sc. (Middle East Tech.), Ph.D. (Open University, U.K.)—1989.

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### 12.2.1 AREAS OF SPECIALIZATION

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Ph.D and M.A.Sc. graduate programs in Engineering Materials are administered by the Department of Mechanical Engineering upon the advice of its Graduate Studies Committee for Engineering Materials. There is ongoing research in the areas of phase transformations, deformation and fracture at ambient and elevated temperatures, microstructure-property relationships, corrosion and hydrogen-metal interactions. This work is applied to the development of steels, aluminum alloys, zirconium alloys, electronic materials, dental materials and hydrogen (energy) storage materials.

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### 12.3.1 COURSE DESCRIPTIONS

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Course requirements for the Ph.D. and M.A.Sc. programs in Engineering Materials will be selected from the courses listed below and related courses in other programs. A student's course program will be formulated in consultation with the Graduate Studies Committee for Engineering Materials and requires approval of the research advisor and Department Head.

All courses listed will not necessarily be offered in any given year.

#### 88-528. Image Processing

Digital image representation, elements of image processing system, image transform, image enhancement, pseudo-colour image processing, image restoration, image segmentation.

#### 88-529. Discrete Transforms and Number Theoretical Methods

Properties of the discrete Fourier transforms, FFT algorithms and convolution, application of finite algebras, generalized DFTs, polynomial transforms, the Winograd DFT algorithm, applications of residue number systems to digital signal processing hardware.

#### 88-530. Selected Topics in Digital Signal Processing

Selected topics in the analysis and design of digital systems and sub-systems and their applications in the area of signal processing. (May be repeated more than once for credit if the topics are different).

#### 88-531. VLSI Design

Very large scale integration (VLSI): fundamentals, concepts and applications, MOS devices characteristics; layout methodology and rules; colour codes, stick diagram, design rules; integrated circuits fabrication; implementation aids; languages, simulation and available packages, combinatorial and sequential circuit implementation; VLSI architectures; custom design. A term project is required.

#### 88-590. Special Topics

Selected advanced topics in a field of research in the Department. (May be repeated more than once for credit if the topics are different).

#### 88-796. Major Paper

#### 88-797. Thesis

#### 88-798. Dissertation



**89-501. Advanced Crystallography**

Application of X-ray diffraction principles to the study of materials, application of Fourier series, single crystal techniques, studies of preferred orientation, imperfections. (3 lecture hours a week).

**89-502. Transformations in Metals**

Phenomenological treatment of transformation processes; diffusion controlled and diffusionless (martensitic) transformations; application of thermodynamic and phenomenological rate laws to transformations: nucleation, recrystallization, precipitation, spinoidal decomposition, ordering, eutectoid decomposition, etc. (3 lecture hours a week).

**89-504. Thermodynamics of Irreversible Processes**

Fluctuation theory and Onsager's reciprocal relations, phenomenological treatment of irreversible processes, entropy production rate and conjugation of fluxes and forces, coupling of irreversible processes and Curie's symmetry principles, linear transformation of fluxes and forces, stationary states of various orders and minimum entropy production rate, determination of phenomenological relations and coefficients for various processes; chemical and thermal diffusion, chemical reactions, heat and electrical conduction, thermoelectric phenomena, etc. (3 lecture hours a week).

**89-505. Strengthening Methods in Crystals**

Dislocation-particle interactions, strengthening by dislocation substructures, particle and fiber reinforcement, strong microstructures from the melt, strong microstructures from the solid. (3 lecture hours a week).

**89-506. Microscopy of Materials**

The theoretical and technical aspects of the study of microstructure and composition of materials, optical microscopy, electron microscopy (scanning and transmission) including electron diffraction and image analysis principles, electron microanalysis, x-ray topography, field-ion microscopy, relationship of observed microstructures to the macroscopic properties of materials. (2 lecture, 2 laboratory hours a week).

**89-507. Fracture Mechanics**

The fracture mechanics approach to design; physical significance of fracture toughness; measurement of fracture mechanics parameters; non-destructive inspection techniques; principles of fracture-safe design; the relation between the microscopic and macroscopic aspects of plane-strain fracture; fracture of specific metallic and nonmetallic materials. (3 lecture hours a week).

**89-508. Radiation Damage in Metals**

Theory of radiation-induced defect production; observation of defect production by energetic particle bombardment; defect annealing processes; radiation-enhanced diffusion; defect clustering and void formation; simulation experiments in HVEM; irradiation strengthening, embrittlement, growth and creep. (3 lecture hours a week).

**89-509. Configuration and Properties of Materials**

Anisotropic crystals—elasticity, dielectricity, piezoelectricity, pyroelectricity, thermoelastic effects, ferroelectricity, sonicwave propagation; amorphous solids—structure, stability, magnetic properties, mechanical properties; mixtures—local atomic arrangements, order-disorder transformations.

**89-590. Special Topics in Materials**

Selected advanced topics in the fields of engineered materials and materials engineering, including creep of alloys and metals, microscopy of materials, electron theory of metals and wear. (3 lecture hours a week).

**89-797. Thesis****89-798. Dissertation**



# 13 GEOLOGICAL ENGINEERING

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## 13.1.1 OFFICERS OF INSTRUCTION

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### Professor Emeritus

Sonnenfeld, Peter; Absolut. Rer. Nat. (Comenius U., Bratislava), Dr. Rer. Nat. (Charles U., Prague), P. Geol.—1966.

### Professors

Smith, Terence E.; B.Sc., Ph.D. (Wales)—1969.

Hudec, Peter P.; B.Sc. (Western Ontario), M.S., Ph.D. (Rensselaer Polytech. Inst.), A.I.P.G.—1970.

Symons, David T. A.; A. M. (Harvard), B.A.Sc., Ph.D. (Toronto), P.Eng.—1970.

Turek, Andrew; B.Sc. (Edinburgh), M.Sc. (Alberta), Ph.D. (Australian National U.), P.Eng.—1971.

Simpson, Frank; B.Sc. (Edinburgh), Dr. Nat. Sc. (Jagiellonian U., Krakow), P.Eng.—1974.

Blackburn, W.H.; B.Sc. (St. Francis Xavier), Ph.D. (Massachusetts Inst. Technology)—1989. (Head of the Department).

### Associate Professors

Sklash, Michael G.; B.A.Sc. (Windsor), M.Sc., Ph.D. (Waterloo), P.Eng.—1977.

Holm, Paul E.; A.B. (Augustana), M.S., Ph.D. (Illinois)—1979.

Rodrigues, Cyril G.I.; B.Sc. (British Columbia), M.Sc., Ph.D. (Carleton)—1979.

### Assistant Professors

Samson, Iain M.; B.Sc., Ph.D. (Strathclyde)—1986.

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## 13.2.1 AREAS OF SPECIALIZATION

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The Department of Geology offers programs leading to the M.Sc. and M.A.Sc. degrees. The main areas of research specialization in the Department are: Applied Sedimentology, Engineering Geology, Applied Geochemistry and Applied Geophysics.

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## 13.3.1 COURSE DESCRIPTIONS

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Courses offered in Geological Engineering at the graduate level are listed below. Students may, with the permission of the Department Head and the advisor, take courses from departments other than the one in which the student is registered.

All courses listed will not necessarily be offered in any given year.

### 90-550. Valuation of Ore Deposits

Ore reserve calculation methods; supply and demand factors and their projection; capitalization, discounting and amortization of ore deposits; marketing including cartels, taxation, legislation and national interest. (3 lecture hours a week).

### 90-552. Geologic Origin and Properties of Industrial Rocks and Minerals

Occurrence, origin, exploration and exploitation methods; physical and chemical properties of industrial minerals and their uses; economics of industrial rocks and minerals. (3 lecture hours a week).

### 90-553. Physical Properties and Causes of Deterioration of Construction Materials

Geologic and physio-chemical factors affecting the stability of construction materials (rock aggregate, expanded aggregate, tile, brick, etc.) under conditions of natural weathering and exposure to salts and other pollutants. (3 lecture hours a week).

### 90-554. Advanced Petroleum Geology

Detailed geological considerations of oil and gas accumulations concentrating on topics such as host rocks, paleoenvironments and structures. (3 lecture hours a week).

### 90-555. Hydrocarbon Reservoirs

Hydrodynamic and geologic factors in the migration of oil and gas into reservoirs, the characteristics of reservoirs, and reservoir engineering associated with the extraction of the hydrocarbons. (3 lecture hours a week).

### 90-556. Geotechnical Geophysics

Application of geophysical methods in engineering geology emphasizing blast vibration analysis; near-surface seismic and electrical methods. (3 lecture hours a week).



### 90-557. Applied Hydrogeology

Advanced topics in hydrogeology related to disposal effects on groundwater. Topics include: groundwater contaminants, groundwater monitoring strategies, site evaluation, site remediation, and case histories. (Prerequisite: 90-436, or equivalent, or permission of instructor). (3 lecture hours a week).

### 90-558. Advanced Hydrogeology

Advanced topics in hydrogeology, including: applied isotope hydrogeology, groundwater flow in fractured rocks, theory of contaminant transport in groundwater systems, evaluation of hydraulic conductivity, tracer tests, modelling of hydrogeologic systems, and case histories. (3 lecture hours a week).

### 90-559. Underground Storage

Exploitation of subsurface space for storage of industrial products and wastes. Possible environmental impact of poorly planned underground storage. Economics of subsurface vs. surface storage. Emphasis on Canadian case histories. (3 lecture hours a week).

### 90-580. Graduate Seminar

### 90-590. Special Topics

Selected advanced topics in a field of research in the Department.

### 90-797. Thesis

## 14 INDUSTRIAL ENGINEERING

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### 14.1.1 OFFICERS OF INSTRUCTION

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#### Associate Professors

Lashkari, Reza S.; B.Sc. (Tehran), M.S.I.E., Ph.D. (Kansas State), P.Eng.—1977.

Dutta, Sourin P.; B.E., M.Tech. (Durgapur), Ph.D. (I.I. Sc.), P. Eng.—1984. (Head of the Department).

Singh, Nanua; B.E., M.E., Ph.D. (Rajasthan)—1986.

#### Assistant Professors

Abdou, George; B.Sc. (Cairo), M.Sc., Ph.D. (Iowa State), CMFGE.—1987.

Cho, Danny I.; B.A.Sc., M.Eng. (Toronto)—1989.

Zuo, Mingjian; B.S. (Shandong Inst. P.R.C.), M.Sc., Ph.D. (Iowa State)—1989.

#### Adjunct Professors

Morooka, Kozi; Ph.D. (Tokai)—1979.

Morrison, Ken; M.S.I.E. (Wayne Stae), Ph.D. (Virginia Polytechnic)—1988.

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### 14.2.1 AREAS OF SPECIALIZATION

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The Industrial Engineering Department offers a M.A.Sc. graduate program in the area of Manufacturing Systems, encompassing basic as well as applied research.

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### 14.3.1 COURSE DESCRIPTIONS

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Courses offered by Industrial Engineering at the graduate level are listed below. Students may, with the permission of the Department Head and the advisor, take courses from departments other than the one in which the student is registered.

All courses listed will not necessarily be offered in any given year.

#### 91-500. Optimization

Classical theory of optimization. Kuhn-Tucker conditions. Unconstrained optimization; gradient methods, conjugate gradient



methods, variable metric methods, search techniques. Constrained optimization. Approximation methods, projection methods, reduced gradient methods; penalty function methods; computational algorithms. Recent advances in optimization. Use of computer software packages. (Prerequisite: 91-312 or equivalent). (3 lecture hours a week).

#### **91-501. Industrial Experimentation and Applied Statistics**

Distributions of functions of variables, estimations and tests of hypotheses, power of tests, non-parametric tests, sampling techniques, analysis of variance, randomized blocks. Latin squares and factorial experiments. (Prerequisite: 91-227 or equivalent). (3 lecture hours a week).

#### **91-502. Simulation Principles and Techniques**

Discrete-event system simulation. Random number generation. Stochastic variate generation. Input parameters; identification and estimation. Output analysis. Static and dynamic output analysis; initial and final conditions; measures of performance and their variance estimation; confidence interval. Design of experiments. Various sampling techniques. Single and multifactor designs. Fractional designs. Response surfaces. Regeneration method for simulation analysis; Monte Carlo optimization. (3 lecture hours a week).

#### **91-503. Production and Inventory Control Systems**

Analysis of production-inventory systems. Inventory systems; deterministic, single-item and multi-item models; quantity discounts; stochastic, single-period models; periodic review and continuous review models. Production planning. Static demand models; product mix and process selection problems; multi-stage planning problems. Dynamic demand models; multi product and multi-stage models. Operations scheduling; job shop scheduling; line balancing. New directions in production systems research. (Prerequisite: 91-413 or equivalent). (3 lecture hours a week).

#### **91-504. Advanced Operations Research I**

Theory and computational techniques for solving linear and integer programming problems. Theoretical foundations of the simplex algorithm. Duality, sensitivity analysis and parametric programming. Network flow methods. Integer programming problems. Cut algorithms, branch and bound methods, and implicit enumeration methods. Dynamic programming. (Prerequisite: 91-312 or equivalent). (3 lecture hours a week).

#### **91-505. Advanced Operations Research II**

Probabilistic O.R. models. Decision theory and games. Markovian decision process. Queueing theory. Single channel and multi-channel queueing systems. Queues with general arrival and service patterns. Bulk queues and priority queues. Applications of queueing models. Probabilistic dynamic programming. (Prerequisite: 91-412 or equivalent). (3 lecture hours a week).

#### **91-506. Prediction and Measurement of Industrial Work Performance (Special Emphasis on Mental Work)**

Job and skill profiles; workload definition and measurement; workload and performance modelling; information theory applications, models of the process operator; optimal control models of human response; queueing models for monitoring and supervisory behaviour; manual control skills and automation; signal-flow graphs and their uses in operations design and planning. (Prerequisites: 91-315 & 91-415 or equivalent). (3 lecture hours a week).

#### **91-507. Advances in Industrial Ergonomics**

Ergonomics and work design; human workload measurement in industry; visual display terminals at the workplace; signal detection and visual inspection; user-computer interaction; human factors aspects of flexible manufacturing systems; effects of individual and combined environmental stressors on human performance. (Prerequisites: 91-415 or equivalent). (3 lecture hours a week).



**91-508. Reliability Engineering**

Design for system effectiveness; Reliability program; failure patterns for complex products; reliability measures; static reliability models; mathematical concepts of reliability; interference theory and reliability computation; reliability bounds in probabilistic design; dynamic reliability models; sequential life testing. (Prerequisite: 91-227 or equivalent). (3 lecture hours a week).

**91-509. Computer-Integrated Manufacturing**

Development of CIM; the CIM pyramid—key functions. System integration; standards for communications—MAP. Data base as the hub of CIM—types of data base. Role of simulation and support systems—decision support systems and expert systems. Sensor technology, robot vision, and group technology. Impact of CIM. Factory of the future. (Prerequisites: 91-411 or equivalent). (3 lecture hours a week).

**91-510. Advanced Engineering Economy**

Principles and methods for engineering analysis of industrial projects and operations. Criteria for economic decisions, project investment analysis, gain and loss estimating and techniques for economic optimization under constraint are included. Emphasis is placed on the construction and use of analytical models in the solution of engineering economy problems. Elements of risk and uncertainty are included through use of probabilistic techniques. (Prerequisite: 85-313 or equivalent). (3 lecture hours a week).

**91-511. Stochastic Processes**

Stochastic processes. The Poisson process—relationship to exponential, Erlang and uniform probability distributions. Markov chains—basic limit theorem. Continuous time Markov chains—birth-and-death processes, time-dependent probabilities, limiting probabilities, relationship to the exponential distribution, uniformization. Renewal theory—the renewal function, stopping times, Wald's equation, the key renewal theorem, alternating processes, age, remaining life and total life distributions at an arbitrary time-point. Brownian motion. Random walks. Mar-

tingales. (Prerequisite: Math 65-542 or equivalent). (3 lecture hours a week).

**91-512. Flexible Manufacturing Systems**  
FMS as CIM—implemented at the shop floor. Hierarchical network of computers, programmable controllers and work centres. Data base for parts and factory status. Manufacturing automation protocol. Tool management system—acoustic emission. Signature analysis. Planning, design and implementation of FMS—role of management commitment. Impact of FMS on manufacturing industry—job specification of FMS engineers. (Prerequisite: 91-413 or equivalent). (3 lecture hours a week).

**91-513. Advanced Manufacturing Technology**

Developments in nontraditional methods, in EDM and ECM. Trends in automation. Recent developments in manufacturing processes; micromanufacturing—integrated circuits and laser machining. Advances in computer technology, CAD and CAM. Kinematics of manipulation robots, artificial intelligence, monitoring and vision systems. (Prerequisite: 91-321 or equivalent). (3 lecture hours a week).

**91-590. Special Topics**

Selected advanced topics in the field of Industrial Engineering. (3 lecture hours a week).

**91-796. Major Paper****91-797. Thesis****91-798. Dissertation**



# 15 MECHANICAL ENGINEERING

## 15.1.1 OFFICERS OF INSTRUCTION

### Professors

Sridhar, Krishnaswamy; B.Sc. (Madras U.) D.M.I.T. (Madras Inst. of Technology), M.A.Sc., Ph.D. (Toronto), P.Eng.—1963.

North, Walter P.T.; B.Sc. (Queen's), M.Sc. (Saskatchewan), Ph.D. (Illinois), P.Eng.—1965.

McDonald, Thomas William; B.Sc., M.Sc. (Queen's), Ph.D. (Purdue), P.Eng.—1968.

Reif, Zygmunt Francis; B.Sc. (Eng.), Ph.D. (London), P.Eng.—1969.

Rankin, Gary W.; B.A.Sc., M.A.Sc., Ph.D. (Windsor), P. Eng.—1980.

Wilson, Norman W.; B.Eng., M.Eng. (McMaster), Ph.D. (Wales), P.Eng.—1980. (Head of the Department).

### Associate Professors

Kierkus, Witold T.; B.Eng., M.Sc., Ph.D. (Tech. U. of Warsaw)—1972.

Gaspar, Robert George Stephen; B.A.Sc., M.A.Sc., Ph.D. (Windsor)—1983.

Huynh, Van Minh, B. Eng. (McGill), M. Eng., Ph.D. (McMaster)—1983.

### Assistant Professor

Alpas, Ahmet T.; B.Sc., M.Sc. (Middle East Tech.), Ph.D. (Open University, U.K.)—1989.

### Adjunct Professors

Brammer, Anthony J.; B.Sc., Ph.D. (Exeter)—1972.

Hageniers, Omer L.; B.A.Sc., M.A.Sc., Ph.D. (Windsor), P.Eng.—1973.

Pryor, Timothy R.; B.E.S. (Johns Hopkins), M.S. (Illinois), Ph.D., D.Sc. (Windsor)—1973.

Nivi, Hossein; B. Sc., M.S. (Tehran Polytechnique), Ph.D. (London), P. Eng.—1982.

## 15.2.1 AREAS OF SPECIALIZATION

Ph.D. and M.A.Sc. graduate programs in Mechanical Engineering are administered by the Department of Mechanical Engineering upon the advice of its Graduate Studies Committee for Mechanical Engineering. Ph.D. programs are offered in the area of Thermo-Fluids and in the area of Manufacturing Automation and Machine Dynamics. M.A.Sc. programs are offered in these two areas and also in Building Energy Analysis.

## 15.3.1 COURSE DESCRIPTIONS

Course requirements for the Ph.D. and M.A.Sc. programs in Mechanical Engineering will be selected from the courses listed below and related courses in other programs. A student's course program will be formulated in consultation with the advisor and requires approval of the Graduate Studies Committee for Mechanical Engineering and the Department Head.

With the permission of the advisor and Department Head, Mechanical Engineering courses with numbers greater than 449 and related to the graduate field of study may be taken for graduate credit. Not more than a total of six semester hours of credit shall be allowed for the undergraduate courses offered by any department.

### 92-501. Transport Phenomena

Rate equations for mass, momentum, and heat transfer. Governing conservation equations for mass, momentum, and heat transfer. Dimensional analysis and design equations. Typical engineering process applications. (3 lecture hours a week).

### 92-502. Theory of Viscous Fluids

Laminar flow. Navier-Stokes equations with exact and approximate solutions, approximate solution of the boundary layer by momentum theorem. (3 lecture hours a week).

### 92-503. Turbulent Flow

General turbulence theories, wall turbulence and free turbulence. (3 lecture hours a week).



**92-505. Energy Transfer**

Application of advanced analysis techniques to problems in the areas of conduction, diffusion, free and forced convection, boiling, condensation and radiation. (3 lecture hours a week).

**92-506. Thermal Systems Design**

Advanced systems design requiring the application of economics, heat transfer, simulation and optimization. (3 lecture hours a week).

**92-507. Experimental Techniques in Flow Measurements**

A course covering the theory of flow and velocity measurement. Emphasis will be placed on hot wire instruments and turbulence measurements. (3 lecture hours a week).

**92-508. Advanced Fluid Dynamics**

Applications and limitations of ideal fluid flow theory. (3 lecture hours a week).

**92-509. Multiphase, Multicomponent Flows**

A thorough treatment of the basic techniques for analyzing one-dimensional multiphase, multicomponent flows in order to predict flow regimes, pressure drop, etc. Practical applications in fluidization, sedimentation and boiling heat transfer. (3 lecture hours a week).

**92-512. Automated Inspection**

Measurement techniques in manufacturing and production industries, statistical quality control, optical metrology, machine vision and inspection. (3 lecture hours a week).

**92-513. Experimental Stress Analysis**

An introduction and analysis of deflection-strain-stress measurements using mechanical, electrical and optical methods. (3 lecture, 3 laboratory hours a week).

**92-514. Mechanical Vibration**

Vibration of lumped parameter and continuous systems. Exact and approximate methods of solution, stability and self-excited vibration. Non-linear vibration of single degree of freedom systems. (3 lecture hours a week).

**92-516. Industrial and Motor Vehicle Noise**

Hearing damage risk criteria and in-plant noise regulations; determination of permissible exposure levels due to continuous and intermittent noise. Measurement of machine noise and standard procedures. Fundamentals of noise control. Characteristics and levels of motor vehicle and traffic noise; motor vehicle noise control legislation and standard procedures for measurement. (3 lecture hours a week).

**92-522. Engineering and the Environment**

Man and his environment; evaluation of biosphere; ecological balances; pollution and environment; impacts of engineering activities on the environment—land, air, water, vegetation and other living beings; criteria, standards, and goals; environmental factors to be considered in the engineering designs. Consideration and discussion of typical examples. (3 lecture hours a week).

**92-590. Directed Special Studies**

A special course of studies with content and direction approved by the student's chief advisor. Although there may not be formal lectures, the course will carry the weight of three lecture hours.

**92-796. Major Paper****92-797. Thesis****92-798. Dissertation**



## 16 ENGLISH

### 16.1.1 OFFICERS OF INSTRUCTION

#### Professors Emeriti

Sullivan, John Francis; B.S., M.A. (Detroit), Ph.D. (Michigan)—1958.

Stollman, Samuel S.; Rabbi (Yeshiva), B.Sc. (Columbia), M.A., Ph.D. (Wayne State)—1966.

#### Professors

McNamara, Eugene Joseph; B.A., M.A. (DePaul), Ph.D. (Northwestern)—1959.

Smedick, Lois Katherine; B.A. (Wilson), M.S.L. (Pontif. Inst. of Mediaeval Studies, Toronto), Ph.D. (Bryn Mawr)—1963. (Dean, Faculty of Graduate Studies and Research).

Watson, Edward A.; B.A. (Howard), M.A. (Chicago), Ph.D. (Toronto)—1966.

Ditsky, John M.; Ph.B., M.A. (Detroit), Ph.D. (New York)—1967.

MacLeod, Alistair; B.A., B.Ed. (St. F.X.), M.A. (New Brunswick), Ph.D. (Notre Dame), LL.D. (St. F.X.)—1969.

Stevens, Peter; B.A. (Nottingham), M.A. (McMaster), Ph.D. (Saskatchewan)—1969.

MacKendrick, Louis King; B.A., M.A. (Western Ontario), Phil.M., Ph.D. (Toronto)—1971.

Dilworth, Thomas R.; B.A., M.A., Ph.D. (Toronto)—1977.

Herendeen, Wyman H.; B.A., M.A. (Brown) Ph.D. (Toronto)—1984.

#### Associate Professors

Quinn, Rev. Joseph A., C.S.B.; B.A., M.A. (Boston College), S.T.B. (University of St. Michael's College), Ph.D. (Purdue)—1965.

Hornsey, Richard F.; B.A. (Assumption), M.A. (Windsor), Ph.D. (Alberta)—1969. (Head of the Department).

Harder, Bernhard D.; B.A., M.A. (British Columbia), Ph.D. (North Carolina)—1970.

Janzen, Henry David; B.A. (Assumption), M.A. (Windsor), Ph.D. (Wayne State)—1970.

Atkinson, Colin B.; B.Eng. (McGill), B.A. (Sir George Williams), M.A. (Columbia), Ph.D. (New York)—1971.

#### Assistant Professors

Long, Kenneth; B.A., M.A. (Windsor)—1968.

Bebout, Linda J.; B.A. (Central), M.Sc. (San Francisco State), Ph.D. (Cornell)—1977.

Quinsey, Katherine M.; B.A. (Trent), Ph.D. (London)—1989.

#### Research Associate

Cassano, Colleen G.; B.A., M.A. (Windsor)—1985.

#### Writer in Residence

The department usually includes a writer in residence. Former writers in residence have been Morley Callaghan, Tom Wayman, W.O. Mitchell and Adele Wiseman.

## 16.2 Programs of Study

### 16.2.1 THE MASTER OF ARTS DEGREE

#### Admission Requirements

In addition to the requirements set forth in 1.3 and 1.6.1 for admission to the Faculty of Graduate Studies and Research and to programs leading to the Master's degree, applicants for admission to the Candidate year in the programs leading to the Master of Arts degree in English should expect to satisfy the following particular requirements:

- 1) Two courses, or the equivalent, from the 100 series, or a similar introductory literature course, taken usually in the first undergraduate year.
- 2) Six undergraduate courses, or the equivalent, distributed as evenly as possible among the following four categories:

- (a) Early English and Medieval Literature
- (b) Renaissance Literature
- (c) Restoration and Eighteenth-Century Literature
- (d) Nineteenth-Century British Literature



3) Six undergraduate courses, or the equivalent, from three or more of the following six categories:

- (a) Twentieth-Century Literature
- (b) Canadian Literature
- (c) American Literature
- (d) Critical Theory and Practice
- (e) Language and Linguistics
- (f) Special Topics

4) Two semesters of Studies courses, or the equivalent (honours seminar, directed readings, independent study, honours essay, etc.), in the final undergraduate year.

5) Additional courses from areas in 2) and 3) above to make up the total number of courses required for an honours degree.

Students who are deficient in any of these particular requirements may be asked to register in appropriate undergraduate courses in order to satisfy the requirements (see below, "Qualifying or Placement Examination").

Students who are admitted to the Faculty of Graduate Studies and Research in the two-year M.A. program will be expected to elect courses in their first year to complete the requirements specified above.

*Methodology:* Knowledge of the methods and tools of scholarship in English is required. A student who has not had English 26-309 (Scholarship and Bibliography) or its equivalent will be required to take 26-500 on a Pass/Non-Pass basis in addition to the regular course load.

*Qualifying or Placement Examination:* An applicant for admission to the Candidate year for the Master's degree who is deficient in any of the stated requirements for admission to this level of graduate study may be invited to, or may request to write a qualifying examination. A similar examination is available as a placement test, on the basis of which students in the two-year M.A. program may be granted advanced standing.

Students from other universities may arrange to take these examinations in other centres provided the Department is notified well in advance.

## Programs

1) *Thesis Program:* Six courses, normally graduate seminars involving independent research, and 26-500 if necessary. In addition, a thesis of at least 20,000 words.

2) *Course Work Program:* Eight courses, normally graduate seminars involving independent research and the presentation of one or more papers, and 26-500 if necessary.

3) *Creative Writing Program:* Candidates for a Master of Arts in English and Creative Writing must take four courses, normally graduate seminars, from the regular academic offerings, and 26-500 if necessary. In addition, they must take two courses in the range 590-595 (the creative writing seminar) and complete a creative project that in the judgment of the candidate's committee is of sufficient merit for the awarding of the degree: a novel, a collection of poems or short stories, a play. Places in this program are reserved for those whose submissions have been approved by the creative writing staff.

*Counselling:* Students admitted to one of the Master's degree programs in English will be assigned a faculty advisor who will be available to counsel them on all aspects of their work. The Department Head (or a delegate) must approve a student's program of study before registration.

*Time Limits:* A full-time student should complete work on a Master's degree within three years after the student's first registration as a candidate. Part-time students admitted to candidacy should expect to complete their work within five years after first registration (see also 1.4 and 1.6.2).

*Grades:* After admission to candidacy, graduate students in the M.A. program in English must maintain at least a B average, but graduate credit is only given at the A and B level. A student whose grade in a graduate course is less than B may be allowed to repeat the course or to substitute another for it, at the discretion of the Dean of Graduate Studies and Research and the Department Head. The student may not repeat more than one course.



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**16.3.1 COURSE DESCRIPTIONS**


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All graduate courses are seminars. Enrollment is limited in these courses, because considerable contribution is expected from each member of the seminar. For such courses, the corresponding undergraduate survey course, or an acceptable equivalent, is ordinarily a prerequisite. This condition may be waived only by agreement of both the Department Head and the professor offering the seminar. The specific topics of individual courses will vary from year to year, depending upon the interests and needs of professors and students. It is thus impossible to list in detail the many topics that may from time to time be offered, and the schedule below lists only the major periods or forms of literature in which special topics courses may be available.

Special topics courses having the same course number may be taken several times, providing the course content is different, and with the permission of both the Department Head and the professor offering the course. More than one seminar or course, numbered in sequence in any of the listed areas, may be offered in a given year.

In the Winter term each year, the Department publishes a booklet giving complete information as to specific topics of the courses to be offered in the coming academic year, with texts, reading assignments, and similar material about requirements of the course wherever possible. Students are welcome to write or call at the Department offices for a copy of this booklet.

All of the following areas will not necessarily be represented by course offerings in any one year.

- 26-500. Methodology
- 26-501. Tutorials
- 26-505. The English Language and Linguistics
- 26-510. Literature of the Old English Period
- 26-515. Literature of the Middle English Period
- 26-520. Literature of the Renaissance
- 26-525. Renaissance Drama
- 26-530. Literature of the Restoration Period
- 26-535. Literature of the Eighteenth Century
- 26-540. Literature of the Romantic Period
- 26-545. Literature of the Victorian Period
- 26-550. Literature of the Twentieth Century
- 26-555. Literature of the United States
- 26-560. Literature of Canada
- 26-565. Literature of the British Commonwealth
- 26-570. Literary Genres: Poetry
- 26-575. Literary Genres: Drama
- 26-580. Literary Genres: Fiction
- 26-585. Literary Genres: Criticism
- 26-590. Creative Writing Seminar
- 26-794. Creative Writing Project
- 26-797. Thesis



# 17 GEOGRAPHY

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## 17.1.1 OFFICERS OF INSTRUCTION

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### Professor Emeritus

Sanderson, Marie E.; B.A. (Toronto), M.A. (Maryland), Ph.D. (Michigan)—1965.

### Professors

Stebelsky, Ihor; B.A., M.A. (Toronto), Ph.D. (Washington)—1968.

Trenhaile, Alan S.; B.Sc., Ph.D. (Wales)—1969.

Romsa, Gerald H.; B.Sc. (Manitoba), M.A. (Waterloo), Ph.D. (Florida), M.C.I.P.—1970.

Innes, Frank C.; B.Sc. (Glasgow), M.A., Ph.D. (McGill)—1972.

Phipps, Alan G.; B.A. (Manchester), M.A. (Queen's), Ph.D. (Iowa), M.C.I.P.—1988. (Head of the Department).

### Associate Professors

Lall, Amrit; B.A., M.A. (Punjab), Ph.D. (Indiana)—1967.

LaValle, Placido D.; B.A. (Columbia), M.A. (Southern Illinois), Ph.D. (State U. of Iowa)—1969.

Blenman, E. H. Morris; B.A. (London), M.A. (Calgary), Ph.D. (McGill)—1974.

Lakhan, V. Chris.; B.A. (Guyana), M.A. (Windsor), Ph.D. (Toronto), F.R.G.S. (U.K.)—1984.

Matthew, Malcolm R.; B.A., M.A. (Toronto), Ph.D. (Waterloo), M.C.I.P.—1988.

### Assistant Professors

Mogyorody, Veronika; B.A. (Windsor), M.A. (Wayne State), B. Arch. (Detroit)—1977.

Heron, Richard, J.; B.Sc. (Trent), M.Sc., Ph.D. (McMaster)—1988.

### Adjunct Associate Professors

Caruso, Douglas J.; B.A. (British Columbia), M.A. (Minn.), M.A.I.C.P., M.C.I.P.—1979.

Sands, Gary; B.A., M.U.P. (Wayne State), Ph.D. (Cornell)—1989.

### Sessional Instructors

Welch, Ronald; B.A., M.A. (Western Ontario)—1969. (Coordinator of Cartographic Services).

Dumala, R.; B.A., M.A. (Windsor)—1976.

### The Paul E. Vandall Map Library

Milks, Rosaline S.; B.A., B.Ed. (Windsor), M.S.L.S. (Wayne State)—1982. (Map Librarian).

## 17.2 Programs of Study

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### 17.2.1 THE MASTER OF ARTS DEGREE

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The offerings of the Department emphasize two areas: physical resource analysis and urban-economic geography. Within the urban stream is an applied program leading to the degree of Master of Arts in Geography (Planning).

The general admission, residence, and period of study requirements may be found in the regulations of the Faculty of Graduate Studies and Research (see 1.3 and 1.6.).

All graduate students will be assigned to an advisory committee and may be examined to determine research capabilities and deficiencies in background courses. Remedial courses or supplemental readings may be required.

### Program Requirements—Master of Arts in Geography

After receiving counselling in the Department, candidates may proceed toward the degree in one of the following programs:

- (a) a minimum of six courses, one of which may be replaced by a senior undergraduate course with the permission of the Department, and a thesis on an approved research problem, plus an oral examination on the thesis;
- (b) a minimum of eight courses, one of which may be replaced by a senior undergraduate course with the permission of the Department, and a major paper on an approved topic. The completion of the major paper will be followed by a comprehensive



written examination covering two subject areas of the candidate's choice.

The option to complete program (a) or (b) will be kept open in consultation with the Department.

All candidates will take 42-230 and 42-231 as non-credit courses, if they have not taken them or equivalent course(s) at the undergraduate level.

All candidates will take 42-500 as a required course.

Candidates are required to have reading ability in a language which has significant geographic literature, other than English, or in a language relevant to the thesis topic; or to successfully complete a Computer Science course or 42-403 (Computer Mapping). The language or course is to be chosen in consultation with the major advisor and the Head of the Department. If the student has demonstrated adequate competence in one of these areas at another university, this requirement may be waived with the permission of the Head of the Department.

#### **Program Requirements—Master of Arts in Geography (Planning)**

This special program enables graduates from the disciplines of Architecture, Biological and Earth Sciences, Business Administration, Civil and Environmental Engineering, Forestry, Geography, Law, Planning and the Social Sciences to combine their undergraduate interests with applied and methodological training in the field of planning.

The program is enriched by the opportunity to select planning courses offered by Wayne State University, in Detroit, Michigan, as available. This may be of interest to those wishing to pursue professional careers in Canada and the United States.

The Program is administered by the Director of Planning, Geography, the Department Head and the Graduate Admission Committee.

1) After review of academic background and counselling, candidates may select one of the following options:

- (a) a minimum of six courses, a thesis and an oral examination on the thesis;
- (b) a minimum of eight courses, and a major paper on an approved topic.

2) Students may be required to take up to six additional undergraduate courses in planning and/or geography. Planning Law (99-213), if not already taken, will be required.

3) All candidates are required to take 50-500, 50-503, 50-504, and 50-518.

4) Students may, upon approval, select up to two graduate courses from other departments or another university.

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#### **17.3.1 COURSE DESCRIPTIONS—GEOGRAPHY**

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The following courses are normally offered for two hours a week. All courses listed will not necessarily be offered in any one year.

##### **42-500. Modern Geographic Thought**

Designed to inform the student of rational inquiry through modern geographic literature and thought. This would have major impact upon a student's thesis design and proposal. (Prerequisite: 42-230, 42-231 or equivalent).

##### **42-502. Advanced Marketing Geography**

Analysis of trends in the spatial development of distribution functions with emphasis upon population, income and transportation.

##### **42-503. Practicum in Geography**

Applications of geographical methodology in the analysis of specific problems involving either field investigation, laboratory analysis, or archival research. Students consult and work directly with a faculty advisor on specific geographic research problems. (6 to 12 research hours per week).

##### **42-504. Advanced Spatial Analysis**

Techniques of modern spatial analysis including inferential cartography, multivariate analysis of spatial distributions, analysis of spatial series, pattern analysis and stochastic modelling.



**42-510. Advanced Medical Geography**

A discussion of medical geography based on the concept of ill-health as maladjustment to the environment; world-wide examples of inappropriate development and human disease, with an emphasis on prevention techniques and appropriate amelioration.

**42-513. Development Problems in Selected Regions**

Readings and discussion of economic, demographic, and cultural basis for development and regional inequalities in a developed or developing region.

**42-515. Problems in Modern Climatology**

A research seminar on current problems in climatology, selected in consultation with the instructor.

**42-516. Problems in Applied Climatology**

A seminar designed to acquaint the students with modern research in urban climatology, especially in Canada; and with applied climatology, especially in water balance, agricultural and bioclimatological studies.

**42-517. Urban Geography**

Readings and seminars on different interpretations of urban dynamics. Selected topics are assigned for analysis.

**42-518. Urban-Regional Planning**

Issues, such as planning for an aging society, are analyzed.

**42-519. Geomorphological Theory**

Supervised readings and seminars relating to the development of modern geomorphological theory.

**42-520. Applied Geomorphology**

Supervised readings and seminars on selected problems in applied geomorphology.

**42-521. Advanced Resource Geography**

A seminar of research and readings on environmental systems, their analysis, and application to the management of natural and human resources.

**42-522. Applied Resource Geography**

Selected research projects involving the management of resource systems and the planning of resource control schemes, applying concepts evolved in 42-521. Particular emphasis is placed on the discussion of agricultural resource systems.

**42-523. Advanced Cultural Geography**

A seminar on selected problems in cultural geography such as culture-ecology relationships, cultural landscape analysis, multiculturalism and ethnic communities and their spatial dynamics and impact.

**42-524. Advanced Population Geography**

Supervised readings and seminars on selected aspects of population distribution and redistribution; migration mechanism, theories and applications; international and internal migrations in Canada or a selected region; population theories and their geographic implications.

**42-528. Advanced Industrial Geography**

An examination of the Canadian spatial economy applying both historical and quantitative techniques to selected problems. The role of multinational corporations and regional interest groups will be examined in Canada and elsewhere.

**42-529. Advanced Economic Geography**

Theoretical developments in economic geography; application to transport systems planning and to developing countries.

**42-537. Advanced Problems in Geography**

Topics to be selected in consultation with the instructor.

**42-796. Major Paper****42-797. Thesis**


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**17.3.2 COURSE DESCRIPTIONS—  
PLANNING**


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**50-500. Modern Geographic Thought**

(Cross-listed with 42-500).

**50-502. Planning Law**

(Cross-listed with 99-213).

**50-503. Housing Policy**

A study of social policy issues related to housing. Emphasis is on housing market management, program design, land use regulations and urban growth assessment.

**50-504. Advanced Spatial Analysis**

(Cross-listed with 42-504).

**50-511. Urban Planning Process**

(Available at Wayne State University).



### 50-518. Issues in Planning

Issues raised in the literature of planning will be discussed in lectures and seminars. Metropolitan expansion and various planning responses to it, living environments, community arrangements, economic development, transportation and similar topics may be included.

### 50-537. Advanced Problems in Planning

Current topics in strategic planning: meeting the needs of an aging society; provision of leisure activities; addressing problems at the urban fringe.

### 50-665. Land Use Controls

(Available at Wayne State University).

### 50-701. Planning and Decision Theory

(Available at Wayne State University).

### 50-715. Financial Aspects of Urban Planning

(Available at Wayne State University).

### 50-770. Projects in Urban Planning

(Available at Wayne State University).

## 18 GEOLOGY

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### 18.1.1 OFFICERS OF INSTRUCTION

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#### Professor Emeritus

Sonnenfeld, Peter; Absolut. Rer. Nat. (Comenius U., Bratislava), Dr. Rer. Nat. (Charles U., Prague), P.Geol.—1966.

#### Professors

Smith, Terence E.; B.Sc., Ph.D. (Wales)—1969.

Hudec, Peter P.; B.Sc. (Western Ontario), M.S., Ph.D. (Rensselaer Polytech. Inst.) A.I.P.G.—1970.

Symons, David T.A.; B.A.Sc. (Toronto), A.M. (Harvard), Ph.D. (Toronto), P.Eng.—1970.

Turek, Andrew; B.Sc. (Edinburgh), M.Sc. (Alberta), Ph.D. (Australian National U.), P.Eng.—1971.

Simpson, Frank; B.Sc. (Edinburgh), Dr. Nat. Sc. (Jagiellonian U., Krakow), P.Eng.—1974.

Blackburn, William H.; B.Sc. (St. Francis Xavier), Ph.D. (Massachusetts Inst. Technology)—1989. (Head of the Department).

#### Associate Professors

Sklash, Michael G.; B.A.Sc. (Windsor), M.Sc., Ph.D. (Waterloo), P.Eng.—1977.

Holm, Paul E.; A.B. (Augustana), M.S., Ph.D. (Illinois)—1979.

Rodrigues, Cyril G.I.; B.Sc. (British Columbia), M.Sc., Ph.D. (Carleton)—1979.

#### Assistant Professors

Samson, Iain M.; B.Sc., Ph.D. (Strathclyde)—1986.

Al-Aasam, Ihsan S.; B.Sc., M.Sc. (Baghdad), Ph.D. (Ottawa)—1989.

## 18.2 Programs of Study

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### 18.2.1 THE MASTER OF SCIENCE DEGREE

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#### Admission Requirements

In addition to the general requirements and stipulations in 1.6.2 for the Master's degree,



the following requirements must be met by all candidates:

1) A student with an honours B.Sc. degree in Geology or its equivalent, with at least B standing in the final year and in the major subject, may be admitted as a candidate to the one-year Master's program.

2) A student with a general B.Sc. degree with a major in Geology, with at least B standing in the final year and in the major subject, may be admitted to the Master's program after a qualifying year.

### Program Requirements

1) *Course Requirements:* The candidate for a Master's degree will be required to attain at least a B average in not fewer than four 500-level Geology and/or Geological Engineering courses, and at least a B average in not more than four additional courses as approved by the Department. The additional courses may be required as prerequisite or support courses. The total of all courses taken shall not exceed eight. All courses will be chosen to suit the candidate's major field of study in consultation with, and with the approval of, the Head of the Department (or designate). In addition, original research work must be pursued and embodied in a thesis submitted for degree credit. Credit for graduate study previously undertaken may be given, but the duration of study at the University of Windsor may not be reduced to less than the minimum of one year.

2) *Examination-Requirements:* The final examination of a candidate for the Master's degree shall be an oral defense of the thesis at a public lecture or a seminar.

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### 18.3.1 COURSE DESCRIPTIONS— GEOLOGY

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All courses listed will not necessarily be offered in any one year.

**61-536. Quantitative Methods in Geology**  
Geological data collection. Treatment, analyses and interpretations of quantitative data in earth sciences. Application of statistical models such as: regression, factor, discriminant, and trend surfaces analyses of geologic data. Computer applications. (Pre-

requisite: Mathematics 65-253, or equivalent). (3 lecture hours a week).

#### 61-540. Lithostratigraphy

Time in the stratigraphic record; correlation of strata; interpretation of lithofacies associations; trends in basin evolution; stratigraphic aids to exploration strategy. (3 lecture hours a week).

#### 61-541. Oceanography and Marine Micropaleontology

The water masses of the world ocean; marine geological processes; microfossils; their biostratigraphic and paleoecological significance and economic use. (Prerequisite: 61-222, 61-223 or permission of the instructor). (2 lecture, 3 laboratory hours a week).

#### 61-542. Advanced Economic Geology

Ore-forming processes. Physical and chemical characteristics of ore-forming systems: nature and origin of the fluids; transport and deposition of ore minerals. Geology and genesis of selected deposits. (3 lecture hours a week).

#### 61-543. Sedimentary Petrology II

Utility of textural parameters; detailed sedimentary mineralogy; topics in sedimentary geochemistry; fluid-flow characteristics of sedimentary rocks; economic applications. (3 lecture hours a week).

#### 61-544. Sedimentology

Hydrodynamic significance of primary sedimentary structures, post-depositional modification of sediments; biostratification and trace fossils; sedimentary environments; sedimentological methods in economic geology. (3 lecture hours a week).

#### 61-545. Igneous Petrology II

A study of the petrology and petrogenesis of igneous rocks emphasizing current concepts and recent developments. (2 lecture, 3 laboratory hours a week).

#### 61-546. Advanced Structural Geology

A detailed study of rock deformation and resulting structures with an emphasis on field relationships and the analysis of structural data. (3 lecture hours a week).

#### 61-547. Metamorphic Petrology II

A study of modern concepts of metamorphic petrology including reaction kinetics; the in-



terplay of tectonism, deformation, and metamorphism; and the role of fluids in metamorphic reactions. (3 lecture hours a week).

#### **61-548. Low-temperature Geochemistry and Diagenesis**

Geochemistry of sedimentary rocks and natural waters; chemistry and mineralogy of weathering; geochemical cycles; geochemical facies analysis; fractionation of elements and isotopes during sedimentation; chemical diagenesis; organic matter and mineral diagenesis; geochemical evolution of sedimentary rocks during geologic history. (3 lecture hours a week). (Prerequisite: 61-324 or equivalent, or permission of the instructor).

#### **61-551. Isotope Geochemistry**

Theory, systematics, and application of radioactive and stable isotopes in earth sciences. Current advances in the field. Selected case studies. (3 lecture hours a week).

#### **61-580. Graduate Seminar**

#### **61-590. Special Topics**

(May be taken for credit more than once provided that the topics are different.)

#### **61-797. M.Sc. Thesis**

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### **18.3.2 COURSE DESCRIPTIONS— GEOLOGICAL ENGINEERING**

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#### **90-550. Valuation of Ore Deposits**

Ore reserve calculation methods; supply and demand factors and their projection; capitalization, discounting and amortization of ore deposits; marketing including cartels, taxation, legislation and national interest. (3 lecture hours a week).

#### **90-552. Geologic Origin and Properties of Industrial Rocks and Minerals**

Occurrence, origin, exploration and exploitation methods; physical and chemical properties of industrial minerals and their uses; economics of industrial rocks and minerals. (3 lecture hours a week).

#### **90-553. Physical Properties and Causes of Deterioration of Construction Materials**

Geologic and physio-chemical factors affecting the stability of construction materials (rock aggregate, expanded aggregate, tile, brick,

etc.) under conditions of natural weathering and exposure to salts and other pollutants. (3 lecture hours a week).

#### **90-554. Advanced Petroleum Geology**

Detailed geological considerations of oil and gas accumulations concentrating on topics such as host rocks, paleoenvironments and structures. (Prerequisite: 61-421 or equivalent, or permission of instructor). (3 lecture hours a week).

#### **90-555. Hydrocarbon Reservoirs**

Hydrodynamic and geologic factors in the migration of oil and gas into reservoirs, the characteristics of reservoirs, and reservoir engineering associated with the extraction of the hydrocarbons. (3 lecture hours a week).

#### **90-556. Geotechnical Geophysics**

Application of geophysical methods in Engineering Geology, emphasizing blast vibration analysis, near-surface seismic and electrical methods. (3 lecture hours a week).

#### **90-557. Applied Hydrogeology**

Advanced topics in hydrogeology related to waste disposal effects on groundwater. Topics include: groundwater contaminants, groundwater monitoring strategies, site evaluation, site remediation, and case histories. (Prerequisite: 90-436, or equivalent, or permission of instructor). (3 lecture hours a week).

#### **90-558. Advanced Hydrogeology**

Advanced topics in hydrogeology, including: applied isotope hydrogeology, groundwater flow in fractured rocks, theory of contaminant transport in groundwater systems, evaluation of hydraulic conductivity, tracer tests, modelling of hydrogeologic systems, and case histories. (Prerequisite: 90-436, or equivalent, or permission of instructor). (3 lecture hours a week).

#### **90-559. Underground Storage**

Exploitation of subsurface space for storage of industrial products and wastes. Possible environmental impact of poorly planned underground storage. Economics of subsurface vs. surface storage. Emphasis on Canadian case histories. (3 lecture hours a week).



**90-580. Graduate Seminar**

**90-590. Special Topics**

Selected advanced topics in a field of research in the Department.

**90-797. Thesis**

## 19 HISTORY

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### 19.1.1 OFFICERS OF INSTRUCTION

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#### Professors

Pryke, Kenneth G.; B.A. (Carleton), M.A., Ph.D. (Duke)—1963.

Mouratides, Anastasio; B.Comm., M.A., Ph.D. (McGill)—1964.

McCrone, Kathleen E.; B.A. (Saskatchewan), M.A., Ph.D. (New York U.)—1968.

Sautter, Udo; B.Phil., St. E. 1st and 2nd Ph.D. (U of Tuebingen)—1969.

#### Associate Professors

Hoskins, Ronald G.; B.A., M.A. (Windsor)—1966.

Klinck, David M.; B.A., M.A. (Western Ontario), Ph.D. (Wisconsin)—1968. (Head of the Department).

Kulisek, Larry L.; B.S. (Northwest Missouri State), M.A. (Omaha), Ph.D. (Wayne State)—1968.

Pemberton, Ian C.; B.A. (Bishop's), M.A. (Toronto), Ph.D. (Western Ontario)—1968.

Tucker, E. Bruce; B.A., M.A. (Toronto), Ph.D. (Brown)—1988.

#### Assistant Professor

McLeod, Jane; B.A. (Brock), M.A., Ph.D. (York)—1989.

#### Research Assistant Professor

Murray, Jacqueline; B.A. (British Columbia), M.A., Ph.D. (Toronto)—1988.

#### Adjunct Professors

Edwards, Homer F., Jr.; B.A., M.A., Ph.D. (Emory)—1978.

Mason, Philip P.; B.A. (Boston U.), M.A., Ph.D. (Michigan)—1985.



## 19.2 Programs of Study

### 19.2.1 THE MASTER OF ARTS DEGREE

Candidates for the Master of Arts degree may proceed in one the two following programs of study:

- (a) at least four graduate courses, one of which may be in a cognate field, plus a thesis;
- (b) at least six graduate courses, two of which may be in a cognate field, and a separate major paper on a topic selected in conjunction with one of the seminar courses.

#### Certificate in Archival Studies

While pursuing the Master of Arts degree in History, students also may obtain additional qualification for the Certificate in Archival Studies. This combination of certificate and degree is designed to prepare students trained in History for careers as archivists, and is offered in cooperation with Wayne State University in Detroit, Michigan.

#### Program Requirements

- 1) All graduate students must receive counselling from the Department. Students registered for the degree of Master of Arts with a Certificate in Archival Studies must be counselled by the director of Public History programs.
- 2) There shall be an oral examination on the thesis or major paper.
- 3) All candidates for the M.A. degree are required to take either 43-501 or 43-502.
- 4) Students who have taken a fourth-year course crosslisted with a graduate course may not repeat the equivalent graduate course for credit.
- 5) Language requirement: The candidate must have a reading knowledge of at least one language other than English. The language shall be chosen in consultation with the Head of the Department.

With the permission of the Head of the Department, the candidate may substitute for the foreign language requirement two cour-

ses in Statistics and Data Processing (e.g., 45-274 and 45-275) in which at least a B standing must be attained.

6) Candidates for the degree of Master of Arts with a Certificate in Archival Studies will proceed according to the following program: at least four graduate courses, to be taken from among the seminar courses of the Department including either 43-501 or 43-502; four more courses in the Archival Studies Program which the Department offers in cooperation with Wayne State University; two of these courses must be 43-571 and 43-572. Candidates are encouraged to take the two remaining courses at the University of Windsor. Each student within the Archival Studies Program shall do either a major paper on a topic selected in conjunction with one of the seminar courses, or equivalent work within the Archival Studies Program. This program will normally extend over two years.

7) Students enrolled in the Archival Studies Program shall be given priority in registering in archives courses. Students not enrolled in the Archival Studies Program who have opted to do a thesis may receive credit for no more than one archival course. Students not enrolled in the Archival Studies Program who have opted to do a major paper may receive credit for no more than two archival courses.

### 19.3.1 COURSE DESCRIPTIONS

Graduate courses are conducted as seminars which concentrate on specific major historical issues which are explored in depth. Emphasis is placed upon the sources, the historiography of the subject, and the current state of research.

The seminars will be selected from the following areas:

Canada  
United States  
Modern England  
Modern Europe  
Local History  
Historical Resource Administration (Public History)\*

\* Involves the following areas of study: Historical Preservation; Archival Policy and



Methods; Museum Administration; Oral History; Preservation and the Law—Legal Regulatory Aspects.

Students enrolled in graduate studies are eligible to do Historical Administration options or other course work relevant to their program at Wayne State University in Detroit, Michigan, including courses in Archival Methods at Wayne's *Walter P. Reuther Archives of Labour and Urban Affairs*.

All of the following courses will not necessarily be offered in any one year.

**43-501. European Historiography**

Aspects of the writing and philosophy of history from ancient Greece to the twentieth century.

**43-502. North American Historiography**

Study of major historical writers of Canada and the United States from the period of European settlement to the present day.

**43-507. Selected Topics in English History I**

**43-508. Selected Topics in English History II**

**43-521. Selected Topics in Modern Europe I**

**43-522. Selected Topics in Modern Europe II**

**43-543. Selected Topics in Canadian History I**

**43-544. Selected Topics in Canadian History II**

**43-547. Selected Topics in Local History I**

**43-548. Selected Topics in Local History II**

**43-549. Selected Topics in Historical Resource Administration**

**43-561. Selected Topics in United States History I**

**43-562. Selected Topics in United States History II**

**43-571. Introduction to Archival Administration**

An introduction to the development of archives in the western world, especially upon United States public and private institutions;

terminology and differences between library and archival techniques; the arrangement, description and servicing of archival materials.

**43-572. Archival Administration**

A continuation of 43-571 designed to deal with more advanced and complicated aspects of archival administration, such as literary legal rights, libel and appraisal of records for historical and income tax purposes.

**43-573. Conservation and Administration of Photography Collections**

**43-574. Introduction to Archival and Library Conservation**

A basic course in the fundamentals of archival and literary conservation essential for effective management of programs of preventative and restorative conservation for books, documents, maps, broadsides and works of art on paper.

**43-575. Oral History**

A methodology for research techniques of gathering data from individuals for use in research, classroom teaching, in historical, cultural or other contexts.

**43-576. Information Programming and Processing**

**43-577. Administration of Historical Agencies**

The operation of public and private historical agencies, archives and museums. Determination of agency priorities, problems of staffing and finance, governmental regulations, community relations, and professional ethics.

**43-579. Special Topics in Archival Science**

**43-597. Selected Topics in History**

**43-598. Selected Topics in History**

**43-796. Major Paper**

**43-797. Thesis**

Note: Courses 43-574, 43-575, and 43-577 are offered either by the University of Windsor or Wayne State University; the remaining archival studies courses are offered only by Wayne State University. The Department of



History, University of Windsor, normally will offer one, and not more than two courses, in the area of archival studies in any academic year.

Undergraduate senior courses, which may be assigned at the discretion of the Department Head to form part or all of the requirements of the first year of the two-year graduate program, may be found in the Undergraduate Calendar (see 4.7.3).

## 20 KINESIOLOGY

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### 20.1.1 OFFICERS OF INSTRUCTION

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#### Professors

Moriarty, Richard James; B.A., M.A. (Assumption), M.Ed. (Wayne State), Ph.D. (Ohio State)—1956.

Hermiston, Ray Talbot; B.A., B.P.H.E. (Queen's), M.S., Ph.D. (Michigan)—1966.

Leavitt, Jack L.; B.Ed. (Alberta), M.S. (Oregon), Ed.D. (California)—1967.

Metcalfe, Alan; D.L.C. (Loughborough), B.P.E. (British Columbia), M.S., M.A., Ph.D. (Wisconsin)—1969.

Salter, Michael A.; D.P.E. (Sydney), B.P.E., M.A. Ph.D. (Alberta)—1972. (Dean of the Faculty).

Marino, G. Wayne; B.A., B.P.E. (McMaster), M.P.E. (Windsor), Ph.D. (Illinois)—1977. (Head of the Department).

#### Associate Professors

Olafson, Gordon A. A.; B.P.E., M.P.E. (British Columbia), Ph.D. (Illinois)—1969.

Boucher, Robert L.; B.Sc. (Mankato State), M.Sc. (Illinois State), Ph.D. (Ohio State)—1974. (Head of the Department of Athletics and Recreational Services).

Kenno, Kenji; B.P.H.E. (Lakehead), M.H.K., (Windsor), Ph.D. (Toledo)—1984.

Corlett, John T.; B.Sc. (Brock), M.Sc., Ph.D. (Simon Fraser)—1986.

#### Assistant Professor

Paraschak, Victoria; B.P.E. (McMaster), M.H.K. (Windsor), Ph.D. (Alberta)—1984.

## 20.2 Programs of Study

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### 20.2.1 THE MASTER OF HUMAN KINETICS DEGREE

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#### General Nature of the Program

There are two streams to the program: one includes a thesis and normally will lead to doctoral work; the other, which involves course work and



a major paper, is designed to serve as an enrichment experience.

### Admission Requirements

1) In addition to the general admission requirements of the Faculty of Graduate Studies and Research outlined in 1.3 and 1.6.1, the following are employed in the determination of a candidate's admission status:

- (a) A person who holds a three-year degree or three-year diploma will be required to complete up to a maximum of twelve semester courses to be determined by the student's program committee, as well as to complete successfully the requirements for the Master's degree as outlined in the Graduate Calendar.
- (b) A person who holds a four-year degree will be required to complete the requirements for the Master's Degree as outlined in the Graduate Calendar. Courses beyond the minimum requirement may be deemed necessary, however, and the final program of work shall be determined by the student in consultation with his or her program committee and advisor.

### Program Requirements

1) In addition to the general requirements for the Master's degree, the candidate must:

- (a) complete at the minimum the equivalent of five graduate-level courses and a thesis, or substitute three such courses and a major paper in lieu of the thesis, with a maximum of two graduate-level cognate courses for students in the major paper stream and one for thesis students;
- (b) pass an oral examination based on a thesis, or for major paper students, pass a comprehensive examination;
- (c) present a seminar once during the graduate program;
- (d) take the appropriate Research Techniques/Methods course during the first year of graduate study.

2) Only one of the following Special Problems courses may be taken regardless of area: 97-530 (Historical/Sociological Study of Sport), 94-510 (Movement Sciences), or 96-520 (Sport and Lifestyle Management). A Research Proposal must be presented to the Research Committee for approval in the first week of the semester in which the course is undertaken, and at completion the manuscript must be returned to the chairperson of the Research Committee for binding and placement in the Kinesiology office.

3) *Master's Committee and Advisors:* Prior to a candidate's initial registration, the Head of the Department will assign a program advisor to assist each student.

The program advisor may or may not act as chairperson of the Master's thesis committee, which will include at least two additional members, one of whom must be from outside the Faculty of Human Kinetics. An additional member from the graduate faculty of another university may be assigned to the Master's thesis committee.

### 4) Examinations

(a) *Thesis Stream:* The thesis committee will conduct the oral examination of the thesis proposal. When the thesis has been completed, the thesis committee, in consultation with the candidate, will determine whether to proceed with or postpone the final oral examination. The grade on the written thesis shall be submitted prior to the examination and shall be worth sixty percent (60%) of the final grade. For the final oral examination of the thesis, the committee will be supplemented by another member of the Kinesiology graduate faculty who will act as the chairperson. Following the successful defense, the candidate will deposit all copies of the thesis in the Office of the Faculty of Graduate Studies and Research for binding and distribution (two copies for the Leddy Library, one or two copies to the Faculty of Human Kinetics).

(b) *Major Paper Stream:* The major paper will be overseen by two faculty members. The major advisor will be a graduate faculty member from the



Department of Kinesiology and the other reader will be a graduate faculty member from either Kinesiology or some other department as determined by the nature of the advice and guidance required by the student. The written outline for the major paper will be approved by the major advisor and other reader. Following completion of the major paper, the student will be required to pass an oral examination given by the major advisor and other reader on the topic of the paper. Seventy percent (70%) of the grade for the major paper will be based on the written manuscript and thirty percent (30%) on the final oral exam. The major paper project will include the collection and analysis of data. The completed manuscript will be bound and copies will be placed in the Department of Kinesiology and the Leddy Library.

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### 20.3.1 COURSE DESCRIPTIONS

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All courses listed will not necessarily be offered in any given semester. All courses are three hours a week unless otherwise noted.

#### *MOVEMENT SCIENCES*

A normal thesis stream program in Movement Sciences will include 95-561 and four other courses from the Movement Sciences area. One course may be replaced by a graduate-level cognate course from another department.

#### **94-510. Special Problems**

Study of Selected Problems in the Movement Sciences area. (Students may select this course only once). (Consent of instructor and Research Committee required). (Hours to be arranged).

#### **94-521. Advanced Physiology of Fitness**

The advanced study of physiological systems with respect to fitness. Special attention will be given to skeletal muscle, cardio-vascular and cardio-respiratory physiology. Computer reporting systems will be used in the physiological assessments of both athletes and employee fitness groups.

#### **94-522. Cellular Exercise Physiology**

This course will examine cardiac exercise physiology with respect to excitation-contraction coupling, membrane calcium fluxes, intracellular calcium handling and metabolic regulation of cardiac contractile protein function at the cellular level. Seminars, term papers and laboratory work will be required. (Prerequisite: 94-460 or consent of instructor).

#### **94-523. Biomechanics**

A lecture/seminar course focussing on relevant analysis techniques and mechanics concepts as well as current topics of interest in the biomechanics literature. Primary areas of study include human gait, sport mechanics, biomechanical modeling, and human performance in the workplace.

#### **94-524. Motor Learning**

A review and discussion of human performance theory as it is used to study information processing in movement skills. Within this context particular attention is devoted to the preparation and control of movement with specific topics being selected from current research. (Prerequisite: 94-310 or 94-410 or consent of instructor).

#### **94-525. Psychology of Sport and Physical Activity**

The influences of psychological attributes of participants on sport and skilled physical activity behaviour will be studied. The interactions of these individual characteristics with situational performance factors will also be assessed.

#### **94-595. Selected Topics in Movement Sciences**

Topics to be arranged by individual faculty members, based upon new developments in the movement sciences.

#### **94-796. Major Paper**

#### **94-797. Thesis**

#### *SPORT AND LIFESTYLE MANAGEMENT*

A normal thesis stream program in Sport and Lifestyle Management will include 96-562 (or 97-562) and four other courses from the Sport and Lifestyle Management area. One course may be replaced by a graduate-level cognate course from another department.



**96-500. Sport Leadership**

This course is intended to be a survey course using the current research and literature relating to leadership in sport environments. The specific focus involves administrative leadership in sport settings. Several leadership theories will be reviewed, analyzed and discussed. The merits of various models will be discussed with respect to their relevance in understanding the leadership phenomenon.

**96-501. Organizational Development in Sport and Lifestyle Management**

Analysis of research and professional practice related to the establishment, growth, development and potential decline of organizations in the area of sport and physical activity. Intervention techniques and coping strategies of organizational members as agents of change will be studied.

**96-502. Sport Management**

An analysis of the interactive nature of the social/psychological components of organizational behaviour. Specific reference will be made to the interdependence and the coupling of individual, interpersonal, and group behaviour, and the organizational effectiveness of sport organizations.

**96-503. Philosophy of Sport and Physical Activity**

A philosophical examination of contemporary issues and perennial problems in sport and physical activity.

**96-520. Special Problems**

Study of selected problems in the Sport and Lifestyle Management area. (Students may select this course only once). (Consent of instructor and Research Committee required). (Hours to be arranged).

**96-562. Research Methods**

A review and appraisal of qualitative and quantitative research methods in Sport and Lifestyle Management, with special reference to design, analysis and generalization.

**96-595. Selected Topics in Sport and Lifestyle Management**

Topics to be arranged by individual faculty members, based upon new developments in Sport and Lifestyle Management.

**96-796. Major Paper****96-797. Thesis*****HISTORICAL/SOCIOLOGICAL STUDY OF SPORT***

A normal thesis stream program in Historical/Sociological Study of Sport will include 97-562, three courses from the Historical/Sociological Study of Sport area and either one further graduate course in Kinesiology or a graduate-level cognate course from another department.

**97-514. Sociological Perspectives of Canadian Sport**

An analysis of modern-day Canadian sport through various sociological perspectives. This examination will include the assessment of sport with respect to both social differentiation and societal institutions.

**97-515. Historical Perspectives of Canadian Sport**

An analysis of the historical antecedents of Canadian sport. Emphasis will be placed on those forces instrumental in the moulding of nineteenth and twentieth-century Canadian sport.

**97-530. Special Problems**

Study of selected problems in the historical/sociological study of sport. (Students may select this course only once). (Consent of the instructor and Research Committee are required). (Hours to be arranged).

**97-562. Selected Topics in the Historical/Sociological Study of Sport**

Topics to be arranged by individual faculty members based upon new developments in the historical/sociological study of sport.

Undergraduate courses, which may be assigned at the discretion of the advisor and Head to form part or all of the requirements for admission to candidacy of a student deficient in entrance requirements, may be found in the Undergraduate Calendar, see 9.4.

**97-796. Major Paper****97-797. Thesis**



# 21 MATHEMATICS AND STATISTICS

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## 21.1.1 OFFICERS OF INSTRUCTION

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### Professors

Smith, Alexander Cormac; B.Sc., M.Sc., Ph.D. (Dublin)—1963.

Tracy, Derrick Shannon; B.Sc., M.Sc. (Luknow), M.S., Sc.D. (Michigan)—1965.

McDonald, James F.; B.S., Ph.D. (Wayne State)—1967.

Chandna, Om Parkash; B.A. (Panjab), M.A. (Delhi), M.Sc., Ph.D. (Windsor)—1968.

Duggal, Krishan L.; B.A. (Panjab), M.A. (Agra), M.Sc., Ph.D. (Windsor)—1968. (Acting Head of the Department).

Kaloni, Purna N.; M.Sc. (Allahabad), M. Tech. Ph.D. (Indian Inst. of Tech.)—1970.

Lemire, Francis William; B.Sc. (Windsor), M.Sc., Ph.D. (Queen's) 1970.

Wigley, Neil M.; B.A., Ph.D. (California)—1970.

Britten, Daniel J.; B.A. (Merrimack College), M.S., Ph.D. (Iowa)—1971.

Wong, Chi Song; B.S. (National Taiwan U.), M.S. (Oregon), M.S., Ph.D. (Illinois-Urbana)—1971.

Barron, Ronald Michael; B.A., M.Sc. (Windsor), M.S. (Stanford), Ph.D. (Carleton)—1975.

Fung, Karen Yuen; B.A., M.S., Ph.D. (UCLA)—1976.

Paul, Sudhir R.; B.Sc., M.Sc. (Dacca), M.Sc., Ph.D. (Wales)—1982.

Zamani, Nader G.; B.Sc. (Case Western), M.Sc., Ph.D. (Brown)—1986.

### Associate Professors

Atkinson, Harold R.; B.A. (Western Ontario), M.Sc. (Assumption), Ph.D. (Queen's)—1964.

Manley, Paul L.; B.Sc.; M.Sc. (Alberta)—1967.

Gold, Alan John; B.A. (Windsor). Dip. D'Etudes, Doct. de Spec. (Clermont)—1969.

McPhail, Gerard; B.Sc., M.Sc. (Queen's), Ph.D. (Toronto)—1969.

Selby, Michael Allen; B.Sc. (Manitoba), M.A., Ph.D. (Cornell) A.S.A.—1970.

Traynor, Tim Eden; B.A., M.A. (Saskatchewan), Ph.D. (British Columbia)—1971.

Caron, Richard J.; B.M., M.M., Ph.D. (Waterloo)—1983.

### Assistant Professors

Hlynka, Myron; B.Sc. (Manitoba), M.A., Ph.D. (Pennsylvania State)—1986.

### Adjunct Professor

Fleischer, Isidore; B.Sc. (Brooklyn), M.Sc., Ph.D. (Chicago)—1985.

## 21.2 Programs of Study

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### 21.2.1 THE DOCTOR OF PHILOSOPHY DEGREE

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#### Admission Requirements

For admission requirements and period of study, the general regulations of the Faculty of Graduate Studies and Research should be consulted (see 1.5). Qualifying examinations will not normally be required.

#### Program Requirements for the Ph.D. (Mathematics)

1) *Course Work*: Candidates must complete successfully at least twelve graduate courses, of which up to eight may be transferred from other universities; further graduate courses are left to the discretion of the supervisor and the Head of the Department.

2) *Doctoral Committee*: When a student is deemed ready to begin research, a doctoral committee will be appointed by the Head of the Department upon the advice of the Graduate Studies Committee. The doctoral committee is subject to the approval of the Executive Committee of the Faculty of Graduate Studies and Research. The doctoral committee shall include the student's supervisor as chairperson, at least two other members of the Department, one faculty member from outside the Department, and an external examiner, who shall not be involved in the



preparation of the dissertation. The selection of the external examiner is subject to the approval of the Dean of Graduate Studies and Research. Members of other departments may also be invited to join the committee (see also 1.5.2).

3) *Dissertation*: The dissertation shall be defended at an oral examination (see also 1.5.2).

4) *Comprehensive Examinations*: Each student will be required to pass a series of three written comprehensive examinations. These will test the student's background knowledge and preparedness for research in a particular area of Mathematics. These examinations must be completed within twenty-four months of registration in the doctoral program. If a student fails an examination, it may be repeated once, but if the examination is failed a second time, the student must withdraw from the program (see also 1.5.3). In any case, these examinations must be successfully completed within twenty-four months of registration in the doctoral program. If this deadline is not met, the student must withdraw from the program.

#### **Program Requirements for the Ph.D. (Statistics)**

1) *Course Work*: Candidates must complete successfully at least twelve graduate courses, of which at least eight must be numbered with prefix 65. Up to eight of the twelve courses may be transferred from other universities; further graduate courses are left to the discretion of the supervisor and the Head of the Department. It is strongly recommended that all Ph.D. students in Statistics take a measure theoretic probability course.

2) *Doctoral Committee*: When a student is deemed ready to begin research, a doctoral committee will be appointed by the Head of the Department upon the advice of the Graduate Studies Committee. The doctoral committee must be approved by the Executive Committee of the Faculty of Graduate Studies and Research. The doctoral committee shall include the student's supervisor as chairperson, at least two other members of the Department, one faculty member from outside the Department, and an external ex-

aminer, who shall not be involved in the preparation of the dissertation. The selection of the external examiner is subject to the approval of the Dean of Graduate Studies and Research. Members of other departments may also be invited to join the committee (see also 1.5.1).

3) *Dissertation*: The dissertation shall be defended at an oral examination (see also 1.5.1).

4) *Comprehensive Examinations*: A student must pass a series of three written comprehensive examinations as follows:

- (i) Paper I—Mathematical Statistics and Probability
- (ii) Paper II—Statistics *OR* Probability
- (iii) Paper III—Topics (two topics mutually agreed upon by the supervisor and student).

The examinations must be completed within twenty-four months of registration in the doctoral program. If a student fails an examination it may be repeated once, but if the examination is failed a second time, the student must withdraw from the program. (See also 1.5.1).

In any case these examinations must be completed within twenty-four months of registration in the doctoral program. If this deadline is not met, the student must withdraw from the program.

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### 21.2.2 THE MASTER OF SCIENCE DEGREE

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#### **Program Requirements for the M.Sc. (Mathematics)**

The candidate shall successfully complete one of the following courses of study:

- (i) eight graduate courses, or
- (ii) seven graduate courses and a major paper, or
- (iii) six graduate courses and a thesis.

#### **Program Requirements for the M.Sc. (Statistics)**

The candidate shall successfully complete one of the following courses of study:



- (i) eight graduate courses, of which at least six must be numbered with the prefix 65; or
- (ii) seven graduate courses, of which at least five must be numbered with the prefix 65, and a major paper; or
- (iii) six graduate courses, of which at least four must be numbered with the prefix 65, and a thesis.

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### 21.3.1 COURSE DESCRIPTIONS

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All courses listed will not necessarily be offered in any given year.

#### *MATHEMATICS*

- 62-500. Mathematical Logic I
- 62-501. Mathematical Logic II
- 62-510. Functions of a Real Variable I
- 62-511. Functions of a Real Variable II
- 62-512. Functional Analysis I
- 62-513. Functional Analysis II
- 62-514. Topological Vector Spaces I
- 62-515. Topological Vector Spaces II
- 62-518. Topics in Real Analysis
- 62-519. Topics in Complex Analysis
- 62-520. Abstract Algebra I
- 62-521. Abstract Algebra II
- 62-522. Homological Algebra
- 62-523. Non-Associative Algebras
- 62-524. Representation Theory
- 62-525. Matrix Algebra and Analysis
- 62-528. Numerical Methods in Algebra
- 62-529. Topics in Algebra
- 62-530. General Topology
- 62-531. Algebraic Topology
- 62-532. Topics in Topology
- 62-533. Differential Geometry
- 62-534. Differential Topology
- 62-535. Analysis on Manifolds
- 62-536. Riemannian Geometry
- 62-539. Topics in Geometry
- 62-560. Integral Transforms
- 62-561. Partial Differential Equations
- 62-562. Nonlinear Partial Differential Equations
- 62-563. Partial Differential Operators I
- 62-564. Partial Differential Operators II
- 62-565. Integral Equations
- 62-566. Ordinary Differential Equations I
- 62-567. Ordinary Differential Equations II
- 62-568. Numerical Analysis I
- 62-569. Numerical Analysis II
- 62-570. Fundamentals of Continuum Mechanics I
- 62-580. Fundamentals of Continuum Mechanics II
- 62-571. Classical Hydrodynamics I
- 62-581. Classical Hydrodynamics II
- 62-572. Fluid Dynamics I
- 62-582. Fluid Dynamics II
- 62-573. Perturbation Methods in Fluid Mechanics I
- 62-583. Perturbation Methods in Fluid Mechanics II
- 62-574. Aerodynamics I
- 62-584. Aerodynamics II
- 62-575. Compressible Flow I
- 62-585. Compressible Flow II
- 62-576. Magnetohydrodynamics I
- 62-586. Magnetohydrodynamics II
- 62-577. Numerical Techniques in Fluid Dynamics I
- 62-587. Numerical Techniques in Fluid Dynamics II
- 62-578. Elasticity I
- 62-588. Elasticity II
- 62-579. Visco-elasticity and Plasticity I
- 62-589. Visco-elasticity and Plasticity II
- 62-590. General Relativity I
- 62-591. General Relativity II
- 62-592. Relativistic Fluid Dynamics
- 62-593. Introduction to Finite Element Method
- 62-594. Topics in Finite Element Method



- 62-595. Mathematical Programming I
- 62-596. Mathematical Programming II
- 62-598. Special Topics
- 62-796. Major Paper
- 62-797. Thesis (M.Sc.)
- 62-798. Dissertation (Ph.D.)

*STATISTICS*

- 65-540. Theory of Probability I
- 65-541. Theory of Probability II
- 65-542. Advanced Mathematical Statistics I
- 65-543. Advanced Mathematical Statistics II
- 65-544. Multivariate Analysis I
- 65-545. Multivariate Analysis II
- 65-546. Statistical Data Analysis I
- 65-547. Statistical Data Analysis II
- 65-548. Non-parametric Statistics I
- 65-549. Non-parametric Statistics II
- 65-550. Linear Models I
- 65-551. Linear Models II
- 65-552. Experimental Design I
- 65-553. Experimental Design II
- 65-554. Theory of Sampling and Surveys
- 65-555. Theory of Estimation
- 65-556. Decision Theory
- 65-557. Bayesian Statistics
- 65-558. Stochastic Processes
- 65-559. Topics in Statistics
- 65-598. Special Topics
- 65-796. Major Paper
- 65-797. Thesis (M.Sc.)
- 65-798. Dissertation (Ph.D.)

## 22 PHILOSOPHY

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### 22.1.1 OFFICERS OF INSTRUCTION

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**Professor Emeritus**

Nielsen, Harry A.; A.B. (Rutgers), M.A. (Connecticut), Ph.D. (Nebraska)

**Professors**

Kingston, Rev. Frederick Temple; B.A., M.A. (Toronto), L. Th., B.D. (Trinity), D.Phil. (Christ Church, Oxford)—1959. (Principal, Canterbury College).

Brown, Jerome V.; B.A. (Iona College, N.Y.), M.A., Ph.D. (Toronto), M.S.L. (Pontif. Inst.)—1961.

Lewis, John Underwood; A.B. (North Texas State), Ph.D. (Marquette)—1964.

Johnson, Ralph Henry; B.A. (Xavier), M.A., Ph.D. (Notre Dame)—1966. (Head of the Department).

Blair, John Anthony; B.A. (McGill), M.A. (Michigan)—1967.

**Associate Professors**

Wilkinson, Peter Frederick; B.A., M.A. (Toronto), L.Th. (Wycliffe)—1962.

Pinto, Robert Charles; B.A., M.A., Ph.D. (Toronto)—1963.

Wright, John P.; B.A., M.A. (Toronto), Ph.D. (York)—1983.

**Assistant Professor**

Cook, Deborah; B.A., M.A., (Ottawa), Doct. 3e cycle (Sorbonne)—1989.

## 22.2 Programs of Study

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### 22.2.1 THE MASTER OF ARTS DEGREE

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**General Nature of the Program**

The aim of the program is to give students the opportunity to deepen their philosophical understanding both by broadening their undergraduate background and by allowing them to concentrate their studies on specific areas of philosophy which interest them. The Philosophy M.A. program is structured in



such a way as to encourage maximum participation by students in seminars and allow extensive contact with professors outside of formal class time.

### Admission Requirements

See 1.6.1 of this calendar for general requirements for admission into an M.A. program at the University of Windsor. The Philosophy Department normally requires the equivalent of twenty one-semester courses in Philosophy for admission to the one-year Master's program and the equivalent of ten one-semester courses in Philosophy for admission to the two-year Master's program.

### Program Requirements

The general requirements for the Master's degree are listed in 1.6.2 of the Graduate Calendar. The following are particular requirements for the M.A. in Philosophy:

1) The student may proceed to the degree in any one of the following ways:

- (a) successfully complete at least four and not more than six graduate courses (the fifth and sixth courses may be in a cognate field), and satisfactorily complete a thesis on which there shall be an oral examination;
- (b) successfully complete six courses, two of which may be in a cognate field, and satisfactorily complete a major research paper on which there shall be an oral examination;
- (c) successfully complete eight courses, two of which may be in a cognate field.

#### Note:

- (i) Students wishing to pursue Ph.D. studies are advised to take option (a) or (b), but not (c).
- (ii) Students choosing option (c) should recognize that students in their candidate year normally take two graduate courses each semester and that it will take more than one year to complete their program.

2) All students proceeding to the degree must:

- (a) include the departmental seminar (Philosophy 34-590) among their courses for the degree;
- (b) successfully complete the Master's examination in Philosophy.

3) *M.A. Qualifying Year*: Students at the I Master's level are required to take either 34-490 (Honour's Essay) or 34-491 (Honour's Seminar) (see 3.9.3 of the Undergraduate Calendar).

4) *Program Approval*: Each student must have his or her projected program authorized by the chairperson of the Graduate Studies Committee.

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## 22.3.1 COURSE DESCRIPTIONS

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### GROUP A

In a given academic year at least one course will be offered which will deal with a certain problem or set of problems of concern to contemporary philosophers in the following areas:

**34-520. Ethics**

**34-521. Political Philosophy**

**34-522. Philosophy of Law**

**34-540. Philosophy of Religion**

**34-541. Philosophy of Science**

**34-542. Philosophy of History**

**34-543. Philosophy of Language**

**34-550. Epistemology**

**35-551. Metaphysics**

**34-552. Philosophy of Mind**

**34-560. Formal Logic**

**34-561. Theory of Argument**

**34-562. Theory of Informal Fallacies**

**34-563. Theory and Teaching of Critical Thinking**

**34-565 to 34-569. Advanced Seminar:  
Selected Topics in Philosophy**

### GROUP B

In a given academic year there will be an intensive study of a given philosopher or



philosophical issue from one or more of the following:

- 34-570. Greek Philosophy
- 34-571. Medieval Philosophy
- 34-572. Renaissance Philosophy
- 34-573. Seventeenth-Century Philosophy
- 34-574. Eighteenth-Century Philosophy
- 34-575. Nineteenth-Century Philosophy
- 34-576. Foundations of Existentialism
- 34-577. Twentieth-Century Continental Philosophy
- 34-578. Twentieth-Century Anglo-American Philosophy
- 34-580 to 34-584. Advanced Seminar: Selected Topics in the History of Philosophy

#### GROUP C

The following course must be taken by all M.A. students:

- 34-590. Departmental Seminar: The History of Philosophy in Perspective.

The aim of the seminar is to deepen students' sensitivity to the history of philosophy and help prepare them for the Master's examination in Philosophy. Each year a specific philosophical theme is traced through a number of key figures in the history of thought.

#### GROUP D

- 34-796. Major Paper
- 34-797. Thesis

*Note:* Students may receive credit for more than one course offered in Groups A and B provided that the emphasis is sufficiently different. Thus, for example, credit may be received for both "34-570 Greek Philosophy: Plato" and "34-570 Greek Philosophy: Aristotle" where these are entirely distinct course offerings.

## 23 PHYSICS

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### 23.1.1 OFFICERS OF INSTRUCTION

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#### University Professors

Drake, Gordon W. F.; B.Sc. (McGill), M.Sc. (Western Ontario), Ph.D. (York), F.Inst.P.—1969. (Killam Research Fellow).

McConkey, John William; B.Sc., Ph.D. (Queen's University of Belfast), F.Inst.P.—1970.

#### Professor Emeritus

Szamosi, Geza; Ph.D., D.Sc. (Budapest)—1964.

#### Professors

Krause, Lucjan; B.Sc. (London), M.A., Ph.D. (Toronto), D.Sc. (London, Nicholas Copernicus), F.Inst.P.—1958.

Holuj, Frank; B.Sc. (London), M.Sc., Ph.D. (McMaster)—1961.

van Wijngaarden, Arie; B.Sc., Ph.D. (McMaster)—1961.

Schlesinger, Mordechai; M.Sc., Ph.D. (Jerusalem) F.Inst.P.—1968. (Head of the Department).

Baylis, William Eric; B.S. (Duke), M.S. (Illinois), D.Sc. (Technical University of Munich)—1969.

Helbing, Reinhard K. B.; Dipl. Phys., Dr. Rer. Nat. (Bonn)—1972.

Atkinson, John Brian; M.A., D. Phil. (Oxford)—1972.

Glass, Edward N.; B.S. (Carnegie-Mellon), M.S., Ph.D. (Syracuse)—1974.

#### Associate Professors

Huschilt, John; B.A., M.A. (Toronto), Ph.D. (Wayne State)—1953.

Habib, Edwin Emile; B.Sc. (Birmingham), Ph.D. (McMaster)—1959.

Hedgecock, Nigel Edward; B.A., M.A. (British Columbia), Ph.D. (McMaster)—1961.

Ogata, Hisashi; B.S. (Tokyo College of Science), M.S. (Tokyo U. of Education), Ph.D. (Western Reserve)—1965.



Czajkowski, Mieczyslaw A.; M.Sc., D.Sc. (Nicholas Copernicus)—1967.

### Admission Requirements

The basic qualification for admission consists of a Bachelor's degree with adequate specialization in Physics, obtained with first or second class honours or an A or B average. Students with deficiencies may be required to make up these deficiencies by registering in undergraduate courses or by following a program of supervised reading.

Applicants whose academic credentials are difficult to assess may be required to write the Graduate Record Examination (GRE) administered by the Educational Testing Service. Inquiries should be made at the time of application. Details of the examination may be obtained from the Educational Testing Service, Princeton, New Jersey, U.S.A., 08540.

## 23.2 Programs of Study

### 23.2.1 THE DOCTOR OF PHILOSOPHY DEGREE

#### Program Requirements

1) *Period of Study:* A minimum of three years in full-time graduate studies is required. Credit for one of the three years may be given for a Master's degree obtained in this Department or for graduate work carried out at another institution. Not more than seven years should elapse between registration and completion of the requirements for the degree; an extension of this period may be granted only on recommendation from the Department and approval by the Faculty of Graduate Studies and Research.

2) *Course Work:* Candidates with Master's degrees in Physics (or equivalent) will complete a minimum of eight graduate courses, including 64-610, 64-612 (or 64-613), and at least three of 64-630, 64-631, 64-640, 64-650, or 64-651. Candidates also must take 64-550 and 64-551 if previous equivalent credit has not been obtained.

Candidates who do not have a Master's degree in Physics (or equivalent) will complete a minimum of twelve graduate courses which

must include 64-510, 64-550, 64-551, 64-610, and at least three of 64-630, 64-631, 64-640, 64-650, or 64-651.

3) *Doctoral Committee:* Within one month after registration each student will be assigned to an advisory committee consisting of a research advisor and two other faculty members in the Department.

This committee will from time to time, review the student's progress (see 1.5.2).

For the defense of dissertation (final oral examination) the advisory committee will be supplemented by one professor from another department and an external examiner who, as an expert in the field of physics in which the candidate's research is carried out, will appraise the dissertation and ordinarily will also be present at the final oral examination.

4) *Dissertation:* In order to qualify for the degree each candidate must present a dissertation embodying the results of an original investigation in a branch of physics. Graduate courses form an important but subsidiary part of the program.

The candidate, when requested, shall submit to the chief advisor from time to time portions of the dissertation and a complete draft on a date specified by the advisor, and place four typewritten copies of the completed dissertation in the hands of the advisor at least six weeks before Convocation. Rules governing binding, quality of paper, etc., of the dissertation can be found in the Format for Dissertations/Theses/Major Papers (see 1.5.3).

5) *Examinations:* In addition to the examinations in the courses, all candidates must pass qualifying examinations covering the general field of physics at the level of the honours program given in this Department. The examinations must be passed after the completion of the M.Sc. degree, not later than one year after registration as a graduate student proceeding to the Ph.D. Other examinations (written or oral) may be set at the discretion of the Department.

Each candidate will, on recommendation of the advisory committee, submit to a final oral examination in defense of the dissertation.



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## 23.2.2 THE MASTER OF SCIENCE DEGREE

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### Program Requirements

1) The requirements for the degree of Master of Science may be satisfied by pursuing a program of studies consisting of either not less than eight and not more than ten graduate courses, or at least four and not more than six graduate courses and a thesis.

2) 64-510, 64-521, 64-550 and 64-551 will be required of all candidates.

Candidates proceeding to the M.Sc. by either of the above options may include in their program, with the approval of the Department, two undergraduate courses.

3) Candidates who are proceeding to the M.Sc. by course work alone may be permitted to include in their programs four courses in Mathematics.

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### 23.3.1 COURSE DESCRIPTIONS

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Not all of the courses listed below will necessarily be offered in any one year.

#### 64-510. Seminar for M.Sc. Students

In order to receive credit for this course, a student should attend the weekly departmental seminar throughout M.Sc. studies and present a minimum of one seminar on a topic approved by the Seminar Coordinator.

#### 64-521. Classical Electrodynamics II

Radiation by moving charges, synchrotron radiation, bremsstrahlung, scattering of radiation, multipole fields, radiation reaction.

#### 64-524. Introduction to Plasma Physics

Review of atomic collisions and kinetic theory, motion of charged particles, elementary processes in the production and decay of ionization in gases, plasma waves and oscillations, transport processes, elements of magnetohydrodynamic stability theory. Applications of plasma physics.

#### 64-540. Theory of Particle Scattering I

Classical theory of scattering. Formal quantum theory. The definitions of cross sections, transition probabilities and related concepts. The Born approximation, phase shifts.

#### 64-541. Theory of Particle Scattering II

The Green function approach. Elastic scattering of particles with spin. Examples from atomic and nuclear phenomena. (Prerequisite: 64-540).

#### 64-542. Atomic and Molecular Processes I

Atomic/molecular beam methods and techniques. Collision phenomena in atomic and molecular scattering, including elastic, inelastic and reactive scattering, excitation, ionization, and charge exchange. Detailed discussion of the experimental results and their interpretation in terms of interatomic/molecular forces and potentials.

#### 64-543. Atomic and Molecular Processes II

A variety of topics in electron and photon collisions highlighting current advances in these fields and including total and differential elastic and inelastic scattering of electrons and positrons, resonances, polarization, coherence and correlation effects, post-collision interactions, photon-stimulation spectroscopy. (Prerequisite: 64-542).

#### 64-544. Theory of Atomic Structure and Atomic Spectra

Rotation matrices,  $3n-j$  coefficients and graphical techniques for angular-momentum coupling, irreducible tensor operators, the Wigner-Eckart theorem and applications, the density matrix, interactions of atoms with external fields.

#### 64-545. Theory of Atomic Structure and Atomic Spectra II

Systems of identical fermions, the central-field approximation, self-consistent-field methods, the Thomas-Fermi model, Hartree-Fock theory, configuration interaction, coefficients of fractional parentage, relativistic effects. (Prerequisite: 64-554).

#### 64-546. Molecular Spectroscopy I

Diatomic molecules, Born-Oppenheimer approximation, adiabatic potentials, Hund's coupling cases, rotational, vibrational, and electronic states and associated spectra. Applications of group theory to the structure and spectra of polyatomic molecules.

#### 64-547. Molecular Spectroscopy II

Rotational, vibrational, and electronic spectra of polyatomic molecules. Zeeman and Stark



effects and hyperfine structure. Laser spectroscopy. Van der Waals molecules. (Prerequisite: 64-546).

#### **64-548. Atomic Resonance and Relaxation in Gases**

Review of classical theory of scattering of radiation; Thomson and Rayleigh scattering, the polarizability and dielectric tensors, polarization and the Hanle effect. Quantum theory of absorption and emission. Applications of density matrix formalism to optical pumping and level crossing, radiation trapping and coherence narrowing, collisional depolarization and fine-structure transitions. Experimental techniques.

#### **64-549. Paramagnetic Resonance**

Description of motion of isolated spins by classical and quantum mechanical methods. Bloch equations. Elements of crystal field theory. Magnetic and electric interactions of spins (Zeeman, Hyperfine, Quadrupolar). Spin Hamiltonian, NMR and EPR spectrometers.

#### **64-550. Quantum Mechanics I**

General principles, representations and transformation theory. Approximation methods. Many-body problems and identical particles.

#### **64-551. Quantum Mechanics II**

Number representations and second quantization. Dirac equation. An introduction into quantum electrodynamics and the electro-weak theory. (Prerequisite: 64-550).

#### **64-560. Solid State Physics I**

Application of group theory to condensed matter physics: the study of point groups, Bravais lattices and space groups. Inverse lattice with applications to scattering phenomena.

#### **64-561. Solid State Physics II**

Electric, magnetic and thermal properties of solids, superconductivity and superfluidity. The effects of imperfections and impurities in crystals. (Prerequisite: 64-560).

#### **64-562. Theory of Semiconductors and Semiconductor Devices I**

Quantum theory of semiconductors, dynamics of charge carriers in static and high-frequency electric and magnetic fields.

#### **64-563. Theory of Semiconductors and Semiconductor Devices II**

Equilibrium statistics, transport theory, diffusion, drift and thermoelectric effects. Characteristics of p-n junctions, heterojunctions and transistor devices. (Prerequisite: 64-562).

#### **64-570. Nuclear Physics I**

Nuclear forces. Group theoretical treatment of angular momentum. Nuclear structure; the shell model, the collective model, the Nilsson model, the quasiparticle model.

#### **64-571. Nuclear Physics II**

Nuclear decays and angular correlations. Nuclear reactions: resonance theory, the compound nucleus, direct reactions, the optical model. (Prerequisite: 64-570).

#### **64-572. Relativistic Physics I**

Review of the special theory of relativity, with applications to dynamics, electrodynamics and thermodynamics. Elements of relativistic statistical mechanics.

#### **64-573. Relativistic Physics II**

Relativistic plasmas. Magnetohydrodynamics and its relativistic generalizations. Electrodynamics of moving media. Quantum theory of relativistic systems. Astrophysical applications. (Prerequisite: 64-572).

#### **64-574. General Theory of Relativity I**

The principle of equivalence, general covariance. Riemann spacetime Einstein field equations.

#### **64-575. General Theory of Relativity II**

Simple solutions to the Einstein field equations, the crucial experiments, applications to cosmology. (Prerequisite: 64-574).

#### **64-576. Astronomical Physics I**

A selection of topics from the following: characteristic properties of stars, stellar atmospheres, models of stellar interiors, nuclear reactions in stars.

#### **64-577. Astronomical Physics II**

A selection of topics from the following: theory of stellar evolution, pulsars, neutron stars, and phenomena in interstellar space. (Prerequisite: 64-576).



**64-581. Theory and Applications of Thin Films**

Definition of thin films and their classification; methods of preparation; elements of high-vacuum technology; thin-film formation, structure and methods of investigation; mechanical, optical, electrical properties of thin films and their application in modern technology.

**64-584. Design and Application of Lasers**

Stimulated emission, rate equation approach to amplification and output power calculations; Gaussian beams, stable and unstable resonators; Q-switching, mode-locking and cavity-dumping; ruby, Nd:YAG and other solid state lasers; semi-conductor, gas and dye lasers.

**64-585. Atmospheric Processes**

Physics of the atmosphere, general description and layering, interactions of incoming and outgoing radiations, greenhouse effect, atmospheric thermodynamics and stability, cloud physics, atmospheric dynamics, gravity waves and turbulence, atmospheric photochemistry, ozone layer, upper atmosphere, plasma and hydromagnetic effects, ionosphere, air glow and aurora.

**64-587. Applications of Electron, Ion and Atomic Beams**

Non-relativistic theory of charged particles in electric and magnetic fields. Review of matrix optics, electrostatic lenses, magnetic lenses, electrostatic and magnetic vector fields. Applications to energy and mass analysis. The Liouville Theorem and its consequences. Dense electron beams and applications.

**64-590. Environmental Physics**

A survey of the physical processes involved in man's environment. Nuclear energy generation and radioactive waste disposal.

**64-610. Seminar for Ph.D. Students**

In order to receive credit for this course, a student should attend the weekly departmental seminar throughout Ph.D. studies and present a minimum of two seminars on topics approved by the Seminar Coordinator.

**64-612, 64-613. Selected Topics in Theoretical and Experimental Physics**

These courses consist of two survey lecture series to be selected from among several which will be offered each year. Each lecture series lasts for approximately half a semester. Credit may not be obtained for any survey courses in subjects in which the student has taken another graduate course.

**64-630. Statistical Physics I**

Review of thermodynamics; information theory. The many-body problem in quantum mechanics, particle number representation. Statistical (density) matrix. The perfect gas, real gases, dense plasma, applications.

**64-631. Statistical Physics II**

The theory of macroscopic quantum phenomena. (Prerequisite: 64-630).

**64-640. Elementary Particles and Their Symmetries**

Symmetries and conservation laws, group representations, and particle multiplets; Lie groups and algebras; generators and weights of  $SU(n)$ ; the quark model; quantum chromodynamics; electro-weak interaction theory; supersymmetry; path integrals and Feynman diagrams.

**64-650. Classical and Quantum Field Theory I**

Variational principles and conservation laws and applications, field equations and their solutions. (Prerequisite: 64-551).

**64-651. Classical and Quantum Field Theory II**

Quantization of fields; scalar, vector, and spinor fields. Quantum electrodynamics and applications; renormalization and radiative corrections. (Prerequisite: 64-650).

**64-660. Advanced Topics in Solid State Physics I**

Crystal field theory in the weak and strong coupling schemes. Molecular orbitals; vibronic interactions. Electronic structure and spectra of molecular complexes. (Prerequisite: 64-551).

**64-661. Advanced Topics in Solid State Physics II**

Paramagnetism of molecular complexes; paramagnetic and nuclear magnetic



resonance and applications. (Prerequisite: 64-660).

#### **64-670. Nuclear Reactions I**

Kinematics and conservation laws, scattering resonance reactions, direct reactions. (Prerequisite: 64-551).

#### **64-671. Nuclear Reactions II**

Formal theory of nuclear reactions, high-energy reactions, hyperons. (Prerequisite: 64-670).

#### **64-797. M.Sc. Thesis**

#### **64-798. Ph.D. Dissertation**

## **24 POLITICAL SCIENCE**

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### **24.1.1 OFFICERS OF INSTRUCTION**

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#### **Honorary Professor**

Martin, Hon. Paul; P.C., Q.C., C.C., LL.D., Honorary Professor of Law and Political Science—1974.

#### **Professor Emeritus**

Chrypinski, Vincent Casmere; M.L. (Catholic U. of Lublin, Poland), M.A. (Wayne State), Ph.D. (Michigan)—1957.

#### **Professors**

Nelson, Ralph Carl; B.A., M.A. (DePaul), Ph.D. (Notre Dame)—1961.

Briggs, E. Donald; B.A. (New Brunswick), Ph.D. (London)—1963.

Wagenberg, Ronald H.; B.A., M.A. (Assumption), Ph.D. (London)—1964.

Brown-John, C. Lloyd; B.A. (British Columbia), M.A., Ph.D. (Toronto)—1968.

Soderlund, Walter C.; B.A. (Connecticut), M.A., Ph.D. (Michigan)—1968.

Wurfel, David; B.A. (San Diego), M.A. (California), Ph.D. (Cornell)—1968.

Keenleyside, Terence A.; B.A. (Toronto), Ph.D. (London)—1971.

Price, Richard G.; B.A. (Florida State), M.A. (Wayne State)—1969. (Head of Department).

#### **Associate Professors**

Burton, Bruce Edward; M.A. (Oxon.), M.Soc.Sc. (Hague)—1966.

Price, Trevor; B.Sc. (London School of Economics), M.A. (Windsor), Ph.D. (Queen's)—1968.

Krause, Robert G.; B.A., M.A. (Windsor)—1970.

Kubota, Akira; B.A. (Tokyo), M.A., Ph.D. (Michigan)—1970.

Brooks, Stephen; B.A., M.A. (Windsor), Ph.D. (Carleton)—1985.



**Assistant Professors**

Boase, Joan; B.Sc.P.T., M.A. (Toronto), Ph.D. (York)—1988.

Beylerian, Onnig; B.Sc. (Montreal), M.A., Ph.D. (Quebec at Montreal) 1989.

Mancuso, Maureen; B.A. (McMaster), M.A. (Carleton)—1989.

**24.2 Programs of Study****24.2.1 THE MASTER OF ARTS DEGREE****Admission Requirements**

The normal requirement for admission to the one-year M.A. program is an honours degree or combined honours degree in Political Science, or an honours degree in a related discipline, such as International Relations or Public Administration, with a strong, overall B average. Honours graduates in fields other than these will be considered on the basis of their academic background and standing. Those with less than an honours degree, or with minor deficiencies, will be required to take additional courses, or to enter a two-year program.

**Program Requirements**

After receiving counselling within the Department, the candidate may proceed toward the degree in one of the following programs of study. While initial selection is not irreversible, students may change from one program to another only with the approval of the Department and the Faculty of Graduate Studies and Research.

- (a) A minimum of five graduate courses plus a thesis on some research subject approved by the Department. The thesis will be written under the direction of a committee composed of two members of the Department plus a member external to the Department, but from within the University. An oral defense of the thesis will be required (see 1.6.2).

- (b) Seven graduate courses and a major paper on some research subject approved by the Department. The major paper will be written under the direction of a committee normally composed of two members of the Department. An oral defense of the major paper will be required.
- (c) Nine graduate courses. Under this option, an oral examination is required based on two of the five fields covered in the graduate curriculum (Canadian Government and Politics, Public Administration, Comparative Politics and Development, International Relations, Political Theory). The three-member examination committee will be appointed by the department, but the student may request the inclusion of up to two specific faculty members. The oral examination will be graded Pass or Non-Pass.

All students in the first year of a two-year program must normally carry a full load of ten undergraduate courses or their equivalent.

**24.3.1 COURSE DESCRIPTIONS**

All courses listed will not necessarily be offered in any given year. Courses are normally two hours a week.

**45-500. Scope and Approaches to Political Science**

A review of the state of the discipline and a survey of approaches to research. Required of all graduate students.

**45-511. Canadian Politics and Government**

A review of important literature in Canadian politics and government. Readings may be selected from the areas of Canadian institutions, political behaviour and political culture.

**45-512. Research in Canadian Politics and Government**

Analysis of selected topics in Canadian politics and government. Topics may be selected from the institutional or behavioural areas of the discipline. Students will normally



be expected to have taken 45-511 or its equivalent.

**45-516. Structure and Politics in Local Government**

An examination of the principal government structures found in local governments and of the way in which contemporary urban pressures produce various kinds of political effects.

**45-517. Trends in Local Government Administration**

A review of the way in which local governments try to cope with contemporary urban problems through the development of their administrative organization. Administrative aspects will include financial, personnel and evaluative procedures.

**45-531. Approaches to Comparative Politics**

An examination of the theoretical and empirical literature in the field of comparative politics.

**45-532. Topics in Comparative Politics**

An examination of particular theoretical questions in depth, of particular institutions or processes in comparative perspective, or of the politics of particular countries or groups of countries. Students will normally be expected to have taken 45-531 or its equivalent.

**45-541. Seminar in Canadian Public Administration**

The contemporary practice of public administration within Canada, with comparisons where appropriate with other developed and developing political systems.

**45-542. Seminar in Canadian Public Policy**

A review of the applicability of contemporary theories of public policy-making and policy analysis to the Canadian policy process.

**45-547. Political Development**

A critical analysis of the development of political institutions in the context of rapid socio-economic change.

**45-548. Case Studies in the Politics of Developing Areas**

The comparative study of selected problems of political development such as integration, stability, or the impact of external forces with

reference to particular national experiences in Southeast Asia and other areas of students' special interest.

**45-551. Main Tendencies in Contemporary Political Theory**

An examination of the literature of twentieth century political theory with emphasis on the period since the Second World War.

**45-552. The Problematic of Contemporary Political Theory**

Problems, both theoretical and practical, will be examined and responses to them evaluated. Students will normally be expected to have taken 45-551 or its equivalent.

**45-561. Approaches to International Politics**

A survey of recent literature on theories and methods in the study of international politics.

**45-562. Research on Approaches to International Politics**

The in-depth analysis of selected methods in the study of international politics. Students will normally be expected to have taken 45-561 or its equivalent.

**45-563. Canadian Foreign Policy Decision-Making**

An introduction to the case study approach to the exploration of Canadian foreign policy, together with systematic analysis of selected major Canadian foreign policy decisions since the Second World War.

**45-564. Current Problems in Canadian Foreign Policy**

An examination of selected issues in Canadian foreign policy and of related contemporary research. Students will normally be expected to have taken 45-563 or its equivalent.

**45-568. The Third World in International Relations**

An examination of the theoretical literature on such topics as the foreign policy of third world states, nonstate actors, structural dependence, North-South conflict, and regional integration.



**45-569. Current Problems in the International Relations of the Third World**

A research seminar involving in-depth examination of specific theoretical questions or selected aspects of the international relations of a particular region such as Asia, Africa or Latin America or particular issues in North-South relations. Students will normally be expected to have taken 45-568 or its equivalent.

**45-570. Quantitative Methods in Political Research**

Advanced statistics and research methods in political science, including selected techniques of multivariate analysis.

**45-594. Political Behaviour**

Advanced reading and research in the political behaviour of mass publics, with attention given to both the substance and methodology of the study of political behaviour at an advanced level. Topics include the formation of political attitudes, political participation and decision-making, and the methods of studying the individual in politics.

**45-596. Elite Behaviour**

Advanced reading and research in the application of behavioural techniques to the study of public officials and other political elites, and to the linkages between elites and the public. Consideration is given to the behaviour of elites in the Canadian political process as well as in the politics of other countries.

**45-599. Readings in an Approved Special Field**

Intended for students with a special interest in and knowledge of areas not covered in sufficient depth by other courses. (To be taken only with the permission of the Department).

**45-796. Major Paper**

**45-797. Thesis**

## 25 PSYCHOLOGY

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### 25.1.1 OFFICERS OF INSTRUCTION

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#### University Professor

Rourke, Byron P.; B.A. (Windsor), M.A., Ph.D. (Fordham)—1965.

#### Professor Emeritus

Bunt, Miriam Elizabeth; B.S., M.Ed., Ph.D. (Wayne State)—1963.

#### Professors

Holland, Cornelius J.; B.S. (St. Joseph's Philadelphia), M.A. (Detroit), Ph.D. (Catholic U. of America)—1967.

Balance, William D.; B.A. (Birmingham Southern College), Ph.D. (Alabama)—1968.

Cohen, Jerome S.; B.A. (Michigan State), M.A., Ph.D. (Wayne State)—1968.

Namikas, Gediminas A.; B.A. (Northwestern), M.Sc., Ph.D. (Wisconsin)—1968.

Schneider, Frank W.; B.A. (Ohio Wesleyan), M.S. (Ohio), Ph.D. (Florida)—1968.

Kaplan, Marvin L.; B.A. (Rochester), Ph.D. (Buffalo)—1969.

Kobasigawa, Akira; B.A., M.A. (George Peabody College), Ph.D. (Iowa)—1969.

Reynolds, David V.; A.B. (Massachusetts), Ph.D. (Stanford)—1969.

Libby, William L.; A.B. (Harvard), M.B.A., Ph.D. (Chicago)—1970.

Minton, Henry L.; B.A. (New York U.), M.A. (Southern Illinois), Ph.D. (Pennsylvania State)—1970.

McCabe, Ann E.; B.Sc. (St. Norbert College), M.S. (Iowa State), Ph.D. (Wisconsin)—1973. (Associate Vice-President, Academic).

Page, Stewart J.; B.A., M.A. (Western Ontario), Ph.D. (Toronto)—1981.

#### Associate Professors

Starr, Meyer W.; B.A. (Toronto), M.A. (Princeton), Ph.D. (South Carolina)—1961.

Daly, Raymond M.; B.S., M.A., Ph.D. (Loyola)—1967.



Engelhart, Roland; A.B. (Davidson), Ph.D. (Duke)—1968.

Hirota, Theodore T.; B.A. (British Columbia), M.A., Ph.D. (Toronto)—1968.

Horvath, Theodore; B.A. (Waterloo Lutheran), M.A., Ph.D. (Windsor)—1968.

Woodyard, H. Dale; B.A., M.A. (Roosevelt), Ph.D. (Florida)—1968.

Frisch, Giora Ron; B.A. (City College, N.Y.), Ph.D. (Tennessee)—1969.

Morf, Martin E.; B.A. (Acadia), M.A. (Dalhousie), Ph.D. (Western Ontario)—1969.

Orr, R. Robert; B.A. (Valparaiso), M.A., Ph.D. (Iowa)—1969. (Head of the Department).

Taub, Barry R.; B.A. (S.U.N.Y. Stony Brook), M.A., Ph.D. (Waterloo)—1972. (Director, Psychological Services Centre).

Towson, Shelagh M. J.; B.A. (York), M.A. (Wisconsin), Ph.D. (Waterloo)—1987.

#### Assistant Professors

Porter, James E.; B.A. (Toronto), M.A. (Roosevelt), Ph.D. (Windsor); Psychological Services Centre—1980.

Voelker, Sylvia L.; B.A. (Indiana), M.A., Ph.D. (Wayne State)—1984.

Wong-Rieger, Durhane; B.A. (Barnard College), M.A., Ph.D. (McGill)—1984.

Shore, Douglas L.; B.A., M.A., Ph.D. (Wayne State)—1985.

Thomas, Cheryl D; B.A., M.A., Ph.D. (Simon Fraser)—1987.

#### Adjunct Professors

McGrory, John; B.A. (St. Francis Xavier), M.A. (Ottawa), Ph.D. (Windsor) Associate Professor—1977.

Centers, Louise; B.A., Ph.D. (Southern California). L.L.B. (Detroit College of Law). Associate Professor—1980.

Adams, Kenneth; B.S., M.A., Ph.D. (Wayne State). Professor—1981.

Avore, Joseph; B.Sc. (College of Holy Cross), M.A., Ph.D. (Windsor). Assistant Professor—1983.

Dobson, Lois; A.B. (New York), B.A., M.A., Ph.D. (Windsor). Assistant Professor—1984.

Miller, Rickey; B.A. (York), M.A., Ph.D. (Waterloo). Assistant Professor—1984.

Cahill, Robert; A.B. (Detroit), M.A., Ph.D. (Wayne State). Assistant Professor—1985.

Daignault, Maurice; B.A., M.A. (Windsor). Assistant Professor—1985.

Strang, John; B.A. (York), M.A., Ph.D. (Windsor). Assistant Professor—1985.

Broga, Mary; B.A. (Waterloo), M.A., Ph.D. (Western). Assistant Assistant Professor—1987.

Raskin, Allen; A.B. (Syracuse), M.S., Ph.D. (Illinois). Assistant Professor—1987.

Lycaki, Helene; M.A. (Athens), M.A., Ph.D. (Wayne State). Assistant Professor—1987.

Brooker, Harvey; B.A., M.A. (Toronto); Ph.D. (Indiana). Assistant Professor—1987.

#### Special Appointments

LuQui, Ivan; B.Sc. (Carleton), M.Sc., Ph.D. (Ottawa). Associate Professor, Part-Time—1972.

Girash, Martin; B.Sc., M.A., Ph.D. (Windsor). Associate Professor—1977.

McDermott, William; B.A. (Holy Cross), M.A. (Temple), Ph.D. (Windsor). Associate Professor—1977.

Ross, William; B.A. (Windsor), M.A., Ph.D. (Windsor). Assistant Professor—1977.

Fisk, John; B.A. (Western), M.A., Ph.D. (Windsor). Assistant Professor—1979.

Bacheyie, Godfrey; M.B., Ch.B. (Ghana). Assistant Professor—1985.

#### Consulting Psychologists

Keillor, James; B.A., M.A., Ph.D. (Wayne State)—1970.

Berek, John; B.A. (Loyola), M.A.; M.Ed. (Xavier), Ph.D. (Windsor)—1972.

Fellbaum, Anthony; B.A. (Laurentian), M.A., Ph.D. (Windsor)—1977.

Kleinplatz, Morrie; B.A. (McGill), M.A., Ph.D. (Windsor)—1981.

Petrimoulx, Catherine; B.A., M.A., Ph.D. (Windsor)—1984.



## 25.2 Programs of Study

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### 25.2.1 THE DOCTOR OF PHILOSOPHY DEGREE

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In addition to the general requirements listed in 1.5, the following requirements must be met by all students proceeding to the Ph.D. degree.

#### Admission Requirements

Applicants with an honours degree in Psychology or its equivalent and who have been judged to be outstanding students may be admitted directly into the Ph.D. program. In such cases, the first phase of the doctoral program involves the completion of the Master's degree requirements which must include a thesis. Further advancement in the doctoral program would depend on the quality of performance in fulfilling the requirements for the Master's degree. Students in the doctoral program who do not complete the Master's thesis in the first year will be permitted to take courses toward the doctoral degree for one additional year only. Applicants with an M.A. degree in Psychology from the University of Windsor or from another recognized university or college may be admitted to the Ph.D. program with advanced standing in course work.

Applicants will be assessed with respect to their academic qualifications, letters of recommendation, and career-related achievements. Possession of the minimum academic requirements does not ensure acceptance. The Graduate Record Examination (GRE) is required of all students seeking admission to the Department of Psychology. The Department utilizes the GRE scores, Verbal, Quantitative, and Advanced Test, as supplementary information when a decision is difficult to reach based on the primary criteria indicated above. Applications for admission must be completed by February 1.

#### Program Requirements

1) *Course Work*: Students must complete successfully a minimum of twelve graduate courses after the honours B.A. Requirements, however, vary according to areas of

specialization. Up to six courses may be accepted for credit from another university. The course work includes a core curriculum involving a general statistical methodology course, a methodology course in the student's area of specialization, and courses in the biological bases of behaviour, the cognitive bases of behaviour, the historical and philosophical foundations of psychology, and ethical and professional issues in psychology. The minimum passing grade in graduate courses is B. A student who fails one course may repeat it once at the discretion of the Head of the Department and the Dean of Graduate Studies and Research. The student may not repeat more than one course. Together with the above requirements, students in the areas of clinical psychology and applied social psychology must complete an internship. The clinical internship is approximately 2000 hours and the applied social internship is approximately 1000 hours.

2) *Academic Advisor*: Each student is assigned an academic advisor at the beginning of his or her first year of graduate studies.

3) *Doctoral Committee*: Research undertaken as part of a doctoral program is directed by a doctoral committee. The membership of the doctoral committee must be appointed by the Head of the Department and approved by the Executive Committee of the Faculty Council of Graduate Studies and Research. When the student is deemed ready to undertake such research, he or she proposes the name of a research advisor and, in consultation with the proposed advisor, the names of other members of the committee consisting of at least two other members of the Psychology Department and one extra-departmental member of faculty. For the defense of the dissertation, an external examiner will be selected by the doctoral committee, subject to the approval of the Department Head and the Dean of Graduate Studies and Research. The external examiner is from outside of the University of Windsor and is nationally or internationally recognized as having expertise in the area of psychology in which the candidate's research is carried out. The external examiner shall not participate in the direction of the research project, but will ap-



praise the dissertation and ordinarily will be present at the final oral examination (see below 5b).

4) *Dissertation*: The principal requirement for the Ph.D. degree in Psychology is the presentation of a dissertation which embodies the results of an original investigation. The results so presented should constitute a significant and original contribution to knowledge.

5) *Examinations*: In addition to examinations in courses, the student must meet the following requirements:

- (a) *Comprehensive Examination*: After completion of all course requirements (with the exception of internship courses), the student must pass a comprehensive examination in his or her area of specialization. Successful completion of the examination admits the student to candidacy for the Ph.D. degree. If a student fails the comprehensive examination he or she may retake the examination once only at the discretion of the Head of the Department and the Dean of Graduate Studies and Research.
- (b) *Final Examination*: Each candidate will, on the recommendation of his or her doctoral committee, submit to a final oral examination in defense of the dissertation.

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## 25.2.2 THE MASTER OF ARTS DEGREE

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### Admission Requirements

Applicants with an honours degree in Psychology or its equivalent may be admitted into a one-year (minimum) M.A. program. Because of the requirements of specific programs, the length of time necessary for students with an honours B.A. to complete the M.A. requirements may be two years.

Applicants will be assessed with respect to their academic qualification, letters of recommendation, and career-related achievements. Possession of the minimum academic requirements does not ensure acceptance. The Graduate Record Examination (GRE) is

required of all students seeking admission to the Department of Psychology. The Department utilizes the GRE scores, Verbal, Quantitative, and Advanced Test, as supplementary information when a decision is difficult to reach based on the primary criteria indicated above. Applications for admission must be completed by February 1.

### Program Requirements

- 1) After receiving counselling within the Department, the candidate may proceed toward the degree in one of the following programs of study:
  - (a) at least four and not more than six graduate credit courses, two of which may be in a cognate field, and a thesis. *Note*: A thesis is required in the first phase of the doctoral program (see 25.2.1);
  - (b) six graduate courses, two of which must be seminar courses including a major paper upon which there shall be an oral examination.

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## 25.2.3 POSTDOCTORAL CERTIFICATION IN ADULT CLINICAL PSYCHOLOGY

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The Department of Psychology offers a postdoctoral certification in adult clinical psychology. This provides psychologists who hold a Doctor of Philosophy degree in Psychology in areas other than clinical psychology with the specialized academic and clinical training needed for working as clinical psychologists. The certification is not designed to provide further training for clinical psychology graduates.

### Program Requirements

An advisory committee, chaired by the Coordinator of the Adult Clinical Subspecialty, will (a) guide the trainee in meeting his or her specific needs, (b) evaluate his or her progress, and (c) determine that the trainee has successfully completed the respecialization process.

The postdoctoral certification requires up to nine courses plus an internship. The following courses, which are required courses for doc-



toral students in clinical psychology, will be used by the advisory committee as a guide to developing the trainee's program:

- 46-580. Psychopathology
- 46-581. Ethical and Professional Issues in Psychology
- 46-582. Clinical Assessment I
- 46-583. Clinical Assessment II
- 46-584. Clinical Practice I
- 46-585. Clinical Practice II
- 46-680. Introduction to Psychotherapy and a two-semester course in psychotherapy.

### Admission Procedures

A committee of three faculty members (including the Coordinator of the Adult Clinical Subspecialty) will constitute the admissions committee. Inquiries and requests for application forms should be addressed as follows: Adult Clinical Coordinator, Department of Psychology, University of Windsor, Windsor, Ontario N9B 3P4.

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## 25.3.1 COURSE DESCRIPTIONS

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All courses listed will not necessarily be offered in any given year.

### 46-501. Historical and Philosophical Foundations of Psychology

The origin of modern psychology as a science and profession and the philosophy of science underlying psychology. (2 hours a week).

### 46-503. Biological Bases of Behaviour

Systems and methodologies in the neurosciences including sensory processes, comparative/sociobiology, physiological/human neuropsychology, and psycho-pharmacology. (2 hours a week).

### 46-504. Human Ethology

An examination of the ethological/sociobiological theoretical perspective and related methodological approaches as these are applied to human behaviour. (2 hours a week).

### 46-505. Cognitive Bases of Behaviour

Systems and methodologies in areas such as attention, perception, learning, memory and thinking. (2 hours a week).

### 46-510. Research Methods in Psychology I

Designed to help students prepare to do thesis and dissertation research. The focus is on basic principles that have a broad range of application. Typical topics include statistical inference, use of the computer, multivariate procedures, experimental design, and psychological measurement. (Prerequisite: 46-312 or equivalent). (2 hours a week).

### 46-511. Research Methods in Psychology II

Examination of research methods with particular focus on quasi-experimental designs, field research methods, and principles of psychometrics. (Prerequisite 46-510). (2 hours a week).

### 46-512. Applied Psychometrics

A review of basic principles of psychological measurement and assessment and issues raised by the application of these principles, such as test bias and validity generalization. Survey of psychological tests used to assess ability, motivation, and personality dispositions ranging from generalized to specific expectancies. Assessment of nonperson entities such as jobs and work organizations will be considered. (Prerequisite 46-510). (2 hours a week).

### 46-513. Multivariate Statistics

Matrix theory applied to the univariate and multivariate general linear model including ANOVA, regression, MANOVA, and multiple discriminant analysis; principal components analysis and factor analysis; categorical linear models; computer analysis of multivariate data. (Prerequisite: 46-312, or 46-510 or equivalent). (3 hours a week).

### 46-514. Research Methods in Clinical Psychology

(Prerequisite: 46-510). (2 hours a week).

### 46-515. Research Methods in Developmental Psychology

An introduction to the philosophy of science and a review of methodology in research in child behaviour and human development. (Prerequisite: 46-510). (2 hours a week).

### 46-523. Psychology of Animal Learning

Selected topics in current theoretical descriptions of operant and Pavlovian conditioning in



infrahuman organisms together with experimental findings. (2 hours a week). (Students who wish to pursue in a laboratory setting some of the questions raised in the seminar should also register for 46-604 either concurrently or sequentially).

#### **46-528. Advanced Topics in Neuroscience**

Structure and function of the central nervous system. Selective study of neurosciences related to arousal, motivation, and cognition. (3 hours a week, combined laboratory and lectures).

#### **46-529. Structure and Function of the Brain**

An in-depth study of selected neuro-anatomical and biochemical systems. (Prerequisite: 46-336, 46-337, or equivalent). (2 lecture, 2 laboratory hours a week).

#### **46-530. Neuropathology and Neurological Diagnosis**

A critical survey of research findings in neuropathology, emphasizing the diagnostic significance of such data. (Prerequisite: 46-529). (2 hours a week).

#### **46-539. Infant Development**

A review of research and theory in the area of infancy with particular emphasis on the psychological aspects of normal and delayed development. (2 hours a week).

#### **46-540. Theories of Child Psychology**

Review and comparison of major theoretical positions in child psychology and a consideration of important research generated from these theories. (2 hours a week).

#### **46-541. Cognitive Development**

An introduction to theory and research in cognitive development. (2 hours a week).

#### **46-543. Social Development**

An examination of theories of the socialization process and research findings concerning social development in children. (2 hours a week).

#### **46-544. Language Development**

A review of current theories and research in the area of children's language acquisition and use. (2 hours a week).

#### **46-545. Learning in Children**

A survey of research and theory in children's learning, memory, and problem solving. (2 hours a week).

#### **46-547. Developmental Psychology in Educational Settings**

The evaluation of applied problems through the application of research and theory related to developmental psychology. (2 hours a week).

#### **46-548. Life-Span Developmental Psychology**

A survey of current research and theory concerning development across the life span with particular emphasis on middle and old age. (2 hours a week).

#### **46-549. Psychogeriatrics**

An examination of psychological problems of aging. The course will include such topics as: psychosocial assessment (clinical, functional, behavioural and environmental); mental health counselling (group and family therapy); support systems; and family dynamics. (2 hours a week).

#### **46-560. Social Psychology**

A survey of substantive areas of social psychology, such as impression formation, interpersonal attraction, attitude formation and change, conformity, aggression, altruism, inter-group relations, and personality and social behaviour. (2 hours a week).

#### **46-563. Theories of Social Psychology**

A critical analysis of such theories as attribution, cognitive consistency, systems, equity, social learning, and psychoanalysis. (2 hours a week).

#### **46-566. Program Evaluation**

An examination of theory, research, and analytical methods appropriate to the planning, design, implementation, and utilization of program evaluation in educational, social and other organizational settings. Students will apply program evaluation techniques in applied settings. (2 hours a week).

#### **46-572. Theories of Personality**

An advanced analysis of psychoanalytic, neo-Freudian, existential, holistic, behaviouristic, and other general theories of personality. (2 hours a week).



**46-580. Psychopathology**

Survey of basic psychological concepts of psychopathology. Emphasizes adult psychopathologies but includes an introduction to childhood disorders. (2 hours a week).

**46-581. Ethical Professional Issues in Psychology**

Code of ethics and standards of psychological practice and research are reviewed. Legislation, confidentiality, privileged communication, private practice, informed consent, patient rights and sexism in psychotherapy are among the professional issues and problems discussed. (3 hours a week).

**46-582. Clinical Assessment I**

The selection, administration, scoring and integration of a variety of intelligence tests used in clinical settings. (2 lecture, 2 practicum hours a week).

**46-583. Clinical Assessment II**

The selection, administration, scoring and integration of a variety of personality and projective techniques used in clinical settings. (Prerequisite: 46-582). (2 lecture, 2 practicum hours a week).

**46-584. Clinical Practice**

Integration and further development of assessment issues such as: interview process, rationale for assessment, test selection, report writing, recent developments in assessment and emerging professional issues. (Corequisite or prerequisite: 46-583). (2 lecture hours a week).

**46-585. Advanced Clinical Practice**

This course provides the opportunity for students and associated faculty to develop and discuss comprehensive clinical presentations based upon samples of their professional work. Emphasis will be placed on integrating psychopathology, assessment and treatment recommendations. (Prerequisite: 46-584). (2 lecture hours a week, practicum).

**46-602. Selective Readings in Psychology**

(2 hours a week).

**46-604. Special Projects in Psychological Research**

(2 hours a week).

**46-606. Seminar**

(2 hours a week).

**46-640. Child-Clinical Neuropsychology (Theory and Research)**

A survey of the literature dealing with brain-behaviour relationships in children. Topics emphasized include the following: the effect of brain dysfunction on perception, learning, memory, language and thinking; learning disabilities; mental subnormality. (Prerequisite: 46-336, 46-337, or equivalent). (2 hours a week).

**46-641. Child-Clinical Neuropsychology (Assessment)**

An examination of neuropsychological tests currently in use for the assessment of brain-behaviour relationships in children. Topics emphasized include the following: strategies and techniques of assessment; rationales underlying the use of various measures; modes of interpretation; approaches to habilitation and rehabilitation. (Prerequisite: 46-336, 46-337, or equivalent). (2 hours a week).

**46-642. Adult Clinical Neuropsychology (Theory and Research)**

A survey of the literature dealing with brain-behaviour relationships in adults. Topics emphasized include the following: the effect of brain dysfunction on perception, learning, and thinking, memory disorders; personality disorders associated with cerebral dysfunction. (Prerequisite: 46-336, 46-337, or equivalent). (2 hours a week).

**46-643. Adult Clinical Neuropsychology (Assessment)**

An examination of neuropsychological test batteries currently in use for the assessment of brain-behaviour relationships in adults. Topics emphasized include the following: strategies and techniques of assessment; rationales underlying the use of various measures; modes of interpretation; approaches to rehabilitation. (Prerequisite: 46-336, 46-337, or equivalent). (2 hours a week).

**46-644. Neuropsychology of Learning Disabilities**

An examination of neuropsychological approaches to the understanding, assessment and treatment of reading, spelling, arithmetic and social learning disabilities in children and



adults. (Prerequisite: 46-336, 46-337, or equivalent). (2 hours a week).

**46-645. Neuropsychological Aspects of Rehabilitation**

A study of the literature and the methods currently employed in the treatment of brain-injured adults. Topics to be stressed include epidemiology and societal impact, pathophysiology, clinical presentation and both the theories and practices of rehabilitation. (2 hours a week).

**46-646. Developmental Pediatrics**

An examination of neurological, genetic, and other medical/developmental issues in infancy and early childhood. (2 hours a week).

**46-647. The Exceptional Child**

A consideration of aspects of intellectual exceptionality with emphasis on giftedness and developmental deficiency. (2 hours a week).

**46-650. Advanced Child Psychopathology**

A survey of the literature dealing with child psychopathology. Current theory and research and their implications for clinical practice. (2 hours a week).

**46-651. Survey of Child Psychotherapies**

Introduction to psychotherapy with children with an emphasis on fundamental principles and empirical foundations of effective psychotherapy. Several treatment approaches are studied. (Prerequisite: 46-650). (2 hours a week).

**46-652. Child-Clinical Assessment I**

Investigation of the construction, selection, evaluation and use of ability tests. Practicum in assessment of children's intelligence and achievement. (Prerequisite: 46-582 or consent of instructor). (2 lecture hours a week, plus laboratory and practicum).

**46-653. Child-Clinical Assessment II**

Investigation of the construction, selection, evaluation and use of tests designed for the assessment of children's personality and behavior. Practicum in administration interpretation and communication of results of comprehensive test batteries. (Prerequisites: 46-583, 46-652). (2 lecture hours a week, plus laboratory and practicum).

**46-654. Child Psychotherapy I**

A survey of approaches to psychotherapy with children, including supervised clinical work in psychotherapy with children and their families. (2 lecture, 2 practicum hours a week).

**46-655. Child Psychotherapy II**

An application of several models of psychotherapy with children and their families, including supervised clinical work. (Prerequisite: 46-654). (2 practicum hours a week).

**46-660. Psychology of Work**

Draws on industrial and organizational psychology. The objective is to analyze what constitutes occupational competence, i.e., performance on the job. The course has three sections: the motivation to work, the abilities related to work (aptitude and training), and competence as a multiplicative function of motivation and ability. (2 hours a week).

**46-661. Personnel Selection**

Covers job analysis and occupational testing, i.e., the analysis of what different jobs require and the assessment of relevant abilities, interests, aptitudes and personality traits. Special attention will be paid to interview techniques and widely used tests that are useful in matching job applicants with jobs to maximize job satisfaction and productivity. (3 hours a week).

**46-665. Organizational Psychology**

The social psychology of behaviour in organizations. Topics include models for conceptualizing organizations and identifying problems and methods for analyzing and solving problems in areas such as motivation, leadership, satisfaction and communication. (3 hours a week).

**46-666. Practicum in Applied Social Psychology**

Problem solving in work settings, applying methods of organizational psychology, community psychology and other fields of applied social psychology. Students consult and work directly with organizations on projects selected for value to the organization and to the student. (10 hours a week).

**46-667. Organization Development**

The organization development approach: the consultant and organizational change; consultation techniques (survey feedback, team build-



ing, experiential groups); participative management and leadership style. (3 hours a week).

**46-668. Intervention and Consultation in Human Systems**

Process orientation in facilitating change in business, industry, educational and service organizations. Design and implementation of field projects. (2 lecture, 2 practicum hours a week).

**46-670. Applied Social Psychology**

A survey of theory and research in the field of applied social psychology. Topics emphasized include applied research methods, practice skills, organizational psychology, community psychology, social issues and social change, and areas of application such as business and industry, health delivery systems, education, environment and law. (2 hours a week).

**46-674. Community Mental Health**

A range of community mental health issues is studied from an interactional and systems perspective. These include behaviour labelling, patienthood, professional role assignment, formal and informal services, support networks, community attitudes and social policy. (2 hours a week).

**46-675. Community Psychology**

Theory, research and practice in community psychology from clinical and social psychological perspectives. A variety of topics will be selected from a range of cultural studies and interpretative sources. (2 hours a week).

**46-676. Environmental Psychology**

The micro-environment of immediate physical surroundings at home and work and the macro-environment of the city, region and environmental systems as they affect human interaction and well being. (2 hours a week).

**46-680. Introduction to Psychotherapy**

A comparative analysis of the major contemporary models of psychotherapy. Special emphasis will be given to the psychodynamic, behavioural and experiential traditions. A practicum covering basic interviewing skills and the development of appropriate therapeutic relationships will augment the formal presentations. (2 lecture, 2 practicum hours a week).

**46-683. Theory of Systems in Relation to Therapeutic Process**

A theoretical and applied presentation of a theory of systems and its relevance and application to the understanding of the therapeutic process. Critical analyses of the therapeutic encounter from the theory of systems will constitute the main format of the course. (Prerequisite: 46-580 and 46-680). (2 hours a week).

**46-684. Application of the Theory of Systems to Psychotherapy and Clinical Research**

The student will be supervised and instructed in the application of a theory of systems to specific therapeutic encounters or in selected clinical research projects. (Prerequisite: 46-683). (2 hours a week).

**46-685. Introduction to Psychoanalytic Therapy**

The study of theory, technique and research in psychotherapy. Each student will work with a client under close supervision, in order to learn the rudiments of brief, psychoanalytic therapy. (Prerequisite: 46-580 and 46-680). (2 lecture, 2 practicum hours a week).

**46-686. Supervised Practice in Psychoanalytic Therapy**

A continuation of the supervised psychotherapy begun in Psychology 46-685. (Prerequisite: 46-685). (2 lecture, 2 practicum hours a week).

**46-687. Group Processes in Human Relations**

Review of literature in group development and group dynamics. Laboratory work including group experiences as a participant and as project designer and leader. (2 lecture, 2 practicum hours a week).

**46-688. Group Processes in Clinical Psychology**

Theories, issues, and research in groups focusing on personal growth and psychotherapy. Participation in experiential training groups and leadership under supervision. (Prerequisite: 46-580). (2 practicum hours a week).



**46-690. Family Therapy I**

Review of current theories and techniques. Supervised practicum. (Prerequisites: 46-655 or 46-680). (2 lecture, 2 practicum hours a week).

**46-691. Family Therapy II**

Continuation of Family Therapy I. Emphasis on recent developments in theory; research in family interaction and family therapy. (Prerequisite: 46-690). (2 lecture, 2 practicum hours a week).

**46-692. Behaviour Therapy I**

Surveys several behaviour techniques with an emphasis on the principles of cognitive behaviour therapy. Course will include self-application and in-class practicum. (2 hours a week).

**46-693. Behaviour Therapy II**

Extension of Behaviour Therapy I including supervised clinical practice. (Prerequisite: 46-692). (2 hours a week).

**46-694. Gestalt Therapy I**

Surveys the basic principles of Gestalt Therapy through experiential procedures in a group setting. (Prerequisite: 46-655 or 46-680). (2 hours a week).

**46-695. Gestalt Therapy II**

The application of Gestalt principles to individual psychotherapy. (Prerequisite: 46-694). (2 hours a week).

**46-696. Existential Analysis**

The principles of existential psychology. The relationship of existential analysis to other personality theories. A study of the techniques of existential analysis and the modification of therapeutic techniques within the existential context. Each student will work with a client under supervision to learn the application of existential analysis to therapy. (Prerequisite: 46-580, 46-581 and 46-680). (2 lecture, 2 practicum hours a week).

**46-697. Supervised Practice in Existential Therapy**

A continuation of the supervised psychotherapy begun in 46-696. (Prerequisite: 46-696). (2 lecture, 2 practicum hours a week).

**46-698. Advanced Psychotherapy I**

Lectures, readings, and supervised clinical work in psychotherapy at an advanced and specialized level, with a focus on relating types of

psychopathology and modes of psychotherapy. (Prerequisite: another Psychotherapy course with practicum). (2 lecture hours, 2 clients and supervision a week).

**46-699. Advanced Psychotherapy II**

A continuation of 46-698. This semester focuses on psychotherapy processes through the use of videotaped psychotherapy sessions. (Prerequisite: 46-698). (2 seminar, 2 to 4 practicum hours a week).

**46-711. Supervised Field Work I**

(250 hours of supervised practice).

**46-712. Supervised Field Work II**

(250 hours of supervised practice).

**46-721. Clinical Doctoral Internship I**

(250 hours of supervised internship).

**46-722. Clinical Doctoral Internship II**

(250 hours of supervised internship).

**46-723. Clinical Doctoral Internship III**

(250 hours of supervised internship).

**46-724. Clinical Doctoral Internship IV**

(250 hours of supervised internship).

**46-725. Clinical Doctoral Internship V**

(250 hours of supervised internship).

**46-726. Clinical Doctoral Internship VI**

(250 hours of supervised internship).

**46-727. Clinical Doctoral Internship VII**

(250 hours of supervised internship).

**46-728. Clinical Doctoral Internship VIII**

(250 hours of supervised internship).

**46-731. Applied Social Doctoral Internship I**

(250 hours of supervised internship).

**46-732. Applied Social Doctoral Internship II**

(250 hours of supervised internship).

**46-733. Applied Social Doctoral Internship III**

(250 hours of supervised internship).

**46-734. Applied Social Doctoral Internship IV**

(250 hours of supervised internship).

**46-797. M.A. Thesis Research**

(Hours to be arranged).

**46-798. Doctoral Dissertation Research**

(Hours to be arranged).



## 26 RELIGIOUS STUDIES

### 26.1.1 OFFICERS OF INSTRUCTION

#### Professor Emeritus

Crowley, Edward J.; B.A. (St. Joseph's, New Brunswick), S.T.L. (Catholic U. of America), S.S.L. (Pontifical Biblical Institute, Rome)—1957.

#### Professors

Hoffman, John C.; B.A. (Toronto), B.D., Ph.D., S.T.M. (McGill), Th.D. (Union Theol. Sem.)—1964. (Dean of Student Affairs).

King, J. Norman; B.A., M.A. (Toronto), S.T.B. (Laval), Ph.D. (U. of St. Michael's College, Toronto)—1964.

Culliton, Joseph T.; C.S.B.; B.A., B.Ed. (Toronto), S.T.B., M.A. (U. of St. Michael's College, Toronto), Ph.D. (Fordham)—1965 (Dean of the Faculty of Arts).

Mehta, Mahesh; B.A., M.A., LL.B., Ph.D. (Bombay)—1969.

Amore, Roy C.; B.A. (Ohio), B.D. (Drew), Ph.D. (Columbia)—1970.

#### Associate Professors

Crowell, George H.; B.A. (Princeton), B.D., Th.D. (Union Theol. Sem.)—1968.

Whitney, Barry L.; B.A. (Carleton), Ph.D. (McMaster)—1976. (Head of the Department)

Lage, Dietmar; B.A. (Manitoba), M.A., Ph.D. (McGill)—1983.

Milne, Pamela J.; B.A., M.A. (Windsor), Ph.D. (McGill)—1984.

#### Assistant Professors

Muldoon, Maureen H.; B.A. (Queen's), M.A., Ph.D. (U. of St. Michael's College, Toronto)—1986.

Kelly, Sean M.; B.A., M.A. (Carleton), Ph.D. (Ottawa)—1988.

Sly, Dorothy I.; B.A., B. Paed., M.A. (Manitoba), Ph.D. (McMaster)—1989.

## 26.2 Programs of Study

### 26.2.1 THE MASTER OF ARTS DEGREE

In addition to the general requirements and stipulations set out in 1.6.2, the requirements listed below must be met by all candidates.

1) Candidates may proceed toward the degree in one of the following programs of study:

- (a) four graduate courses plus a thesis;
- (b) six graduate courses plus a major paper upon which there shall be an examination;
- (c) eight graduate courses.

Some graduate courses may be taken more than once providing that the course content is different, and permission is given by both the Department Head and the professor offering the course.

2) *Language Requirement*: Reading knowledge of either French or German is required. Special arrangements, however, may be required for students concentrating in specific areas, e.g., biblical studies. In such cases the languages shall be chosen in consultation with the Head of the Department.

3) *Part-time Students*: All part-time students should complete their work within four consecutive years after admission to the Candidate year of the M.A. program. Extensions for serious reasons may be granted by request.

4) *Cognate Fields*: Candidates may take up to two of their required courses in a cognate field with departmental approval.

### 26.3.1 COURSE DESCRIPTIONS

#### 35-500. Hebrew Bible: Critical Methods

An investigation of current developments in the literary-critical and historical methods of analyzing the Hebrew bible. The specific course content will vary from year to year as different methods and their applications to specific texts are examined.



**35-501. Hebrew Bible: Current Issues**

Issues selected according to current scholarly interest, such as the historicity of the patriarchs; the traditions of the Exodus and Settlement; prophets and society; apocalypticism; myth and ritual; the wisdom tradition.

**35-502. Method in New Testament Studies**

This course is designed to provide the student with a competence in the main methods of New Testament exegesis: text-criticism; source-criticism and the Synoptic Problem; form-criticism; redaction-criticism and tradition-history.

**35-503. Issues in New Testament Interpretation**

Critical examination of selected issues: the historical Jesus; miracles; the "Q" document; origins of gnosticism; the resurrection as a historical and theological problem; social description of early Christianity; selected problems in Johannine exegesis; Pauline interpretation; history of New Testament interpretation.

**35-504. Theologies of the New Testament**

A critical examination of the presuppositions and methods employed in the construction of a "theology of the New Testament." (Recommended background: 35-502. Method in New Testament Studies).

**35-510. The Possibility and Meaning of Christian Ethics**

An analysis of the distinction between Christian and secular ethics. A comparative study of the philosophical and theological assumptions, the foundations and reasoning used in Protestant and Roman Catholic ethics.

**35-511. Ethical Methodologies**

An analysis of the inherent connection between one's understanding of personhood, one's method of making moral decisions and the conclusions one draws by studying the approaches of such authors as C. Curran, J. Fletcher, J. Gustafson, P. Lehmann, R. McCormick and P. Ramsey.

**35-512. Contemporary Ethical Issues**

An examination and critical evaluation of current debate on selected ethical issues. Topics vary from year to year.

**35-513. Social Ethics**

Origins and development of the discipline of social ethics as a branch of religious and theological studies and as an expression of church life. Emphasis on current activities in social ethics, especially in Canada.

**35-514. History of Christian Ethics**

An historical study of selected ethical themes in the writings of major theologians.

**35-515. The Sanctity of Life and the Quality of Life**

The principles of the sanctity of life and the quality of life are examined in relation to their theological roots and ethical implications.

**35-521. The Reformation**

An examination of the Lutheran, Calvinist, Anglican, radical and Roman Catholic reformations of the sixteenth century.

**35-530. Themes in Systematic Theology**

A discussion of selected themes of Christian theology: God, Christ, Trinity, creation, sin, redemption, eschatology.

**35-531. Transcendental Theology**

A discussion of the Christian vision of the human person as oriented to God in the transcendental theology of Rahner, Lonergan and/or others; its application to selected theological themes.

**35-532. Themes in Process Theology**

A discussion of selected themes in process theology: God, Christ, sin, death and immortality, freedom, ethics, the Church, theodicy.

**35-533. Themes in Philosophy of Religion**

A discussion of selected issues in Christian philosophy of religion: the nature of religious language, theodicy, the theistic proofs, the faith-reason debate, etc.

**35-534. Modern Christian Theologians**

A study of the thought of selected modern Christian theologians.

**35-535. Contemporary Theological Anthropology**

A study of the attempt to develop a theological understanding of human nature which is both open to the best of secular knowledge and informed by the foundational insights of the Christian faith.



**35-536. Contemporary Psychology of Religion**

A survey of the major psychological interpretations of religion and their implication for the understanding and articulation of faith.

**35-537. What is Theology?**

An examination of current attempts to situate theology as a human enterprise in relation to other forms of human endeavour and thought. Theology and science, art, ethics and common sense.

**35-540. Buddhist Thought and Practice**

Advanced studies in Buddhist psychology, philosophy, ethics and meditation.

**35-541. Buddhist-Christian Dialogue**

A study of historical interactions of Buddhists and Christians, especially of contemporary dialogue concerning doctrine and meditation. Readings from Merton, Graham, Dumoulin, King and others.

**35-542. Phenomenology of Religion**

Cross-cultural studies of religious phenomena such as devotion, asceticism, rituals, sacrifice, theophany, androgyny, charisma and celibacy. Readings from Eliade, van der Leeuw, Ricoeur and others.

**35-544. The Bhagavad Gita and Its Interpreters**

After a contextual and textual study of the Gita, the course will examine critically its major interpretations and integrate them within the context of Hindu thought. Interpreters include Shankara, Ramanuja, Gandhi, Aurobindo and others.

**35-545. Ethics and Mysticism of India**

A study of the ethical thought of India in the light of philosophical and soteriological perspectives, as well as a study of the varieties of Indian religious mysticism. Questions such as the relationship of mysticism to morality and social action are examined.

**35-550. Reading in Approved Special Field**

(Permission of the Department Head required)

**35-555. Seminar on a Selected Topic**

**35-796. Major Paper**

**35-797. Thesis**

## 27 SOCIAL WORK

### 27.1.1 OFFICERS OF INSTRUCTION

#### Professors

Kroeker, Bernhard J.; B.Ed. (Alberta), B.S.W., M.S.W. (Toronto)—1969.

Chacko, James; B.A. (Madras), B.S.W., M.S.W. (Laval), D.S.W. (Toronto)—1981.

#### Associate Professors

Chandler, Robert G.; B.A., B.S.W., M.S.W. (Toronto)—1968.

Taylor, Patricia Ann; B.A. (Assumption), B.S.W., M.S.W. (Toronto)—1968.

Clarke, James P.; A.B., M.S. (Columbia), Ph.D. (New York)—1969.

Hansen, Forrest C.; B.A. (Alberta), B.S.W., M.S.W., Ph.D. (Toronto)—1971.

Chatterjee, P. Kumar; B.A., M.A. (Agra), B.S.W., M.S.W. (Toronto), Ph.D. (Bryn Mawr)—1972. (Acting Director of the School).

Monaghan, Bernard F. S.; Prof. Cert. S.W. (Ottawa), B.A. (Windsor), M.S.W. (Carleton)—1972.

Meyer, Margrit; B.A. (Wilson, Pa.), M.S.S. (Bryn Mawr)—1973.

Holosko, Michael J.; B.A. (York), M.S.W. (Toronto), Ph.D. (Pittsburgh)—1985.

Daly, Catherine; B.A. (U.B.C.), M.S.W., M.P.H., Ph.D. (Hawaii)—1989.

#### Assistant Professors

Gallant, Wilfred A.; B.A. (St. Francis X), M.S.W. (Maritime School of Social Work), D.Ed. (Wayne State)—1973.

Cassano, D. Rosemary; B.A., B.S.W., M.S.W., Ph.D. (Toronto)—1979.

Taylor, Laura E.; B.A. (McMaster), M.S.W. (Wilfrid Laurier), Ph.D. (Toronto)—1988.

Hardina, Donna; B.A. (Northeastern Illinois), M.A. (Chicago), Ph.D. (Illinois at Chicago)—1989.

Smith, Eve P.; B.A. (Bard College), D.S.W. (Yeshiva)—1989.

#### Field Education Centres

Board of Education for the City of Windsor



Canadian Mental Health Association  
Windsor/Essex  
Catholic Family Services Bureau  
Catholic Social Services, Detroit  
The Child's Place  
Children's Achievement Association  
Children's Aid Society of Essex County  
The Children's Center, Detroit  
Children's Hospital of Western Ontario, London  
Children's Psychiatric Research Institute, London  
Correctional Service of Canada  
Detroit Receiving Hospital, Detroit  
Detroit Riverview Hospital, Detroit  
Developmental Disabilities Institute, Detroit  
Essex County Association for the Mentally Retarded, Essex  
Family Counselling Center, Sarnia  
Family and Neighbourhood Services - Resource  
Development Center, Detroit  
Family Service Bureau of Windsor  
Glengarda School of Exceptional Children  
Harper-Grace Hospitals, Detroit  
Henry Ford Hospital, Detroit  
Hiatus House  
Hotel Dieu Hospital  
Hutzel Hospital, Detroit  
Interim House, Detroit  
International Institute of Metro Detroit  
Jewish Home for the Aged, Detroit: Borman Hall, Prentice Hall  
Jewish Welfare Federation of Detroit  
John Howard Society of Windsor  
Legal Assistance of Windsor  
Lester B. Pearson Centre, Chatham  
London Custody & Access Project, London: Child & Family Centre, Family Court Clinic  
Madame Vanier Children's Services, London Maryvale  
Metro Youth Program Foundation Inc., Detroit  
Ministry of Attorney General Provincial Family Court  
Ministry of Community and Social Services  
New Center Community Mental Health Center, Detroit  
Northwestern Guidance Clinic of Wayne County, Detroit  
Ontario Ministry of Corrections  
Police Force Windsor  
Regional Children's Centre  
Rehabilitation Institute, Detroit  
Riverview Hospital

Roman Catholic Children's Aid Society  
Sarnia/Lambton Centre for Children & Youth, Sarnia  
Senior Citizens of Greater Windsor  
Separate School Board of Windsor  
Sinai Hospital, Detroit  
Social Services Department for City of Windsor  
St. Francis Home for Boys, Detroit  
St. Joseph Health Centre, London  
St. Peter's Home for Boys, Detroit  
St. Thomas Psychiatric Hospital  
Sun Parlor Home for Senior Citizens, Leamington  
The Orchard, Detroit  
United Way of Windsor/Essex County  
Victoria Hospital, Dept. of Psychiatry, London  
Victoria Hospital, Child and Adolescent Centre, London  
William Beaumont Hospital, Detroit  
Windsor Group Therapy  
Windsor Separate School Board  
Windsor Western Hospital Centre

## 27.2 Programs of Study

### 27.2.1 THE MASTER OF SOCIAL WORK DEGREE

The Master of Social Work degree, which is accredited by the Canadian Association of Schools of Social Work, has been designed to provide graduate education in a specialization. The School offers full- and part-time programs. Graduates of this program are expected to be able to provide leadership in the area of specialization. The student has the opportunity to concentrate in intervention, or administration in child and family services.

The School has established a Graduate Studies Committee to oversee the graduate program. In addition, each student is assigned a faculty advisor.

#### Admission Requirements

- 1) Applicants to the Master of Social Work program should apply for admission by February 1.
- 2) Persons with a B.A. (or equivalent) degree are not eligible for admission to the Master's pro-



gram. However, a limited number of students with records of outstanding academic achievement in a B.A. (Hons.) program may be considered for a two-year M.S.W. program. The first year will be made up of a full year of undergraduate courses over Intersession and Summer Session, and the following Fall and Winter terms. Students who complete the first year with a cumulative average of B<sup>+</sup> or better will be able to proceed to the second year of the two-year M.S.W. program.

3) Otherwise, an applicant to the Master of Social Work program must have:

- (a) satisfactorily completed a B.S.W. program or have equivalent standing from another university;
- (b) maintained a general average of B in the final year of undergraduate work;
- (c) submitted a preliminary outline of an educational project that will provide direction for particular studies within the area of specialization chosen by the student, the project to include an appropriate focus for program.

4) Persons who have been engaged in professional social work practice will be given special consideration for admission.

5) One undergraduate course in statistics is a prerequisite.

6) Applicants may be admitted to the full-time or to the part-time program. The part-time program is intended for B.S.W. graduates who are employed in the field of social welfare. Please contact the Coordinator of Admissions at the School of Social Work for the regulations pertaining to the part-time program. Admissions to the part-time program will take place every other year.

### Program Requirements

Unless otherwise stated, the general regulations of the Faculty of Graduate Studies and Research will apply to students in the Master of Social Work program.

### Full-time M.S.W. Program

1) Students proceed to the M.S.W. degree by following one of these programs:

- (a) a total of 10 courses, plus 47-594 Practicum II;
- (b) a total of 9 courses, plus 47-797 Thesis.

2) The following courses are required of all students:

47-556. Social Work with the Child and Family

47-507. Research I

47-508. Research II

47-503. Intervention I

47-509. Social Policy Analysis

47-593. Practicum I (2 credits)

3) Students are further required to choose one of the following two courses:

47-504. Intervention II

47-510. Social Administration

4) Other courses may be taken outside of the School with the approval of the Graduate Studies Committee.

5) The following Social Work elective courses may not be offered every year:

47-511. Intervention with Children

47-513. Intervention in Mental Health Settings

47-514. Intervention in Medical Settings

47-515. Intervention in Human Justice and Correctional Settings

47-557. Social Work in the Health Services

47-558. Social Work in Human Justice and Corrections

47-560. Supervision and Field Instruction

47-561. Social Work with Individuals

47-563. Social Work with Small Groups

47-564. Community Practice in Social Work

47-565. Independent Studies

6) *Length of Program*: This program is designed to occupy a minimum of one calendar year beginning with the Fall term and continuing through the following Winter term, Intersession, and Summer Session. Work will be scheduled in anticipation of graduation at the Fall Convocation.

### Part-time M.S.W. Program

The part-time M.S.W. Program is limited to persons with a B.S.W. (Hons.) presently employed in the social service field.



1) Students proceed to the M.S.W. degree by following one of these programs:

- (a) a total of eleven courses;
- (b) a total of nine courses plus 47-797 Thesis.

2) The following courses are required of all students:

- 47-556. Research I
- 47-507. Research II
- 47-508. Intervention I
- 47-503. Social Policy Analysis
- 47-509. Practicum I

3) Students are further required to choose one of the following two courses:

- 47-504. Intervention II
- 47-510. Social Administration

4) Other courses may be taken outside of the School with the approval of the Graduate Studies Committee.

5) The following Social Work elective courses may not be offered each year:

- 47-511. Intervention with Children
- 47-513. Intervention in Mental Health Settings
- 47-514. Intervention in Medical Settings
- 47-515. Intervention in Human Justice and Correctional Settings
- 47-557. Social Work in the Health Services
- 47-558. Social Work in Human Justice and Corrections
- 47-560. Supervision and Field Instruction
- 47-561. Social Work with Individuals
- 47-563. Social Work with Small Groups
- 47-563. Community Practice in Social Work
- 47-565. Independent Studies

6) *Length of Program:* All classes will be held on Friday evenings and Saturday mornings. Students will be able to complete the program in two to two and one-half calendar years. A practicum is required of all students during the Fall term of the second year of the program. Students must be available on a full-time basis for this term only. Work will be scheduled in anticipation of graduation at the Fall Convocation two years after admission to the part-time program.

### 27.3.1 COURSE DESCRIPTIONS

All courses listed below will not necessarily be offered every year. All courses are three hours a week unless otherwise noted.

#### 47-503. Intervention I

Selected theories and practice modalities applicable to social work with families and children. The student will be expected to develop expertise in the analysis of problems presented by families, the development of interventive strategies and the evaluation of outcomes of service to families.

#### 47-504. Intervention II

Examines differential practice modalities and theoretical concepts related to the family and children as the units of study and treatment. Tapes and records from practice will be analyzed.

#### 47-507. Research I

Provides students with an overview of research issues and methods appropriate for social work. Focuses on exposing students to a variety of research designs, methodologies and strategies, including qualitative and quantitative approaches. The content is oriented toward enabling students to write a research proposal for their research project to be completed in Research II (47-508).

#### 47-508. Research II

Builds upon Research I and is required for all students. Topics include data collection strategies and techniques, measurement, instrumentation, data reduction, data analyses, statistics and computer use. Each student will be required to complete a research project as a final outcome of the course.

#### 47-509. Social Policy Analysis

A comparative examination of a range of frameworks for policy analysis, with emphasis on their underlying assumptions and methods of inquiry. Students are expected to apply these frameworks to specific social policies.

#### 47-510. Social Administration

A review of a range of administrative and organizational theories relevant for human service organizations. Students are expected to apply these theories to central processes and problems in these organizations, such as:



decision-making, inter-organizational relations, control, communication and the management of cutbacks.

#### **47-511. Intervention with Children**

Intervention with children calls for a special set of therapeutic modalities and techniques. The student will be required to analyze, evaluate, and develop interventive strategies for practice with children. Evaluation of outcomes of practice is an important feature of this course.

#### **47-513. Intervention in Mental Health Settings**

Focuses upon social work intervention in psychiatric settings, such as clinics, hospitals, after-care programs and rehabilitation services for the patient and the family. The student will be expected to develop expertise in assessment of needs for service, developing therapeutic strategies and the evaluation of service outcomes.

#### **47-514. Intervention in Medical Settings**

Social work intervention in hospital settings; interdisciplinary practice with treatment team. Versatility of the medical social worker within the medical setting and in collaboration with outside community resources, rehabilitation, clinical and after-care services.

#### **47-515. Intervention in Human Justice and Correctional Settings**

Intervention in settings such as courts, jails, diversion programs and after-care services related to the offender and the family is analyzed and evaluated in this course. Strategies for effecting change in organization and social work with habitual offenders and juveniles are part of this course.

#### **47-517. Evaluative Research in Social Work**

Designed to enable students to learn how to evaluate both clinical practice and also the effectiveness and efficiency of social programs. Topics will include: issues involved in conducting evaluation research; the processes of evaluation; the practice realities of evaluation; the organizational context of evaluation; clinical vs. statistical significance; efficiency vs. effectiveness; and the outcomes of evaluative research efforts.

#### **47-556. Social Work with the Child and Family**

Provides the student with a foundation for study, at an advanced level, in the specialization on the child and family. Needs, problems, intervention, service delivery and evaluation of outcomes will be the *foci* of an analysis of the field of services to children and families, with an assessment of current theories in the field.

#### **47-557. Social Work in the Health Services**

Provides the student with a foundation for advanced study in the field of health services. The health needs of individuals, families and communities will be assessed as a base for examining the current interventive modalities, issues in the delivery of health services and means of practice and service evaluation.

#### **47-558. Social Work in Human Justice and Corrections**

Provides the student with a foundation for advanced study of the criminal justice system, correctional services and the roles of social workers in justice and corrections. Special attention will be paid to current practices in the field.

#### **47-560. Supervision and Field Instruction**

The use of individual and group supervision and consultation, particularly with beginning social workers and students in field teaching centres. Critical analysis of the purpose and functions of professional field instruction. Various types of recording will be examined for their learning potential and utility. Assessment of student learning patterns, attitudes and potentials will be the focus for introspective and interactional skill learning. Concepts of authority, responsibility and autonomy in learning will be emphasized.

#### **47-561. Social Work with Individuals**

Examines in depth selected theories of social work practice with individuals as a process for the restoration, maintenance or enhancement of individuals' social functioning. Emphasis will be upon the relationship between personality theories and social work practice in which theoretical material will relate to general helping situations through the use of tapes and case records from students' own field practice.



### 47-563. Social Work with Small Groups

Examines selected theories of social work practice with small groups and will make use of tapes and records from students' own practice as a basis for analysis.

### 47-564. Community Practice in Social Work

Examines various theories and models of community practice in social work, with a strong emphasis on social processes of assessment, designing interventive strategies and measuring outcomes.

### 47-565. Independent Studies

This course is intended to permit students with special interests in particular areas of Social Work not covered in sufficient depth in other courses to pursue those interests through independent supervised study. With prior approval of a faculty member the student will undertake an original paper which would enhance his or her program of study.

### 47-593. Practicum

An individually planned practicum is arranged for each student to test, refine and expand social work skills which related to working with children and families. Evening and weekend hours may be necessitated, and the use of an automobile is usually required. Some travel costs and times should be anticipated. The Practicum is the equivalent of four days per week for one term. (Offered on a Pass/Non-Pass basis only).

### 47-594. Practicum II

A continuation of the individually planned practicum for students pursuing the M.S.W. degree by 10 courses plus 47-594 Practicum II. It is the equivalent of four days per week for Intersession.

### 47-797. Thesis

A research project undertaken by the candidate which is directed and supervised by a Master's committee. The thesis will serve to integrate a knowledge of research methods with the student's area of the specialization and concentration, in order to encourage the extension of knowledge and understanding in the specialization.

## 28 SOCIOLOGY

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### 28.1.1 OFFICERS OF INSTRUCTION

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#### Professor Emeritus

Whitehurst, Robert N.; B.A. (Butler), M.S., Ph.D. (Purdue)—1969.

#### Professors

Dietz, Mary L.; M.A. (Michigan State), B.A., Ph.D. (Wayne State)—1968.

Ferguson, John D.; B.A., M.A. (Toronto), Ph.D. (Columbia)—1968.

Pradhan, Mahesh Chandra; B.A. (Agra), M.A., LLB. (Lucknow), Ph.D. (London)—1970.

Ramcharan, Subhas; B.A., M.Sc. (U. of West Indies); Ph.D. (York)—1971.

Adam, Barry D.; B.A. (Simon Fraser), M.A., Ph.D. (Toronto)—1976.

#### Associate Professors

Vincent, Claude L.; B.A. (Toronto), M.A. (Loyola), Ph.D. (Wayne State)—1966.

Faber, Seymour; B.A. (Wayne State), M.A., Ph.D. (Michigan)—1966.

Signorile, Vito; B.A., M.A. (Catholic U.), Ph.D. (Maryland)—1969.

Shuraydi, Muhammad; B.A. (American U. of Beirut), Ph.D. (Alberta)—1973.

Booth, Gerald V.; B.A. (Victoria), M.A., Ph.D. (Southern Illinois)—1975.

Ehrentraut, Adolf W.; B.A., M.A., Ph.D. (Toronto)—1976.

Hedley, Max J.; B.A. (York England), M.A., Ph.D. (Alberta)—1976. (Head of the Department).

#### Assistant Professors

Fleming, Thomas S.; B.A., M.A. (Toronto), Ph.D. (London) - 1988.

Drakich, Janice; B.A., M.A. (Windsor), Ph.D. (York) - 1989.

Basok, Tanya; B.A., M.A., Ph.D. (York)—1989.

Campbell, Colin S.; B.A., B.Ed., M.A. (Calgary)—1989.



Phillips, Lynn; B.A. (British Columbia), M.A., Ph.D. (Toronto)—1989.

Sears, Alan; B.A. (Hons.), M.A. (Carleton), Ph.D. (Warwick)—1989.

## 28.2 Programs of Study

### 28.2.1 THE MASTER OF ARTS DEGREE

At the graduate level students in the Department of Sociology and Anthropology will be expected to specialize in one of three areas: Power and Social Change, Criminology/Deviance, or Social Psychology.

#### Admission Requirements

1) Applicants with an honours degree in Sociology or a related field may be admitted into a one-year Master's program providing they have an adequate background in social theory and methodology. Students will be expected to comply with the general University requirements for the Master's degree (see 1.6.2).

2) Applicants with a general degree in Sociology or a related discipline may be admitted into a two-year Master's program. Besides meeting all the requirements of the one-year Master's program in their second year, students will be expected to comply with the general University requirements (see 1.6.2).

#### Program Requirements

Course selections and course changes must be made in consultation with a faculty counsellor designated by the area committee in which the student is planning to specialize, and receive the approval of the Graduate Affairs Committee.

1) Students in a one-year program will proceed toward the degree by completing six courses with at least a B average, among which a minimum of two courses must be in the declared area of specialization; also required are 48-500, 48-505, and 48-590, plus a thesis on a research subject approved by the Department and an oral defense of the thesis.

2) Students in the two-year program are required to take the following courses in their

first year: 48-401 or 48-402, 48-416, two courses in the 48-403 to 48-406 sequence and six other courses at the 300 or 400 level, two of which may be outside the Department. At least an overall B average must be maintained.

3) Students with an honours degree in Anthropology must take 48-307, 48-308, 48-346 and two courses from the 48-403 to 48-406 sequence or the equivalent. Students with an honours degree in Criminology must take 48-345 and two courses from the 48-403 to 48-406 sequence or the equivalent.

*Note:* Students not having a sufficient background in statistics and/or social theory may be required to take 48-307 and 48-308 and/or 48-345 and 48-346.

### 28.3.1 COURSE DESCRIPTIONS

All courses listed will not necessarily be offered in any given year.

All courses are taught as seminars.

#### *THEORY AND METHODS*

##### **48-500. Sociological Theory**

A critical study of conceptual issues in both macro and micro levels of sociological theory, including such fundamental questions as the nature of theories, human nature and the nature of society. Normally, this course will be team-taught. (2 hours a week).

##### **48-505. Methodology**

A systematic exploration of the general epistemological and procedural problems as they apply to classical and contemporary methods of sociological research. The course will cover such problems as validation, measurement, computerization and statistical inference. Normally, this course will be team-taught. (2 hours a week).

#### *POWER AND SOCIAL CHANGE*

##### **48-523. Canadian Social System**

An analysis of the institutional patterns of Canadian society, and the interconnecting structures relating to regionalism, cultural pluralism, stratification and power. The social relationships which have developed in the



system to minimize social conflict, and enhance social cohesion, consensus and the growth of national identity will be analyzed. (2 hours a week).

#### **48-524. Industrial Society**

The structure and development of industrial (capitalist) society from its origin to its modern form. (2 hours a week).

#### **48-526. Organization and Work Research**

Critical analysis of current theories and research on formal organizations, focussing on such issues as bureaucracy and control, the alienation of labour and the external determinants of organizational rationality. (2 hours a week).

#### **48-528. Social Stratification**

Advanced consideration of the theory, processes and problems of social stratification and social mobility. (2 hours a week).

#### **48-531. Social Change**

Seminar on the theory and research of large scale social transformation through the examination of such topics as the development and impact of social movements, states and social revolutions and the mobilization of people on the bases of racial, gender and class divisions. (2 hours a week).

#### **48-532. Intergroup Relations**

An analysis of various aspects of the relationships between groups in heterogeneous societies. Particular emphasis will be placed on the role and status of racial, ethnic and political minorities in pluralistic societies. (2 hours a week).

#### **48-540. Sociology of Occupations and Professions**

Study of the structure and dynamics of occupations and professions, and their members' recruitment, training and careers, with emphasis on current theoretical issues and research. (2 hours a week).

#### **48-543. Comparative Social Institutions**

Drawing on the literature in social anthropology and sociology, this seminar will involve an examination of the central theoretical problems raised in the comparative analysis of societies and institutions. (2 hours a week).

#### **48-550. Canadian Family and Sex Roles**

An analysis of the various modes of family and sex-role organization and their relationship to the community and other social institutions. The historical shifts in labour force participation by women and the resultant consequences for the behaviour of women and men will be examined especially with respect to their impact upon familial organization, occupational roles and sexual mores. (2 hours a week).

### *CRIMINOLOGY/DEVIANCE*

#### **48-560. Crime and Criminology**

A seminar course involving advanced critical analysis of theory and research on crime, criminals and criminality. Particular attention will be paid to typologies of crime and criminals. (2 hours a week).

#### **48-561. Sociology of Law**

An investigation of the salient theoretical and research problems in jurisprudence, legal structures and legal behaviour. Focus will vary according to students' and instructors' interests. (2 hours a week).

#### **48-562. Sociology of Punishment and Corrections**

This course will include an intensive examination of the theories of punishments and evaluative research on correctional programs both within and outside of institutions. (2 hours a week).

#### **48-563. Current Issues in the Study of Deviance and Criminology**

This course will focus on new issues in the sociologies of crime and deviance. (2 hours a week).

### *SOCIAL PSYCHOLOGY*

#### **48-570. Current Issues in Social Psychology**

An advanced research course designed to give students the opportunity to explore issues at the leading edge in the field of social psychology. Students will be expected to do either independent or team research on selected topics and present their findings in class for peer review. (2 hours a week).



**48-571. Methods for the Study of Small Groups and Social Interaction Processes**

Systematic observation methods, participant observer techniques, self-analytic groups, group structures and process category recording system. (2 hours a week).

**48-572. Theoretical Social Psychology**

A critical examination of current theories in social psychology, with an emphasis on conceptual and methodological issues. Theoretical emphasis will vary from year to year. While classical theories will be scrutinized, the concentration will be on existing critiques, reorientations and developments in contemporary social psychology. (2 hours a week).

**48-573. Applied Social Psychology**

A critical review and examination of the existing literature in applied social psychology. Students will engage in community-oriented research projects having applied significance of societal relevance. (2 hours a week).

**48-575. Community Structures and Processes**

Theory and research on the consequences of modern urban development. An emphasis on survey methods of studying human ecology, social epidemiology, power and class, religion, education and deviance. (2 hours a week). (This course is offered in the Department of Psychology as 46-675).

**48-590. Directed Readings: Development of the Thesis Proposal**

Students will register for this course with a faculty advisor in their declared area of specialization with the purpose of developing a thesis proposal.

**48-796. Major Paper**

**48-797. Thesis**

## 29 VISUAL ARTS

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### 29.1.1 OFFICERS OF INSTRUCTION

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**Professor**

Gold Smith, Susan; B.A., M.A. (Wayne State)—1970. (Director of the School).

**Associate Professors**

Pufahl, John K. Jr.; B.F.A. (Illinois Wesleyan), M.A., M.F.A. (Northern Illinois), F.R.S.A.—1967.

Doctor, Antonio P.; B.F.A. (Santo Tomas), Dipl. F.A. (Silpakorn), M.F.A. (Notre Dame)—1967.

Farrell, Michael J.; B.A., M.A. (Florida State)—1968.

Ferraro, Robert C.; B.A. (City College, New York), M.F.A. (Southern Illinois)—1968.

Boles, Daniel; B.A. (Stanford), M.F.A. (Tulane), Certificate (Sculpture, Bavarian State Academy of Art)—1969.

DeAngelis, Joseph R.; B.F.A. (Rhode Island School of Design), M.F.A. (Syracuse)—1969.

Law, William C.; B.F.A. (Atlanta School of Art), M.F.A. (Tulane)—1970.

Dingler, Daniel W.; B.F.A. (Layton School of Art), M.F.A. (Cranbrook Academy of Art)—1971.

Baxter, Iain; R.C.A., B.Sc., M.Ed. (Idaho), M.F.A. (Washington State) - 1988.

**Assistant Professors**

Flett, Arthur; B.A., M.A. (Wayne State), Ph.D. (Indiana)—1973.

Bélanger, Sylvie; B.Th. (Michigan), B.F.A. (Concordia), M.F.A. (York)—1989.

**Sessional Instructors**

Duck, Adele; B.F.A. (Windsor), M.F.A. (Florida State)—1976.

Brown, Brian E.; B.F.A. (Windsor), M.F.A. (Southern Illinois)—1977.

Knight, Dennis; B.F.A. (Windsor), M.F.A. (Wayne State)—1977.

Strickland, Rod; B.F.A. (Windsor), M.F.A. (Tennessee)—1983.



Jones, Barrie; B.F.A. (British Columbia), M.F.A. (York)—1985.

## 29.2 Programs of Study

### 29.2.1 THE MASTER OF FINE ARTS DEGREE

The program provides two years of advanced training for creative development in the student's chosen field of specialization. This would include the refinement of technical and manipulative skills, but with special concern for the interrelationship between technique and creative statement. Fields of specialization within the M.F.A. program are Painting/Drawing, Sculpture, Printmaking, and Multi-Media.

Students with a B.F.A. degree from the University of Windsor are encouraged to seek their Master's degree elsewhere.

#### Admission Requirements

In addition to the requirements set forth in 1.3 and 1.6.1 for admission to the Faculty of Graduate Studies and Research, applicants for admission to the Master of Fine Arts program must satisfy the following particular requirements:

- (a) have an honours B.A. with a major in Visual Arts or Bachelor of Fine Arts degree from an approved college or university; an applicant with a general B.A. with a major in Visual Arts may be admitted with the stipulation that deficiencies will be made up;
- (b) present twenty slides of recent work for evaluation by the departmental graduate acceptance committee;
- (c) have attained at least a B standing in undergraduate art courses;
- (d) have six courses in art history;
- (e) present transcripts of all university-and/or college-level work to the Faculty of Graduate Studies and Research;
- (f) present three letters of recommendation.

2) An applicant who has graduated from a recognized professional institution may be required to apply for entry into a special program prerequisite to admission into the M.F.A. program.

3) Students who are deficient in any of these requirements may be asked to register in appropriate undergraduate courses in order to satisfy the requirements.

4) Applications for admission to the Master of Fine Arts program should be complete by April 1 for Fall admission, and by November 15 for Winter admission; applications reaching the Office of Graduate Studies and Research after these dates may not be considered.

#### Program Requirements

1) Ten to twelve courses are required including Thesis (27-797):

- (a) four courses in a studio area of concentration;
- (b) two to four additional courses which may be taken within or outside the School of Visual Arts;
- (c) one seminar on contemporary issues (28-660);
- (d) one Art History Seminar (28-656) or Directed Individual Studies course (28-600);
- (e) Graduate Seminar (27-596);
- (f) In the second term of their first year, students must participate in a first year M.F.A. group exhibition. This exhibition will be evaluated by faculty members to determine the advisability of a student continuing in the program.

2) *Thesis*: The thesis will consist of an exhibition of a body of original creative works within the candidate's field of concentration. The thesis will be planned with, and executed under the direction of the candidate's major faculty advisor. This final exhibition should be regarded as the equivalent of the scholarly thesis of an academic discipline.

3) *Committees*:

- (a) *Guidance Committee*: Each student will choose a guidance committee, approved by the School's Graduate



Program Committee, in the first term of his or her Master's program. This committee will meet with the student periodically throughout the time required to complete the M.F.A. program and to assess his/her work and progress through the program.

- (b) *Thesis Committee:* This committee will assess the student's thesis exhibition, conduct the oral examination, decide if the M.F.A. degree should be awarded and determine the thesis grade. The thesis committee will be constituted as follows: the Graduate Coordinator, the student's major advisor and two additional faculty members, one of whom will not have been a member of the student's guidance committee. In addition a professional artist or artist-educator not from the University of Windsor or the Windsor area will be chosen as a member of the committee. The student will choose the last three members of this committee with the approval of the School's Graduate Program Committee and subject to the approval of the Executive Committee of the Faculty of Graduate Studies and Research.

4) *Examination and Thesis Requirements:*

- (a) a solo exhibition of the completed creative thesis acceptable to the student's thesis committee;
- (b) a written and photographic documentation of the thesis to be retained by the School of Visual Arts;
- (c) a formal oral defense of the thesis before the student's thesis committee.

5) *Residence Requirements:* The M.F.A. program will require a minimum of two academic years (four terms).

Transfer credits will be evaluated and may be accepted.

Work on an M.F.A degree should ordinarily be completed within three consecutive years after a student's enrollment.

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### 29.3.1 COURSE DESCRIPTIONS— STUDIO

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All graduate studio courses are directed individual studies courses. Projects will be planned and carried out in conjunction with a faculty supervisor.

**27-501. Sculpture**

Directed individual studio projects for sculpture majors only.

**27-502. Sculpture**

Directed individual studio projects for sculpture majors only.

**27-503. Sculpture**

Directed individual studio projects for sculpture majors only.

**27-504. Sculpture**

Directed individual studio projects for sculpture majors only.

**27-505. Sculpture**

Directed individual studio work in sculpture. (May be repeated for credit).

**27-511. Painting/Drawing**

Directed individual studio projects for painting/drawing majors only.

**27-512. Painting/Drawing**

Directed individual studio projects for painting/drawing majors only.

**27-513. Painting/Drawing**

Directed individual studio projects for painting/drawing majors only.

**27-514. Painting/Drawing**

Directed individual studio projects for painting majors only.

**27-515. Painting**

Directed individual studio work in painting. (May be repeated for credit).

**27-545. Drawing**

Directed individual studio work in drawing. (May be repeated for credit).

**27-551. Printmaking**

Directed individual studio projects for printmaking majors only.

**27-552. Printmaking**

Directed individual studio projects for printmaking majors only.



**27-553. Printmaking**

Directed individual studio projects for printmaking majors only.

**27-554. Printmaking**

Directed individual studio projects for printmaking majors only.

**27-555. Printmaking**

Directed individual studio work in printmaking. (May be repeated for credit).

**27-561. Multi-Media**

Directed individual studio projects for multi-media majors only.

**27-562. Multi-Media**

Directed individual studio projects for multi-media majors only.

**27-563. Multi-Media**

Directed individual studio projects for multi-media majors only.

**27-564. Multi-Media**

Directed individual studio projects for multi-media majors only.

**27-565. Multi-Media**

Directed individual studio work in multi-media. (May be repeated for credit).

**27-590. Photography**

Directed individual studio work in photography.

**27-596. Graduate Seminar**

The Graduate Seminar will meet weekly each semester and will provide a forum for peer critiques and critical discussion of students' work and the issues arising from that discussion. The seminar will also be the venue for developing the written statement required for presentation to the student's thesis committee and as part of the oral examination.

**27-797. Thesis****28-600. Directed Individual Studies**

This course involves examination of a particular problem in a specific area of interest in which a paper will be required. (May be repeated for credit with permission of the School).

**28-656. Art History Seminar**

A proseminar course based on group encounters with particular studies in the history of art, which will be considered by means of readings, discussions, papers and museum trips. (May be repeated for credit with permission of the School).

**28-660. Seminar on Contemporary Issues**

Current issues in art criticism and theory will be considered through reading, discussions, museum trips, guest lectures and research papers culminating in a seminar presentation by individual students on specific issues.

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### 29.3.2 COURSE DESCRIPTIONS— ART HISTORY

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The specific topics in the Directed Individual Studies in art history and the Art History Seminar will vary from year to year, depending upon the interests and needs of professors and students. All courses are three hours a week unless otherwise indicated.



## 30 POSTGRADUATE AWARDS AND FINANCIAL AID

In accepting the administration of awards designated for specific groups, the University of Windsor is bound by provincial and federal human rights legislation not to deny eligibility to anyone on discriminatory grounds. The criteria of eligibility must be expressed therefore in accordance with these legislative principles. Ability to benefit is the primary criterion for the award of scholarships and may be measured by academic achievement, or demonstrated potential of other kinds relevant to the particular award. Membership of a group that has been disadvantaged because of race, national or ethnic origin, colour, religion, sex, age or disability also may be a criterion of eligibility. However, adequate demonstration of such disadvantage must be provided by the donor for the University's consideration before it will accept a donation for such purposes.

### **Ontario Student Assistance Program (for Full- and Part-Time Students)**

Students who are Canadian citizens or permanent residents, and who are residents of Ontario, may apply for an award under the Ontario Student Assistance Program.

To receive an award a student must establish a need for assistance and be enrolled in a program which leads to a degree, diploma, or certificate.

A common application form enables the student to apply for an Ontario Study Grant, a Canada Student Loan, and an Ontario Student Loan. Eligibility criteria and calculated financial need determine which of the plans, if any, provide the student with assistance. Applications and information brochures are available in the Student Awards Office, which is located at 496 Sunset Avenue.

Students wishing further information and applications on awards listed below should consult the Office of Graduate Studies and Research. As far as possible, information

presented here is up-to-date at the time of calendar printing.

Students are invited to consult, in addition to these listings, publications and files on graduate awards maintained in the Office of Graduate Studies and Research.

A separate section on graduate awards administered by departments follows the general list.

### **University of Windsor Scholarships for Postgraduate Study**

A number of scholarships (valued at tuition plus stipend) and bursaries (tuition only) will be offered annually for full-time postgraduate study in any field at the University of Windsor. The awards are competitive and open to university graduates with high standing. They may be held concurrently with a Graduate Assistantship and/or Research Assistantship. Applications are available from the Office of Graduate Studies and Research, University of Windsor. Closing dates: February 1 and April 1.

#### **C. P. Crowley Scholarships**

These prestige awards, established in honour of the founder and first Dean of the Faculty of Graduate Studies at this University, provide tuition for one calendar year beginning with Summer term in the year of the award, and an annual stipend of \$5000 for three term of registration.

#### **Strategic Scholarships**

These are special scholarships for Canadian citizens and permanent residents in areas designated by the University as of strategic importance to its mission. They provide tuition for one calendar year beginning with Summer term in the year of the award, and an annual stipend of \$4000 for three terms of registration.

#### **University of Windsor Tuition Scholarships**

These awards provide full tuition for one calendar year beginning with Summer term in the year of the award. Applications are available from the Office of Graduate Studies and Research, University of Windsor.



**Assistantships**

The University of Windsor offers Graduate Assistantships to the majority of full-time graduate students. The maximum Graduate Assistantship requires ten hours of work a week for a total stipend of \$5,500 (Master's) or \$6,500 (Doctoral) during the Fall and Winter terms (1989-90 rates). Partial assistantships with prorated stipends are offered in some departments. For further details and application forms consult the Department concerned.

A number of departments also offer Research Assistantships with funds received from external granting agencies.

**Natural Sciences and Engineering Research Council Postgraduate Scholarships**

These awards are open to students in the fields of agriculture, biology, forestry, chemistry, physics, geology, physical geography, oceanography, mathematics, engineering and psychology. These scholarships will be valued at \$13,500 for twelve months as of May 1, 1990 for students in their first and second years of graduate study and \$15,000 for those in their third and fourth years of graduate study.

At the time of application, an applicant must be either a Canadian citizen or a permanent resident.

Further information may be obtained from the Natural Sciences and Engineering Research Council of Canada, 200 Kent Street, Ottawa, Ontario K1A 1H5, or from the Office of Graduate Studies and Research.

**NSERC Undergraduate Student Research Awards**

Undergraduate students enrolled in second or higher years of an Honours program eligible for NSERC support are encouraged to apply directly to their major Department for further information on these awards. In 1989 a total of twenty-two awards was made with minimum stipend of \$800 a month.

Application deadlines, set by departments, are usually early in December.

**Social Sciences and Humanities Research Council of Canada**

Doctoral Fellowships: \$12,720 (1989-90 rates) for twelve months.

The fellowships are intended to develop research skills and to assist in the training of highly qualified personnel. Candidates must demonstrate a high standard of academic achievement in undergraduate and graduate studies in the social sciences and humanities. Applicants must be Canadian citizens or permanent residents of Canada, and by the time of taking up the award will have completed at least one year of doctoral study or a Master's degree. Application material available in the Office of Graduate Studies and Research. Deadline set by the Department is usually early November.

**CIDA Awards for Canadians**

The objective of these long-term awards is to develop a body of Canadians competent and expert in the field of international development. A maximum of fifty awards of up to \$15,000 (less income tax) per year is available for 1990-91. The closing date for the first competition is mid-February, and the closing date for the second is early September. Applicants must be Canadian citizens; proof of citizenship must accompany the application form. Applicants must have indicated a definite commitment to and suitability for a career in international development work.

**Ontario Graduate Scholarships**

The Government of the Province of Ontario provides annually a number of postgraduate awards, tenable at Ontario universities only. The purpose of these awards is to encourage excellence in graduate studies. The minimum academic qualification is the Ontario Honours Bachelor's degree or its equivalent. The value of the award for 1989-90 is \$3,400 per term. The awards may be held for three consecutive terms and must be held for at least two consecutive terms. Further information and application forms are available from the Office of Graduate Studies and Research. Deadline is normally in October.



### **Ontario-Quebec Exchange Fellowship Program**

The Ontario-Quebec Permanent Commission, in accordance with the interprovincial Agreement for Co-operation and Exchange in Educational and Cultural Matters, sponsors an exchange program that allows students from one province to pursue, on a full-time basis, graduate studies at the Master's or doctoral level in the other province.

Thus outstanding students from Ontario and Quebec, known as Ontario-Quebec Fellows, are offered the opportunity to live in the cultural milieu of their second language and to work in their particular field of study in their second language.

The two provincial governments will each award ten fellowships. In 1989-90 students pursuing studies at the Master's level receive \$8,000; doctoral students receive \$10,000.

Fellowship holders must be registered as full-time students in a graduate program for the tenure of the award. Students from provinces other than Ontario must have resided in Ontario for twelve consecutive months. All candidates must be Canadian citizens or permanent residents for at least one year.

### **Queen Elizabeth II Ontario Scholarships**

In honour of the visit of Her Majesty Queen Elizabeth II to Ontario in July, 1959, the Government of the Province established a fund to provide annually a number of post-graduate awards. This scholarship has a value of at least \$13,000 plus a general expense allowance of \$500, and will be available in the fields of the humanities, social sciences and mathematics. These awards are open to Canadian citizens and permanent residents. The scholarships are intended for full-time students of exceptional calibre who are nearing the completion of a Ph.D. program in an Ontario university and who are expected to be in the final full year of their research and writing during tenure of the award. Preference will be given to candidates who are residents of Ontario. Further information and applications may be obtained from the Office of Graduate Studies and Research. Deadline for submission of applications is December 1.

### **Canada Mortgage and Housing Corporation Scholarships**

Up to seventy-five awards are offered to Canadians or permanent residents for graduate studies in the fields of architecture, business and public administration, economics, engineering, environmental studies, law, urban planning and the social and behavioural sciences, in Master's or doctoral degree programs. These scholarships were valued at \$12,600 in 1989-90.

Individuals wishing to apply may obtain the necessary forms from the Office of Graduate Studies and Research or from the Head of the Department at the university where they propose to study.

Application forms may also be obtained from CMHC regional offices, or from the Administrator, Scholarships, CMHC National Office, Ottawa, Ontario K1A 0P7. Applications must be submitted to the Office of Graduate Studies and Research no later than April 15.

### **Commonwealth Scholarship and Fellowship Plan**

Under a plan drawn up at a conference in Oxford in 1959, each participating country of the Commonwealth offers a number of scholarships to students from other Commonwealth countries. These scholarships are mainly for graduate study and are tenable in the country making the offer. Awards are normally for two years and cover travelling, tuition fees, other university fees and a living allowance.

Details may be obtained from the relevant government office in the applicant's own country or the Director General, External Aid Office, Ottawa, Ontario.

Canadian students wishing to study in another Commonwealth country may write to Association of Universities and Colleges of Canada, Commonwealth Scholarship Program, 151 Slater St., Ottawa, Ontario K1P 5N1, or may obtain scholarship applications from the Office of Graduate Studies and Research.

### **Noranda/Bradfield Graduate Fellowship**

Value: \$14,000 for one year. Up to seven fellowships are available to full-time students in graduate programs leading toward a Master's



or doctoral degree working in the natural and applied sciences, mathematics, economics, business and commerce. This graduate fellowship is given to promote and encourage research collaboration between Canadian universities and companies in or associated with the Noranda Group. Applicants must be Canadian citizens or landed immigrants in Canada. Application material is available in the Office of Graduate Studies and Research. Applications must be submitted by March 1.

#### **Petro-Canada Inc. Graduate Research Award Program**

Value: \$10,000 for one year. Five graduate awards are made annually in the fields of science, engineering, social science and business administration. The program was established to recognize academic excellence and to support and encourage graduate research in specialized fields of study relating to the petroleum industry. Candidates must be Canadian citizens or landed immigrants. For application material write to: Scholarship Administration Services, Association of Universities and Colleges of Canada, 151 Slater Street, Ottawa, Ontario K1P 5N1. Application must reach Ottawa by February 1.

#### **National Institute of Mental Retardation**

*Research Grants:* Awarded to Canadians or landed immigrants in doctoral programs in mental retardation or related fields. Value up to \$8,000. May be renewed if research projects show results and can be published in related journals. Application deadline April 30.

*Bursaries:* Awarded to Canadians or landed immigrants accepted into postgraduate programs in mental retardation or related fields. Candidates must be recommended by the Provincial Association for the Mentally Retarded in their province. Value up to \$1,500. Application deadline March 30.

Further information and application forms may be obtained from: The Secretary, Awards Committee, National Institute on Mental Retardation, Kinsmen NIMR Building, 4700 Keele Street, Downsview, Ontario M3J 1P3, or from the Office of Graduate Studies and Research.

#### **IODE War Memorial Scholarships for Graduate Study**

Seven to nine scholarships will be awarded to enable students to carry on studies in history, economics, the humanities, constitutional government or any subject vital to the interests of the Commonwealth. The value of the scholarships is \$8,500 for study in Canada and \$12,000 for study in the Commonwealth. These scholarships are tenable in any university in Canada, Great Britain or within the Commonwealth. Applicants must be Canadian citizens who hold a first degree from a Canadian university, hold a Master's degree or are in the final year of studies leading to a Master's degree. Deadline for application is December 1.

#### **The Mackenzie King Travelling Scholarships**

Four or five scholarships of up to \$10,000 (subject to change) will be available to graduates of any Canadian university who propose to engage, either in the United States or the United Kingdom, in postgraduate studies in the field of international or industrial relations (including the international or industrial aspects of law, history, politics, economics).

Application material available in the Office of Graduate Studies and Research. Deadline date February 1.

#### **The Mackenzie King Open Scholarship**

A one-year scholarship of \$7,000 (subject to change) will be available to graduates of any Canadian university, for full-time postgraduate studies in Canada or elsewhere and in any field.

Application material available in the Office of Graduate Studies and Research. Deadline date February 1.

#### **Canadian Federation of University Women Awards**

The Canadian Federation of University Women offers the following awards to women holding a degree from a Canadian university and who are Canadian citizens or have held landed immigrant status for one year:

Margaret McWilliams Travelling Fellowship.  
Value \$8,000.



Professional Fellowship.

Value \$4,000.

Margaret Dale Philp Award.

Value \$1,000.

Alice E. Wilson Grants.

Value \$1000.

CFUW Memorial Grant.

Value \$1,000.

La Bourse Georgette Lemoyne.

Value \$1,000.

Applications are available in the Office of Graduate Studies and Research. Completed applications and documentation must be received by December 1 by the Canadian Federation of University Women, 55 Parkdale Avenue, Ottawa, Ontario K1Y 1E5.

#### **Delta Kappa Gamma World Fellowship**

The Delta Kappa Gamma Society International is an organization of professional women in the field of education. A fellowship for graduate study is offered to a female graduate student, in the amount of \$3,000 U.S., with a possibility of renewal for a second year. To be eligible, an applicant must be a female student from a country other than Canada or the United States, studying under a "student authorization", and accepted for admission to graduate studies. The student must be in a program which will lead to a teaching position in an educational institution (school, college, university, library, nursing institution). In addition, the applicant must plan to return to her home country on completion of studies. Applications may be obtained from the International Students' Centre, and must be submitted by November 15.

#### **German Canadian Business and Professional Men's Association Scholarship**

Value: \$2,000. Awarded to a full-time student registered at the University in any year beyond the first of an undergraduate program, or in a graduate program. Candidates must prepare a paper on the German contribution to any aspect of North American society (culture, music, engineering, architecture, psychology, etc.), and submit it by February 1 to the President, German Canadian Business and Professional Men's

Association, c/o Mr. Horst Schmidt, 9555 Avery Lane, Windsor, Ontario N8R 2C1.

The winner will present his or her paper publicly at a meeting of the Association.

#### **Air Pollution Control Association Bursary**

The Ontario Section of the Air Pollution Control Association offers a bursary of \$1,000 and a one year membership in the Association to a student interested in the study of air pollution. The applicant must be a Canadian citizen or landed immigrant, and must be a full-time student in a graduate program in Ontario, in the study of air environment. Further information and application forms may be obtained from: Bursary and Awards Committee, Ontario Section, APCA, P.O. Box 259, Postal Stn. U, Toronto, Ontario M8Z 5P1.

#### **University of Windsor Faculty and Departmental Awards**

Students wishing further information on the awards listed below should consult the Faculty or Department concerned.

#### *BIOLOGICAL SCIENCES*

##### **The Biology Club Award**

Value determined by interest earned on Trust Fund. Awarded annually to a student entering the M.Sc. program in Biology, on the basis of participation in departmental activities at the undergraduate level at the University of Windsor, financial need, and academic merit. This award may not be held concurrently with other major awards such as NSERC and OGS. Application forms are available in the Department of Biological Sciences office; deadline for submission is August 15. Applications to be submitted to the Department of Biological Sciences, University of Windsor.

#### *BUSINESS ADMINISTRATION*

##### **Daniel Bryan Memorial Bursary**

Value: \$500. Awarded annually on the basis of academic standing to a full-time graduate student upon completion of the first year of the M.B.A. program. Established in 1985 by Mrs. Daniel Bryan and sons.



**J. R. Calcott Memorial Fund**

Value: \$500. Awarded annually to a student who has completed Year I of the Master of Business Administration program, entering Year II. Recipients must have a cumulative average of at least B and must have demonstrated a strong interest in the area of entrepreneurship either by high grades in related courses or by serious research. Applicants must submit a letter of application and resume to the Dean of the Faculty of Graduate Studies and Research by September 30.

**Commerce Class of '55 Alumni Award**

Annual awards of \$100 for outstanding undergraduate and graduate students in business administration, awarded on the basis of combined academic excellence and extracurricular achievement. Further information is available from the Faculty. Deadline for submission of applications is September 30.

**Excel/Anext Award**

Value: \$500. Awarded annually to the academically outstanding student entering the first year of the M.B.A program.

**Financial Post Investment Prize**

Value \$80. Awarded annually during the second semester to the student in the candidate year with the highest standing in Investment Analysis. The award is funded by interest on prize money awarded the University of Windsor's Investment Team in the Canada-wide Financial Post's "Million Dollar Portfolio" contest.

**Hiram Walker - Allied Vintners Scholarship**

Awarded to a graduate student entering the first year of the Master of Business Administration program.

**Xerox Canada Inc. Scholarship**

Value: \$2,000. Awarded annually to a student entering the candidate year of the Master of Business Administration program, on the basis of the previous year's work. The student must be a Canadian citizen or permanent resident.

**CANADIAN-AMERICAN STUDIES****Scholarship for Study in Canadian-American Relations**

One or more awards totalling \$500 annually to a full-time student registered in an undergraduate or graduate program of study focussed on Canadian-American relations. Applicants may be engaged in an exchange program or a joint degree program with a university in the United States. Application forms available in the Centre for Canadian-American Studies and the Student Awards office. Deadline: December 15.

**CHEMISTRY AND BIOCHEMISTRY****The William A. Redmond Memorial Bursary**

Value: \$1,000. Awarded annually on the basis of scholastic ability and financial need to a graduate student in the Department of Chemistry. Established (1972) in memory of William A. Redmond, who obtained his doctorate in chemistry at the University of Windsor in 1964.

**EDUCATION****Gregory Blake Nephew Memorial Scholarship**

Value: \$1,000. Awarded annually on the basis of scholarship and financial need to a full-time graduate student in the Faculty of Education. Established in 1981 by Dr. and Mrs. J. H. Nephew.

**COMMUNICATION STUDIES****The Meng Xiaoping Memorial Bursary**

Value: \$100. Awarded annually on the basis of scholarship and financial need to a graduate student in the Department of Communication Studies. Established in 1989 in honour of a Master's student from the People's Republic of China.

**ENGLISH****Commonwealth Graduate Prize**

Value: \$100. Awarded annually on the basis of scholarship and financial need to an outstanding graduate student in the Department



of English. The award was established by a grant-in-aid to the Department from the Commonwealth Scholarship and Fellowship Plan, on behalf of a Commonwealth Scholarship recipient.

### *ELECTRICAL ENGINEERING*

#### **Fredrick Atkinson Graduate Awards**

Value: \$2000. Two annual awards, one for a doctoral student in the Department of Electrical Engineering on the basis of excellent performance in research and course work; and one award for a female Master's or doctoral student in the Department of Electrical Engineering on the basis of excellent performance in research and course work. If no female student is eligible, the award will be given to another student on the same basis. The two awards may not be held concurrently.

### *GEOGRAPHY*

#### **Paul Ernest Vandall Memorial Award**

Value: \$1,000 and a gold medal. Awarded annually to a student entering the University of Windsor M.A. program in Geography, on the basis of academic record, submission and presentation of an original paper (max. 1500 words) dealing with conservation and/or resource management issues in the Great Lakes area, and commitment to pursue studies in conservation and/or resource management in Canada. The recipient will be chosen by the Paul Ernest Vandall Memorial Award Committee. The award will not be assigned if no candidate meets the standards set by the Committee. Apply to the Head of the Geography Department before September 1. (Established in 1984 by the family, friends, and former students of Professor Vandall, and the faculty and staff members of the University of Windsor, to honour the founder of the Geography Department.)

### *GEOLOGY*

#### **The Ontario Petroleum Institute Award**

Value: up to \$1,000. This award is made annually on the basis of undergraduate academic results to a student in a geology or geological engineering Master's program.

The award is for financial assistance toward the preparation of a geological thesis in stratigraphical or structural surface or subsurface studies with preference to studies in Ontario sedimentary basins. Application is made to the Institute through the Department of Geology by February 15.

### *HUMAN KINETICS*

#### **Human Kinetics Alumni Awards**

Value: \$100. Human Kinetics Alumni Awards are bestowed annually on the basis of scholarship. Students studying in the areas of Movement Sciences, Historical/Sociological Study of Sport, or Sport and Lifestyle Management are eligible for these awards.

### *POLITICAL SCIENCE*

#### **Walter L. White Memorial Scholarship**

Value: up to \$1,000. Awarded annually on the basis of scholarship and financial need to a graduate student entering the candidate year in political science. Established in 1975 by friends and admirers of Walter L. White, first Head of the Department of Political Science and first Dean of Social Science.

### *PSYCHOLOGY*

#### **Phyllis Shapiro Hurwitz Memorial Bursary in Psychology**

Value: \$250. Awarded annually on the basis of academic standing and financial need to a graduate student in psychology. Re-established in 1986 by Mr. Richard Hurwitz.

### *RELIGIOUS STUDIES*

#### **Assumption University Award in Religious Studies**

Value: \$1,000. Awarded annually by Assumption University on the basis of academic merit and financial need to a graduate student in the Department of Religious Studies. Established in 1980 by the Basilian Fathers as a memorial to Father John H. O'Loane, C.S.B. Apply to the Head of the Department of Religious Studies, University of Windsor.



## SOCIAL WORK

### Gerald D. Erickson Bursary

Value: \$150. Awarded annually to a deserving student registered full-time or part-time in Level 3 or 4 of the B.S.W. program or in the M.S.W. program. Established in memory of the Director of the School of Social Work, 1985-89.

Application forms are available in the School of Social Work, Office of Student Awards or the Office of Graduate Studies and Research.

## VISUAL ARTS

### Warner-Lambert Award in Printmaking

Value: up to \$1,000. May be Awarded annually on the basis of the graduate admissions portfolio, transcript and letters of recommendation to a first-term M.F.A. student majoring in printmaking. The award will not necessarily be assigned every year.

# 31 CALENDAR OF THE ACADEMIC YEAR

## 1990

- |                 |   |
|-----------------|---|
| January 1       | New Year's Day (statutory holiday).   |
| January 3       | University offices reopen.  |
| January 8       | First day of classes, Faculty of Education and Faculty of Law. Winter semester field work begins in Social Work.  |
| January 8 to 12 | In-person registration for full-time students; Registrar's Office will assign specific reporting times. In-person registration for part-time students who have not preregistered by mail. |
| January 15      | Winter semester classes begin in all faculties except Education and Law. Late payment penalty begins.   |
| January 26      | Last day of registration and change of course for Winter semester courses, day and evening.   |
| February 1      | Final day for application for admission to First-Year Law in September, 1990.   |
| February 2      | In-person registration for January secondary school graduates who are entering February Session.  |
| February 5      | First day of classes in February Session.   |
| February 9      | Last day for course changes in February Session.  |



### 31 CALENDAR OF THE ACADEMIC YEAR

February 16	Last day to withdraw without a grade being assigned for Winter semester classes. Last day to file application for Spring graduation.	May 14	Intersession and 12-week session begin; late payment penalties begin.
February 26 - to March 2	Study week for all faculties except Education.	May 16	Last day for late registration and change of course for Intersession and 12-week session.
March 1	Final date for application to Level 3 and Make-up programs in Social Work.	May 18	<i>Last day for oral defense of dissertations, theses and major papers for Spring Convocation.</i>
March 2	Last day to withdraw without a grade being assigned for February Session courses.	May 21	Victoria Day (statutory holiday). (No classes).
March 23	<i>Deadline for recommending an external examiner for an oral defense on the last day for Spring Convocation.</i>	May 25	<i>Last day to deposit dissertations, theses and major papers for Spring Convocation.</i>
April 13	Good Friday (statutory holiday). (No classes).	June 10, 17	Spring Convocation
April 15	Easter Sunday.	June 15	Last day for mail registration for Summer Session.
April 19	Last day of classes, Faculty of Law.	June 22	Intersession classes end.
April 20	Last day of classes, day and evening, for both the Winter semester and February Session, for all faculties except Education.	June 23	Intersession examinations begin.
April 21	Spring final examinations begin for all Faculties except Education and Law. Field work ends in the School of Social Work.	June 30	Last day to file application for Fall graduation.
April 23	Examinations begin, Faculty of Law.	July 1	Canada Day (statutory holiday). (No classes).
April 27	Last day for mail registration for Intersession and 12-week session.	July 2	University offices closed.
April 30 to May 4	Tutorial week and final evaluation in Faculty of Education.	July 3	Summer Session begins. Late payment penalties begin for Summer Session. B.S.W. Make-up classes begin.
		July 5	Last day for Summer Session late registration and change of course.
		August 6	Civic Holiday (statutory holiday). (No classes).



31 CALENDAR OF THE ACADEMIC YEAR

August 10	<i>Deadline for recommending an external examiner for an oral defense on the last day for Fall Convocation.</i>	October 8	Thanksgiving Day (statutory holiday). (No classes).
		October 21	Fall Convocation
August 14	Last day of classes for Summer Session and B.S.W. Make-up.	November 30	Last day of classes, day and evening, in all faculties except Law.
August 15	Summer Session examinations begin.	December 1	Fall semester examinations begin for all faculties except Law.
September 3	Labour Day (statutory holiday). Classes begin in the Faculty of Human Kinetics for students selecting 97-477 as an option.	December 6	Last day of classes, Faculty of Law.
		December 10	Examinations begin in Law.
September 4	Classes begin, day and evening, in all Faculties except Law and Education. Late payment penalty begins. In-person registration in the Faculty of Law and the Faculty of Education. Field work begins in the School of Social Work.	December 21	Fall semester field work ends in Social Work.
		December 24 to January 1	University offices closed for Christmas recess.
<b>1991</b>			
September 5	Classes begin in Law and Education.	January 2	University offices reopen.
September 17	Last day for late registration and change of course for Fall semester day and evening except Law.	January 7	Winter semester classes begin. Field work begins in Social Work. Late payment penalty begins.
September 19	Last day for late registration, Faculty of Law.	January 18	Last day of registration and change of course for Winter semester courses, day and evening.
September 28	<i>Last day for the oral defense of dissertations, theses and major papers for Fall Convocation</i>	February 1	Final day for application for admission to First-Year Law in September, 1991. In-person registration for January secondary school graduates entering February Session.
October 5	Last day to withdraw without a grade being assigned. <i>Last day to deposit dissertations, theses and major papers for Fall Convocation.</i>	February 4	First day of classes in February Session.



### 31 CALENDAR OF THE ACADEMIC YEAR

February 8	Last day to file application for Spring graduation. Last day to withdraw without a grade being assigned for Winter semester courses. Last day of registration and change of course for February Session.	May 10	Last day for oral defense of dissertations, theses and major papers for Spring Convocation.
February 25 to March 1	Study week for all faculties except Education.	May 13	Intercession, 12-week session and Summer Co-op semester begin; late payment penalties begin.
March 1	Final day for application to Level 3 and the Make-up program in Social Work. Last day to withdraw without a grade being assigned for February Session courses.	May 15	Last day for late registration and change of course for Intercession, 12-week session and Summer Co-op.
March 15	<i>Deadline for recommending an external examiner for an oral defense on the last day for Spring Convocation.</i>	May 17	<i>Last day to deposit dissertations, theses and major papers for Spring Convocation.</i>
March 29	Good Friday (statutory holiday). (No classes).	May 20	Victoria Day (statutory holiday). (No classes).
March 31	Easter Sunday.	June 2 to 9	Spring Convocation
April 12	Last day of classes, day and evening, for Winter semester in all faculties except Law and Education. Field work ends in the School of Social Work.	June 21	Intercession classes end.
April 13	Winter semester final examinations begin for all faculties except Law and Education.	June 22	Intercession examinations begin.
April 19	Last day of classes, Faculty of Law and February Session.	June 28	Last day to file application for Fall graduation.
April 20	Winter semester final examinations begin for Faculty of Law.	July 1	Canada Day (statutory holiday). (No classes).
April 29 to May 3	Tutorial week and final evaluation, Faculty of Education.	July 2	Summer Session begins. Late payment penalties begin for Summer Session. B.S.W. Make-up classes begin.
		July 4	Last day for Summer Session late registration and change of course.
		August 5	Civic Holiday (statutory holiday). (No classes).
		August 9	<i>Deadline for recommending an external examiner for an oral defense on the last day for Fall Convocation.</i>
		August 13	Last day of classes for Summer Session and B.S.W. Make-up.



### 31 CALENDAR OF THE ACADEMIC YEAR

August 14	Summer Session examinations begin.	December 5	Last day of classes, Faculty of Law.
September 2	Labour Day (statutory holiday). Classes begin in the Faculty of Human Kinetics for students selecting 97-477 as an option.	December 9	Fall semester examinations begin, Faculty of Law.
September 3	Classes begin, day and evening, in all faculties except Law and Education. Late payment penalty begins. Field work begins in the School of Social Work. In-person registration in the Faculty of Law and the Faculty of Education.	December 20	Fall semester field work ends in Social Work.
September 4	Classes begin in Law and Education.	December 24 to January 1	University offices closed for Christmas recess.
September 16	Last day for late registration and change of course for Fall semester, day and evening.	<b>1992</b>	
September 18	Last day for late registration, Faculty of Law.	January 2	University offices reopen.
September 27	<i>Last day for oral defense of dissertations, theses and major papers for Fall Convocation.</i>	January 6	Winter semester classes begin. Field work begins in Social Work. Late payment penalty begins.
October 4	Last day to withdraw without a grade being assigned. <i>Last day to deposit dissertations, theses and major papers for Fall Convocation.</i>	January 17	Last day of registration and change of course for Winter semester courses, day and evening.
October 14	Thanksgiving Day (statutory holiday) (no classes).	January 31	Final day for application for admission to First-Year Law in September, 1992. In-person registration for January secondary school graduates entering February Session.
October 20	Fall Convocation	February 3	First day of classes in February Session.
November 29	Last day of classes except Faculty of Law.	February 7	Last day to file application for Spring graduation. Last day to withdraw without a grade being assigned for Winter semester courses. Last day of registration and change of course for February Session.
November 30	Fall semester examinations begin.	February 24 to 28	Study week for all faculties except Education.



### 31 CALENDAR OF THE ACADEMIC YEAR

February 28	Last day to withdraw without a grade being assigned for February Session courses.	May 13	Last day for late registration and change of course for Intersession, 12-week session and Summer Co-op.
March 2	Final day for application to Level 3 and the Make-up program in Social Work.	May 15	Last day to deposit dissertations, theses and major papers for Spring Convocation.
March 13	Deadline for recommending an external examiner for an oral defense on the last day for Spring Convocation.	May 18	Victoria Day (statutory holiday) (no classes).
April 10	Last day of classes, day and evening, for Winter semester in all faculties except Law and Education. Field work ends in the School of Social Work.	May 31 to June 7	Spring Convocation
April 11	Winter semester final examinations begin for all faculties except Law and Education.	June 19	Intersession classes end.
April 16	Last day of classes, Faculty of Law and February Session.	June 20	Intersession examinations begin.
April 17	Good Friday (statutory holiday).	June 26	Last day to file application for Fall graduation.
April 19	Easter Sunday.	July 1	Canada Day (statutory holiday).
April 20	Winter semester final examinations begin for Faculty of Law.	July 6	Summer Session begins. Late payment penalties begin for Summer Session. B.S.W. Make-up classes begin.
April 27 to May 1	Tutorial week and final evaluation, Faculty of Education.	July 8	Last day for Summer Session late registration and change of course.
May 8	Last day for oral defense of dissertations, theses and major papers for Spring Convocation.	August 3	Civic Holiday (statutory holiday) (no classes).
May 11	Intersession, 12-week session and Summer Co-op semester begin; late payment penalties begin.	August 14	Last day of classes for Summer Session and B.S.W. Make-up.
		August 15	Summer Session examinations begin.



## 1990

S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S			
<b>JANUARY</b>							<b>FEBRUARY</b>							<b>MARCH</b>							<b>APRIL</b>									
1	2	3	4	5	6					1	2	3					1	2	3				1	2	3	4	5	6	7	
7	8	9	10	11	12	13	4	5	6	7	8	9	10	4	5	6	7	8	9	10				8	9	10	11	12	13	14
14	15	16	17	18	19	20	11	12	13	14	15	16	17	11	12	13	14	15	16	17				15	16	17	18	19	20	21
21	22	23	24	25	26	27	18	19	20	21	22	23	24	18	19	20	21	22	23	24				22	23	24	25	26	27	28
28	29	30	31				25	26	27	28				25	26	27	28	29	30	31				29	30					
<b>MAY</b>							<b>JUNE</b>							<b>JULY</b>							<b>AUGUST</b>									
			1	2	3	4	5					1	2	1	2	3	4	5	6	7							1	2	3	4
6	7	8	9	10	11	12	3	4	5	6	7	8	9	8	9	10	11	12	13	14				5	6	7	8	9	10	11
13	14	15	16	17	18	19	10	11	12	13	14	15	16	15	16	17	18	19	20	21				12	13	14	15	16	17	18
20	21	22	23	24	25	26	17	18	19	20	21	22	23	22	23	24	25	26	27	28				19	20	21	22	23	24	25
27	28	29	30	31			24	25	26	27	28	29	30	29	30	31							26	27	28	29	30	31		
<b>SEPTEMBER</b>							<b>OCTOBER</b>							<b>NOVEMBER</b>							<b>DECEMBER</b>									
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## 1991

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## 1992

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## 32 GENERAL INFORMATION

### The University Library System

The University library system consists of the Leddy Library, housing the main collection, the Education Library, housed in the Faculty of Education building, the Paul Martin Law Library, an autonomous, associated library, and the Paul E. Vandall Map Library, housed in the Department of Geography. The principal objectives of the libraries are to develop collections in support of instructional and research programs, and to provide reference and information services to assist the university community in making maximum use of materials available. A policy of open access to the collections affords the reader opportunity to browse at leisure, or to exploit in depth the literature of a field of special interest.

Seating is available for 1,200 readers in a variety of general seating facilities, including open and closed carrels.

The collection contains 1,400,000 volumes of print material, 1,100,000 microform items and 300,000 government documents. About 8,000 current periodicals and serials are received, including important newspapers, both foreign and domestic. The library system has extensive collections of Canadian federal and provincial government documents and publications of major international organizations.

A complete range of photocopying, microform and audio-visual equipment is available.

The Library is implementing a state-of-the-art automated system which will provide online access to its collections.

### Computer Centre

The University Computer Centre has two IBM 4381 computers with 32 megabytes of memory. It has six tape drives: two 800/1600 BPI, one 1600 BPI, and three 1600/6250 BPI. There are ten IBM 3380 drives for on-line storage of 25,200 million bytes.

There is one card reader and three fast printers. The WYLBUR and CMS systems have approximately three hundred and fifty terminals attached. There are about one hundred addi-

tional terminals attached to the Administration Information Systems.

A number of programming languages and numerous program packages are available for the academic users. Some of these are FORTRAN, STRUCTURED WATFIV, COBOL, WATBOL, PL/I, PL/C, SNOBOL, RPG, ASSEMBLER, GPSS, SPSS, SAS, BMD, IMSL, SSP, MATLAN, CSMP, SYMAP, SYMVU, SURF, ICES, CLUSTAN, STATLAB, BALANOVA, MANOVA, GAUSHAUS, MARKEK, KWIC, OSIRIS.

The PDP 11/44 in the Faculty of Business Administration and the VAX 780 (with 100 terminals) are directly connected to an IBM 4381 computer in the Computer Centre so that jobs can be submitted to the main computer. IBM microcomputers also are available for students' use in the Computer Centre.

### Bookstore

For the convenience of students, the University maintains a Bookstore in the basement of the West Library Building (entrance off the Library Mall) where textbooks and supplies used in the various classes may be purchased.

Sundries and clothing are also available.

During the Fall and Winter semesters, the Bookstore will be open:

Monday, Tuesday, Wednesday, Friday:

8:30 a.m. to 4:30 p.m.

Thursday: 8:30 a.m. to 7:00 p.m.

During the first two weeks of classes in September, the Bookstore will be open:

Monday through Thursday:

8:30 a.m. to 8:00 p.m.

Friday: 8:30 a.m. to 4:30 p.m.

During the Summer, the Bookstore will be open:

Monday through Friday:

8:30 a.m. to 4:30 p.m.

For Intersession and Summer Session hours, contact the Bookstore.



## 32.1 Summary of Registration

### Fall 1989

Full-time	Men	Women	Total
Arts	401	730	1131
Dramatic Art	32	37	69
Visual Arts	59	59	118
Music	16	10	26
Musical Arts	16	22	38
Music Theatre	7	8	15
Social Science	1451	1546	2997
Public Administration	32	27	59
Social Work	35	251	286
Science	438	266	704
Computer Science	115	11	126
Nursing	14	313	327
Business Administration	1010	507	1517
Education	165	305	470
Engineering	375	28	403
Human Kinetics	185	135	320
Law	216	179	395
Graduate Studies	411	235	646
Full-time total	4978	4669	9647
Part-time Undergraduate	1427	3205	4632
Part-time Graduate	275	129	404
Summer	1702	2463	4165

### Session 1989

## 32.2 Student Services

### Residence Accommodation

The University residences house about one fifth of the student population. Residents come from many regions of Canada, the United States and overseas, giving the campus a cosmopolitan atmosphere. A sincere concern for scholarship prevails at the University of Windsor and residence living assists residents in making a smooth transition to university life.

Students interested in applying for residence accommodation may request information when applying for entrance to the University or apply directly to the Office of Residence Services. Residence tours can be arranged through the Office of Secondary School Liaison and off-campus housing information is available at the front desk of the University Centre.

The University of Windsor has seven residences, four on campus and three located on the perimeter of the campus.

*The Quad* is comprised of four halls, Cody, Laurier, Macdonald and Cartier. They are located on the south corner of the campus near the main food service outlet, Vanier Hall. Each residence houses undergraduate students in double rooms. Students may indicate a preference for co-ed residence in Cody or Cartier Halls, or male residence in Macdonald Hall and female residence in Laurier.

*Electa Hall* is located near the Faculty of Law and the Leddy Library. This co-ed residence houses graduate students. *Electa* is comprised of the "Annex", a dorm-style facility offering double rooms with a wash-basin, and the "Main," which offers split doubles and singles. Room assignments are done on points based on age, years in residence and course of study. Total points will determine the room type and size of single room assigned.

*Huron Hall* is located ten minutes from the heart of campus near the St. Denis Fieldhouse. This co-ed residence offers double rooms with private baths to undergraduate and graduate students entering their fourth and fifth year in residence at the University of Windsor.

*Tecumseh Hall* is situated next to *Huron Hall*. *Tecumseh* is an apartment-style residence. It offers the convenience of on-campus living with the benefits of an apartment. Each unit is furnished and contains a living room, kitchen, storage closet, bathroom and two, three or four bedrooms; linen and utensils are not supplied. When applying to *Tecumseh* students are required to apply in groups of four.

In September, 1990, a new (yet to be named), 224 bed apartment-style residence located



on Sunset Avenue at Walnut Street will open. Attractively-designed in Tudor-style houses, furnished apartment units will house groups of six, seven and eight students with single and double bedrooms, full kitchens, bathrooms, living, dining rooms, storage and balconies. A limited number of studio (single) and two-bedroom apartments are also available.

The Food Plan is compulsory in all residences with the exception of Tecumseh Hall.

For further information regarding the Residence or Food Plan please call Residence Services at (519) 253-4232, Ext. 3279 or 3280.

### **Conference Services**

Conference Services assists students, faculty and staff in workshops, luncheons, dances, receptions and banquets. All arrangements for meeting rooms and banquet rooms, liquor, food services and the physical set-ups are made through this office. Another service offered by Conference Services is summer accommodation to non-registered students, alumni and other visitors. Dormitory rooms and apartments are available.

For further information call 253-4232 Ext. 3276 or visit Room 19, Vanier Hall.

### **Food Services**

The University of Windsor takes great pride in the food services program. The management team offers a wide range of facilities, menus and services on a meal plan for resident students, and also offers an off-campus meal plan. The main cafeteria is in Vanier Hall which houses two large dining rooms and the Crocodile snack bar. The Mini Mart convenience store is also located in Vanier Hall. The Grand Marketplace, located in the University Centre, offers a number of specialty food presentations in a bright colourful dining area central to the university campus.

### **The University Centre**

The University Centre is a focal point of campus activity. On the main floor of the building, the Information Desk provides general cam-

pus information, processes student I.D. cards for all full- and part-time students and maintains an off-campus housing directory. The Grand Marketplace offers a complete variety of food items throughout the day.

In addition to a variety of meeting rooms that can be reserved by faculty, staff and students, the University Centre also houses offices of the Students' Administrative Council (SAC), the Graduate Student Society, Peer Counselling Centre, Women's Centre, the Organization of Part-time University Students (OPUS), Student Media Services, *The Lance* (student newspaper), CJAM (student radio), Centre Art Gallery, Digits (word processing centre), the "Lites 'N Levers" Games Room and the "Subway" Pub. While hours of operation for various areas and services within the building vary, the University Centre itself is open 24 hours a day, seven days a week, throughout the Fall and Winter semesters.

### **Graduate Student Society**

The Graduate Student Society serves as the consolidating body for the views of the post-graduate students. An interdisciplinary exchange encourages the gathering of graduate students from the various faculties for educational and social activities, making them aware of the full range of academic, cultural, and social opportunities available through the University. The Society sponsors lectures by specialists in various fields of graduate interest with the intention of promoting interdisciplinary awareness and understanding. The Graduate Student Society also offers assistance to students in their relations with units of the University.

## **32.3 Student Affairs**

### **Counselling**

To help in the achievement of fuller personal development of intelligent career choices, and of intellectual freedom and satisfaction within the challenging educational framework, the University provides students with counselling services commensurate



with their particular needs: educational, vocational, moral, and social.

#### *Academic Advising*

The Office of Student Affairs and the Academic Advisory Centre provide counselling regarding the University community and academic programs. The AAC specifically provides counselling services for students who have not declared a major, and students experiencing academic difficulties. Through the Headstart program the AAC also coordinates counselling sessions for all newly admitted first-year students.

#### *Financial Counselling*

Information regarding financial assistance, with particular reference to awards, bursaries, scholarships, emergency loans, the Ontario Student Assistance Program, and the Canada Student Loan Plan, may be obtained from the Student Awards Office. Graduate students should apply to the Graduate Studies Office.

#### *Religious Counselling*

Although the University is non-sectarian in its support of campus religious life, it is aware of the importance of ethical and moral influences in the development of the individual. Assumption University, Iona College, and Canterbury College are affiliated or federated parts of the University of Windsor and are committed to providing services for all the students of the University. Students, therefore, have access to the spiritual counsel of chaplains representing various denominations.

#### **International Students**

Assistance, advice and information regarding Immigration queries, orientation, general counselling, U.S. Visitor's Visas and referral services can be obtained at the International Students' Centre in Cody Hall and through the International Students' Advisor. The Centre provides a lounge for organizations' and clubs' functions and meetings, and houses the office of the International Students' Society (I.S.S.). For more information about the I.S.S., call 253-2900; for assistance from the International Students' Advisor, please visit the office or call 253-4232, Ext. 3901.

#### **Disabled Students**

The University of Windsor attempts to accommodate the particular needs of physically disabled students. Individual counseling prior to registration is strongly recommended and students are invited to contact the Office of Student Affairs at Ext. 3288 for an appointment.

#### **Medical Facilities**

*Medical Office:* The University maintains an office, staffed by full-time and part-time physicians and nurses, who will counsel, examine and advise students who have acute or chronic medical problems. In addition, they have a major interest in education and lifestyle choices, to help prevent later illness and to preserve optimum health throughout life. The medical office is located on the main floor of Cody Hall. Office. Hours are 0900 hrs. to 1700 hrs. daily, Monday to Friday.

*Health Insurance Plan:* The University does not assume responsibility for expenses incurred as a result of illness or injury. All students are strongly urged to establish and maintain health cost insurance protection with the Ontario Health Insurance Plan (OHIP). Coverage under parent's contract expires at age 21. Ontario students may be eligible for premium assistance depending on income. Those students without coverage will be charged for medical services. Hospitalization costs for those without coverage can be devastating. Application forms may be obtained from the University Medical Office (973-7002).

#### **Career Planning and Placement Centre**

Located on the first floor of Dillon Hall, the Centre assists students and alumni in the areas of career development and job placement. To provide resource materials for these two services, a career information centre is available to students seeking information on potential employers, occupational data, careers and job search techniques. Directories and employer files are available for research purposes prior to job interviewing.



Career-related programs and services are offered through workshops and counselling at no cost to the student and in the areas of career exploration, résumé writing, job search and job interview techniques.

In addition, the Career Planning and Placement Centre hosts over 100 employers representing the business, industry and government sectors who choose to interview graduating students on campus. Organizations which prefer to have graduates apply directly to them utilize the Centre's job boards, which usually contain hundreds of full-time, summer and part-time employment postings.

### Psychological Services Centre

Located at 326 and 336 Sunset Ave., the Centre provides confidential aid to students, staff and faculty members in dealing with crisis situations and periods of emotional duress, while at the same time promoting individual growth experiences. The staff includes one consulting psychologist, three clinical psychologists, four interns, and several graduate students from the Department of Psychology.

Methods of counselling can vary from individual sessions to group, family (or couple) therapy. The Centre also conducts workshops in such areas as personal growth or skill training, which includes issues of self-enhancement, assertiveness, and dealing with death and dying. Strict confidentiality is assured.

Appointments can be made in person or by calling either 973-7012 or 253-4232, Ext. 7012. Services are free to students.

The Psychological Services Centre is closed for the month of August for staff vacation.

## 33 Fee Regulations and Schedule

The University reserves the right to make changes without prior notice in the various fee schedules, as well as changes in rules and regulations and the revision or cancellation of particular courses and programs. The accep-

tance of fees does not necessarily imply approval of registration.

The following regulations apply to all students.

### 33.1.1 PAYMENT OF FEES

Fees are due and payable before the day regular semester classes begin. As a convenience, students may pay their tuition fees at any time prior to this day. It is the responsibility of the student to ensure that deadlines are met.

Cheques or other remittances must be made payable to the University of Windsor and must be received by the Cashier's Office prior to the day regular semester classes begin. The student's name, identification number, address and telephone number should be recorded in the upper portion of the form of the remittance to ensure that the records are properly credited.

Students may pay their fees at any branch of the Royal Bank of Canada in Ontario, using a remittance form available at the Cashier's Office. If a student has a grant and/or loan (e.g., OSAP), the loan must be assigned to the University to pay the fees.

Students who are unable to complete payment of fees by the prescribed due date must arrange a fee deferment. Deferments are permitted under the following circumstances:

- (a) if a student has evidence of having been awarded a Canada Student Loan or an Ontario Student Loan.
- (b) if a student has evidence of having been awarded a scholarship, bursary or similar award, which may be used to pay the fees. (Any known difference between the amount of the award and the fees must be paid on or before the first day of regular semester classes for the term.)

Students who are sponsored and require invoices to be sent for collection of fees must bring the appropriate documentation to the Cashier's Office.

*Note:* Registration is incomplete until the registration form has been signed and payment of fees or other fee arrangements have been made with the University.



**33.1.2 LATE PAYMENT CHARGES**

Full-time students who have not paid fees prior to the first day of regular semester classes will be assessed a late payment charge according to the following schedule:

For balances less than \$150.00	\$ 0.00
For balances from 150.01 to \$300.00	\$20.00
For balances from \$300.01 to \$600.00	\$30.00
For balances from \$600.01 to \$1,000.00	\$40.00
For balances from \$1,000.01 to \$2,000.00	\$50.00
For balances from \$2,000.01 to \$3,000.00	\$60.00
For balances over \$3,000.01	\$70.00

Students who have an outstanding account owing will be assessed an interest charge at a rate in excess of the bank prime rate beginning October 15 in the Fall semester and February 15 in the Winter semester, and approximately 15 days after the start of Intersession and Summer Session.

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

**33.1.3 NON-PAYMENT OF FEES AND CHARGES**

Information concerning academic results of any student who has an overdue debt owing to the University shall be withheld until the debt is settled.

Students who are graduating and who have an outstanding debt will be permitted to attend Convocation, but they will not receive their diplomas until all their debts are settled.

Any student who has an overdue debt owing to the University may not be permitted to re-register until the debt is settled.

Any student whose registration has been cancelled for default of payment is required to apply for reinstatement of registration at the Office of the Registrar. If the application is ap-

proved, a \$50.00 reinstatement fee is added to any other assessable charges.

Overdue accounts must be paid by cash, certified cheque, or money order.

Any student who has an unresolved grievance concerning fees or other charges may present an explanatory letter to the Supervisor, Cashier's Office, for transmission to the responsible University officer for consideration.

**33.1.4 INCOME TAX CERTIFICATE AND EDUCATION DEDUCTION CERTIFICATE (T2202)**

A special certificate in a form acceptable to Income Tax authorities is required in order that the student may claim tuition fees as a deduction for Income Tax purposes. This certificate will be mailed out in February 28 to all students whose accounts are paid in full by December 31.

*Note:* Student activity fees and other incidental fees are not allowable for tax purposes and consequently are not included in the certificate.

**33.1.5 SCHOLARSHIPS**

Scholarships and other awards made available by the University and paid to students through the Finance Office are usually credited to the student's account on the basis of one half payable in each semester. A cheque for any balance owing to the student will be available to the student at the Cashier's Office.

October 31—First Installment

February 28—Second Installment

**33.1.6 WITHDRAWAL AND REFUND POLICY**

Graduate students who, for any reason, wish to withdraw from the University must notify, in writing, the Office of Graduate Studies and Research, as otherwise resumption of graduate study at this University may be difficult or impossible.

Full-time undergraduate students who intend to withdraw completely from the University are required to undergo an interview and



complete the appropriate forms at the Office of Student Affairs.

Part-time undergraduate students who find it necessary to withdraw from a course or from the University entirely are required to notify the Registrar in person or by registered mail and to give their reasons for withdrawal.

Notice by telephone is not acceptable. Failure to attend classes does not constitute a withdrawal. Students withdrawing from regular courses during the periods indicated below will be assessed fees as indicated.

### WITHDRAWAL DURING

#### FALL OR WINTER

TERM	REFUND
Week(s) One and Two	Full Refund
Week(s) Three, Four and Five	Refund part of term fees
After Week Five	No Refund

Refunds resulting from complete withdrawals will be available no earlier than six weeks after the date of withdrawal. Refunds resulting from net course drops will be available only on request.

### 33.1.7 FREE TUITION FOR STUDENTS 60 YEARS OF AGE AND OVER

The University of Windsor offers an incentive of free tuition for students sixty years of age and over. It is felt that people in this group might wish to avail themselves of the University facilities, not only for degree purposes, but perhaps for personal enrichment and the fuller utilization of their leisure time. If you feel that your needs can be served according to this program, we encourage and invite you to contact the Division of Continuing Education. This applies to Canadian citizens only.

### 33.1.8 SCHEDULE OF FEES

The Board of Governors reserves the right to make changes without notice in the published scale of fees and charges if, in its opinion, circumstances so require. Any such changes will be reflected in the Fee Information sheets issued through the Cashier's Office before

registration. It is the responsibility of the student to obtain this information.

The schedule of fees changes each year. Contact the Cashier's Office for information on the current Schedule of Fees, which outlines tuition, activity, and other programs' specific fees.

The following miscellaneous fees and charges are payable as incurred:

Change of course	\$ 5.00
Overload course	Part-time tuition fee
Special and supplemental exam (per course)	
Regular time, on campus	\$10.00
Outside regular time, on campus	\$20.00
Off campus	\$40.00
Evaluation of documents	\$15.00
Transcript of record	\$ 3.00
Each additional copy (when ordered at the same time)	\$ 1.50
Duplicate Income Tax Certificate	
Current year	\$ 3.00
Previous years	\$ 5.00
Duplicate T2202	
Current year	\$ 3.00
Previous year	\$ 5.00
Late registration (full-time students)	\$30.00
Returned cheque charge	\$25.00
	per cheque
Registration reinstatement	\$50.00

For information regarding residences, meal plan, residence deposits, and refund policies, please contact the Office of the Associate Director of Student Services, Room 47, Vanier Hall, University of Windsor, Windsor Ontario, N9B 3P4.



## 34 GENERAL INDEX

- Accounting, 3.3.1
  - Administrative Studies, 3.3.2
  - Appeals, 1.4.4
  - Application Procedures, 1.3
    - Admission Levels, 1.3.3
    - Deferred Applications, 1.3.1
    - Documentation Required, 1.3.2
  - Art History *See* Visual Arts
  - Authorship and Plagiarism,
    - Policy on, 1.4.2
  - Awards and Financial Aid, 30
  - Biochemistry *See* Chemistry and Biochemistry
  - Biological Sciences
    - Course Descriptions, 2.3.1
    - Doctor of Philosophy, 2.2.1
    - Master of Science, 2.2.2
    - Officers of Instruction, 2.1.1
  - Business Administration
    - Accounting, 3.3.1
    - Administrative Studies, 3.3.2
    - Business Policy and Strategy, 3.3.6
    - Cooperative M.B.A. Program, 3.2.2
    - Finance, 3.3.3
    - Integrated M.B.A./LL.B. Program, 3.2.3
    - Management Science, 3.3.4
    - Marketing, 3.3.5
    - Master of Business Administration, 3.2.1
    - Officers of Instruction, 3.1.1
  - Calendar of the Academic Year, 31
  - Chemistry and Biochemistry
    - Doctoral Program in Clinical Chemistry, 4.2.2
    - Doctor of Philosophy, 4.2.1
    - Master of Science, 4.2.3
    - Master of Science (Clinical Chemistry), 4.2.4
    - Officers of Instruction, 4.1.1
    - Postdoctoral Diploma in Clinical Chemistry, 4.2.5
  - Civil and Environmental Engineering
    - Areas of Specialization, 10.2.1
    - Course Descriptions—Civil, 10.3.1
    - Course Descriptions—Environmental, 10.3.2
    - Officers of Instruction, 10.1.1
  - Clinical Chemistry *See* Chemistry and Biochemistry
  - Clinical Psychology *See* Psychology
  - Communication Studies
    - Course Descriptions, 5.3.1
    - Master of Arts, 5.2.1
    - Officers of Instruction, 5.1.1
  - Computer Science
    - Course Descriptions, 6.3.1
    - Master of Science, 6.2.1
    - Officers of Instruction, 6.1.1
  - Cooperative M.B.A. Program, 3.2.2
  - Creative Writing *See* English
  - Doctor of Philosophy, 1.5
    - Admission Requirements, 1.5.1
    - Dissertation, 1.5.3
    - Program Requirements, 1.5.2
  - Biological Sciences, 2.2.1
  - Chemistry and Biochemistry, 4.2.1
  - Clinical Chemistry, 4.2.2
  - Engineering, 9.1.1
  - Mathematics and Statistics, 21.2.1
  - Physics, 23.2.1
  - Psychology, 25.2.1
- Dropping Courses, 1.4.3
- Economics
  - Course Descriptions, 7.3.1
  - Master of Arts, 7.2.1
  - Officers of Instruction, 7.1.1
- Education
  - Course Descriptions, 8.3.1
  - Master of Education, 8.2.1
  - Officers of Instruction, 8.1.1
- Electrical Engineering
  - Areas of Specialization, 11.2.1
  - Course Descriptions, 11.3.1
  - Officers of Instruction, 11.1.1
- Engineering
  - Doctor of Philosophy, 9.1.1
  - Master of Applied Science, 9.1.2
  - Research in Outside Institutions, 9.1.3
  - See also* individual departments
- Engineering Materials
  - Areas of Specialization, 12.2.1
  - Course Descriptions, 12.3.1
  - Officers of Instruction, 12.1.1
- English
  - Course Descriptions, 16.3.1
  - Master of Arts, 16.2.1
  - Officers of Instruction, 16.1.1
- Environmental Engineering *See* Civil and Environmental Engineering
- Environmental Engineering
  - Course Descriptions, 10.3.2
- Examinations and Appeals, 1.4.4
- Fee Regulations and Schedule
  - Education Deduction Certificate, 33.1.



- Free Tuition for Students 60 and over, 33.1.7
- Income Tax Certificate, 33.1.4
- Late Payment Charges, 33.1.2
- Non-Payment, 33.1.3
- Payment of Fees, 33.1.1
- Schedule of Fees, 33.1.8
- Scholarships, 33.1.5
- Withdrawal and Refund Policy, 33.1.6
- Finance, 3.3.3
- Fine Art *See* Visual Arts
- Fluid Dynamics Research Institute, 1.7.2
- Free Tuition for Students 60 and Over, 33.1.7
- General Information
  - Summary of Registration, 32.1
  - Student Services, 32.2
  - Student Affairs, 32.3
- Geography
  - Course Descriptions—Geography, 17.3.1
  - Course Descriptions—Planning, 17.3.2
  - Master of Arts, 17.2.1
  - Officers of Instruction, 17.1.1
- Geological Engineering
  - Areas of Specialization, 13.2.1
  - Course Descriptions, 13.3.1
  - Officers of Instruction, 13.1.1
- Geology
  - Course Descriptions—Geological Engineering, 18.3.2
  - Course Descriptions—Geology, 18.3.1
  - Master of Science, 18.2.1
  - Officers of Instruction, 18.1.1
- Grading and Dropping Courses, 1.4.3
- Graduation, 1.4.5
- Great Lakes Institute, 1.7.1
- History
  - Course Descriptions, 19.3.1
  - Master of Arts, 19.2.1
  - Officers of Instruction, 19.1.1
- Income Tax Certificate, 33.1.4
- Industrial Engineering
  - Areas of Specialization, 14.2.1
  - Course Descriptions, 14.3.1
  - Officers of Instruction, 14.1.1
- Institute for International and Developmental Studies, 1.1
- Kinesiology
  - Course Descriptions, 20.3.1
  - Master of Human Kinetics, 20.2.1
  - Officers of Instruction, 20.1.1
- Late Payment Charges, 33.1.2
- Management Science, 3.3.4
- Marketing, 3.3.5
- Master of Applied Science, 8.1.2
- Master of Arts
  - Communication Studies, 5.2.1
  - Creative Writing, 16.2.1
  - Economics, 7.2.1
  - English, 16.2.1
  - Geography, 17.2.1
  - History, 19.2.1
  - Philosophy, 22.2.1
  - Political Science, 24.2.1
  - Psychology, 25.5.1
  - Religious Studies, 26.2.1
  - Sociology, 28.2.1
- Master of Business Administration, 3.2.1
- Master of Education, 7.2.1
- Master of Fine Arts, 29.2.1
- Master of Human Kinetics, 20.2.1
- Master of Science
  - Biological Sciences, 2.2.2
  - Chemistry, 4.2.3
  - Clinical Chemistry, 4.2.4
  - Computer Science, 6.2.1
  - Geology, 18.2.1
  - Mathematics and Statistics, 21.2.2
  - Physics, 23.2.2
- Master of Social Work, 27.2.1
- Master's Degree, 1.6
  - Admission Requirements, 1.6.1
  - Program Requirements, 1.6.2
  - Thesis or Major Paper, 1.6.3
- Mathematics and Statistics
  - Course Descriptions, 21.3.1
  - Doctor of Philosophy, 21.2.1
  - Master of Science, 21.2.2
  - Officers of Instruction, 21.1.1
- Mechanical Engineering
  - Areas of Specialization, 15.2.1
  - Course Descriptions, 15.3.1
  - Officers of Instruction, 15.1.1
- Non-Payment of Fees and Charges, 33.1.3
- Payment of Fees, 33.1.1
- Philosophy
  - Course Descriptions, 22.3.1
  - Master of Arts, 22.2.1
  - Officers of Instruction, 22.1.1
- Physics
  - Course Descriptions, 23.3.1
  - Doctor of Philosophy, 23.2.1
  - Master of Science, 23.2.2
  - Officers of Instruction, 23.1.1



- Plagiarism, Policy on
  - Authorship and, 1.4.2
- Planning *See* Geography
  - Course Descriptions, 17.3.2
- Political Science
  - Course Descriptions, 24.3.1
  - Master of Arts, 24.2.1
  - Officers of Instruction, 24.1.1
- Programs Offered
  - Doctor of Philosophy, 1.5
  - Master's, 1.6
  - See also* individual departments
- Psychology
  - Course Descriptions, 25.3.1
  - Doctor of Philosophy, 25.2.1
  - Master of Arts, 25.2.2
  - Officers of Instruction, 25.1.1
  - Postdoctoral Certification in Adult Clinical Psychology, 25.2.3
- Postdoctoral Programs
  - Adult Clinical Psychology, 25.2.3
  - Clinical Chemistry, 4.2.5
- Postgraduate Awards, 30
- Registration, 1.4.1
- Regulations
  - Appeals, 1.4.4
  - Authorship and Plagiarism, Policy on, 1.4.2
  - Dropping Courses, 1.4.3
  - Examinations, 1.4.4
  - Grading, 1.4.3
  - Graduation, 1.4.5
  - Registration, 1.4.1
- Religious Studies
  - Course Descriptions, 26.3.1
- Master of Arts, 26.2.1
- Officers of Instruction, 26.1.1
- Research Institutes
  - Fluid Dynamics Research Institute, 1.7.2
  - Great Lakes Institute, 1.7.1
  - Institute for International and Developmental Studies, 1.1
- Residence Accommodation
  - See* Student Services, 32.2
- Schedule of Fees, 33.1.8
- Scholarships, 33.1.6
  - See also* Awards and Financial Aid
- Social Work
  - Course Descriptions, 27.3.1
  - Master of Social Work, 27.2.1
  - Officers of Instruction, 27.1.1
- Sociology
  - Course Descriptions, 28.3.1
  - Master of Arts, 28.2.1
  - Officers of Instruction, 28.1.1
- Statistics *See* Mathematics and Statistics
- Structure of the Faculty
  - Committee Membership, 1.1.3
  - Graduate Council, 1.1.2
  - Officers of Administration, 1.1.1
  - Research Board, 1.1.4
- Student Affairs, 32.3
- Student Services, 32.2
- Visual Arts
  - Course Descriptions, 29.3.1
  - Master of Fine Arts, 29.2.1
  - Officers of Instruction, 29.1.1
- Withdrawal and Refund Policy, 33.1.6



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