

Faculty of Graduate Studies and Research

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Please note

- (1) Students are responsible for the completeness and accuracy of their application and registration. Please read the Calendar carefully. If you are in doubt about the regulations pertaining to your graduate program, consult the appropriate University official.
- (2) The University of Alberta Calendar will be made available to every graduate student at or before registration.
- (3) Both the University Calendar and the Calendar of the Faculty of Graduate Studies and Research (also referred to as FGSR) set forth the intention of the University of Alberta at the time of publication with respect to all matters contained therein. **The University reserves the right at any time to deviate from what appears in the Calendar**, either in order to serve the best interests of the University, or because of circumstances or occurrences beyond the University's reasonable control. The University expressly denies responsibility or liability to any person or persons who may suffer loss or who may be otherwise adversely affected by such change.
- (4) University deadlines are set out in the Academic Schedule. Please note that graduate student deadlines may differ from undergraduate student deadlines.

Responsibilities Related to Graduate Programs

- (1) **The Student:** Graduate students are ultimately responsible for their own programs. They are expected to read the Calendar and any other relevant documents to become familiar with all regulations and deadlines relating to their programs. The students' fundamental responsibilities include ensuring that their registration is accurate and does not lapse, submitting appropriate forms to the department for signature and processing, and paying all fees required by the deadline dates set out in the Calendar.
- (2) **The Supervisor and Supervisory Committee:** The supervisor is directly responsible for the supervision of the student's program. In this capacity, the supervisor assists the student in planning a program; assists in ensuring that the student is aware of all program requirements, degree regulations, and general regulations of the department and the FGSR; provides counsel on all aspects of the program; and stays informed of the student's research activities and progress. The supervisor is also charged with ensuring that students conduct their research in a manner that is as effective, safe, and productive as is possible. The supervisor must prepare a program of studies for the student; arrange for and attend all supervisory committee meetings and the candidate's examinations, ensuring that these are scheduled and held in accordance with FGSR regulations; and must review the thesis both in draft and in final form.
- (3) **The Department*:** The department oversees the supervision of all graduate students enrolled in its programs and serves as the chief liaison with the FGSR. It is responsible for ensuring that the student receives proper supervision and that the regulations and requirements of the FGSR are met. The department is responsible for recommending and keeping the FGSR informed of any development in or changes relating to the student's program, including the appointment of the supervisor and supervisory committee members (where applicable) and changes to that membership, change of student status, course and program changes, scheduling of examination dates, etc. The department's Graduate Coordinator is the official representative of the department to its graduate students.

***Note:** The term "Department" applies both to a Department and to a non-departmentalized Faculty; as well as to an extra-departmental graduate program (PhD in Medical Sciences and MBA). The term "Department" also refers to the Chair, Graduate Coordinator, Director, or any other individuals officially designated responsible for graduate programs.

- (4) **The Faculty of Graduate Studies and Research Office (FGSR):** The FGSR Office is responsible for the general administration of graduate programs, from the admission and registration of graduate students through to convocation. The office houses documentation related to application, admission, programs, course grades, examinations, awards, and theses. It is ultimately responsible for the admission of students; for the setting of minimum entrance requirements and minimum academic standing requirements, and for ensuring that these are met; for approving all changes to students' programs and the appointment of supervisors, supervisory committees and examining committees; and for submitting to the Council of the Faculty of Graduate Studies and Research for approval of changes affecting policy, general and degree regulations, and so on.
- (5) **Guidelines for Supervisors and Graduate Students**
 - a. Guidelines for Supervisors

The Supervisor, with the support of the home department, should

 - 1) provide an environment for the student that is conducive to research and in which the student can grow intellectually;
 - 2) provide appropriate guidance to the student on the nature of research and the standard expected, and be accessible to give advice and constructive criticism; at the beginning of the supervisory relationship, the student should be made aware of the normal expectations held by the supervisor and the department;
 - 3) with the student establish a realistic timetable for completion of various phases of the program;
 - 4) consider a graduate student as a "junior colleague in research;"
 - 5) ensure that there are sufficient material and supervisory resources for each graduate student under supervision;
 - 6) work with the student to establish the supervisory committee as soon as possible after the start of the program and ensure that it maintains contact and formally meets at least once a year with the student;
 - 7) when going on leave or an extended period of absence, ensure that the student is adequately supervised by the provision of an acting supervisor (who should be a member of the supervisory committee);
 - 8) ensure that the student is aware of his/her guidelines (as listed below) and, when necessary, assist the student in meeting these;
 - 9) set up committee meetings and examinations after consultation and with full knowledge of the student.
 - b. Guidelines for Graduate Students

Graduate students should

 - 1) make themselves aware of the contents of the graduate portions of the Calendar and take responsibility for their own programs in that the Calendar sets out the requirements for the various programs;
 - 2) maintain open communication with their supervisor and Graduate Coordinator concerning any problem either real or perceived;
 - 3) inform the supervisor regularly about progress, and provide the supervisor with an annual report for distribution to the supervisory committee;
 - 4) make research results accessible (beyond their appearance in a thesis) to an appropriate audience;
 - 5) be aware of deadlines for possible scholarship applications and to seek advice and assistance from the department in making applications.

171 Members of the Faculty

Officers of the Faculty

Dean

MRT Dale, PhD

Associate Deans

T Davis, PhD

LMO McDonald, PhD

PM Steffler, PhD

Administrative Officer

HM Hogg, BA

Council of the Faculty of Graduate Studies and Research

The Council of the Faculty of Graduate Studies and Research is composed of the officers listed above plus other members appointed to it by General Faculties Council.

President and Vice-Chancellor

RD Fraser, PhD

Vice-President (Research and External Affairs)

RS Smith, PhD

Chair, Faculty of Graduate Studies and Research

Academic Appeals Committee

RK Jackson, PhD

Departmental Representatives

J Kennelly, PhD, Agricultural, Food, and Nutritional Sciences

O Beattie, PhD, Anthropology

D Rochfort, PhD, Art and Design

R McElhane, PhD, Biochemistry

JL Goldberg, PhD, Biological Sciences

RE Snyder, PhD, Biomedical Engineering

K Devine, PhD, Business (MBA program)

M Gibbins, PhD, Business (PhD program)

P Melancon, PhD, Cell Biology and Anatomy

PA Mees, PhD, Chemical and Materials Engineering

FF Cantwell, PhD, Chemistry

SDB Alexander, PhD, Civil and Environmental Engineering

M Bortolussi, PhD, Comparative Literature, Religion, and Film/Media Studies

P Gburzynski, PhD, Computing Science

L Livingstone, MFA, Drama

EL Jackson, PhD, Earth and Atmospheric Sciences

J Brown, PhD, East Asian Studies

D Young, PhD, Economics

S Norris, PhD, Educational Policy Studies

L McDonald, PhD, Educational Psychology

R Fedosejevs, PhD, Electrical and Computer Engineering

RK Jackson, PhD, Elementary Education

GD Burger, PhD, English

Y d'Entremont, PhD, Faculté Saint-Jean

MJ Stewart, PhD, Health Promotion Studies

RC Macleod, PhD, History and Classics

J Fast, PhD, Human Ecology

K Solez, PhD, Laboratory Medicine and Pathology

L Reif, LL.M., Law

H Olson, PhD, Library and Information Studies

GD Prideaux, PhD, Linguistics

G Swaters, Mathematical Sciences

LW Sigurdson, PhD, Mechanical Engineering

MA Walter, PhD, Medical Genetics

RT Irvin, PhD, Medical Microbiology and Immunology

L McGann, PhD, Medicine

O Ilnytzkyj, PhD, Modern Languages and Comparative Studies

M Giesbrecht, DMus, Music

SMJ Dunn, PhD, Neuroscience

P Giovannetti, PhD, Nursing

HM Madill, PhD, Occupational Therapy

ARE Shaw, PhD, Oncology

D Pehowich, PhD, Oral Health Sciences

G Lopaschuk, PhD, Paediatrics

WP Gati, PhD, Pharmacology

LI Wiebe, PhD, Pharmacy and Pharmaceutical Sciences

WD Sharp, PhD, Philosophy

J Watkinson, PhD, Physical Education and Recreation

J Yang, PhD, Physical Therapy

N Rodning, PhD, Physics

CG Benishen, PhD, Physiology

D Whitson, PhD, Political Science

AJ Greenshaw, PhD, Psychiatry

G Bisanz, PhD, Psychology

KS Bay, PhD, Public Health Sciences

LJ Filipow, PhD, Radiology and Diagnostic Imaging

A Rochet, PhD, Rehabilitation Medicine

PH Crown, PhD, Renewable Resources

SR Jeffrey, PhD, Rural Economy

W Brouwer, PhD, Secondary Education

J Golec, PhD, Sociology

P Hagler, PhD, Speech Pathology and Audiology

RV Rajotte, PhD, Surgery

Graduate Student Representatives

K Speers, President

S Negi, Vice-President

Academic

J Harris, Executive

Vice-President

J Acker, Laboratory Medicine and Pathology

A Antoniu, Electrical and Computer Engineering

J Blanchette, Educational Policy Studies

A Caputo, Educational Psychology

B Cherwick, Modern Languages and Cultural Studies

H Fraser, Pharmacology

M Judd, Anthropology

A Junghanns, Computing Science

M Koene, Political Science

L Kung, Medical Microbiology and Immunology

P Lesetar, Linguistics

R Little, Biological Sciences

M Modayil, Public Health Sciences

O Molle, Library and Information Studies

S Moore, Medical Genetics

C Otto, Biological Sciences

S Peppin, Chemical and Materials Engineering

C Perrier, Human Ecology

K Stewart, Physiology

C Wilson, Oral Health Sciences

The University of Alberta reserves the right to change, without prior notice, the information contained in this publication, including the alteration of fees and schedules and the revision or cancellation of courses.

Faculty of Graduate Studies and Research University of Alberta Directory

Academic Matters:

MRT Dale, Dean

T Davis, Associate Dean

LMO McDonald, Associate Dean

PM Steffler, Associate Dean

HM Hogg, Administrative Officer

Admissions, Registration Records, Convocation, Graduate Awards:

Faculty of Graduate Studies and Research, 105 Administration Building

Telephone: (780) 492-3499

Fax: (780) 492-0692

E-mail: grad.mail@ualberta.ca

Web Site: <http://www.ualberta.ca/~graduate/graduate.html>

Change of Faculty, Interest and Aptitude Tests,

Personal Problems, Unsatisfactory Standing,

Vocation Planning, Withdrawal from the University:

Student Counselling Services, 2-600 Students' Union Building, 492-5205

Examinations:

Office of the Registrar and Student Awards, Administration Building, 492-5221

Fee Payments:

Financial Services, 3rd Floor, Administration Building, 492-3389

Native Student Services:

Office of the Advisor on Native Student Services, 2-400 Students' Union Building, 492-5677

Applications, Programs, and Course Content:

The appropriate department

University Student Services:

Office of the Dean of Students, 2-800 Students' Union Building, 492-4145

Transcripts:

Office of the Registrar and Student Awards, Administration Building, 492-3113

University Residence and Other Housing:

Director, Housing and Food Services, 44 Lister Hall, 492-4281

The above addresses should contain the suffix University of Alberta Edmonton, Alberta, T6G 2E2.

172 General Information

172.1 Graduate Programs Offered

Graduate work has been offered at the University of Alberta since its inception in 1908. The present organization of the Faculty of Graduate Studies and Research, headed by a Dean, was adopted in 1957.

The Faculty of Graduate Studies and Research office is primarily responsible for the general administration of graduate programs. Officers of the Faculty, in conjunction with the Faculty Council, develop and implement

appropriate regulations and operating procedures. In its administrative capacity, the Faculty of Graduate Studies and Research is responsible for approving applications for admission and programs of study, for certifying the satisfactory completion of each student's program prior to graduation, for maintaining the academic records of all students registered in the Faculty, and administering the graduate awards program. The Faculty also coordinates in whole or in part some functions involving several faculties.

Two categories of graduate degree programs are offered at the University of Alberta—doctoral and master's. The specific programs offered in each category are listed below. In addition, the Faculty offers a few postgraduate diploma programs designed to provide an opportunity for individuals to take a sequence of courses to increase their knowledge of a specialized area without needing to enrol in a degree program.

Graduate Studies Chart 1 Graduate Degrees

Agricultural, Food, and Nutritional Science MSc (Thesis) MAg, MEng (Course Based) PhD	Drama MFA, MA (Thesis)	Law LLM (Thesis)
Anthropology MA (Thesis) PhD	Earth and Atmospheric Sciences MA, MSc (Thesis) PhD	Library and Information Studies MLIS (Thesis) MLIS (Course Based)
Art and Design MA, MDes, MFA (Thesis)	East Asian Studies MA (Thesis)	Linguistics MSc (Thesis) MSc (Course Based) PhD
Biochemistry MSc (Thesis) PhD	Economics MA (Thesis) MA (Course Based) PhD	Mathematical Sciences MSc (Thesis) MSc (Course Based) PhD
Biological Sciences MSc (Thesis) PhD	Educational Policy Studies MEd (Thesis) MEd (Course Based) EdD, PhD	Mechanical Engineering MSc (Thesis) MEng (Course Based) PhD
Biomedical Engineering MSc (Thesis) PhD (See Note 1)	Educational Psychology MEd (Thesis) MEd (Course Based) PhD	Medical Genetics MSc (Thesis) (See Note 2) PhD (See Note 1)
Business MBA (Thesis) MBA, MBA-LLB, MBA-MAg, MBA-MEng, MBA-MF (Course Based) PhD, MBA-PhD	Electrical and Computer Engineering MSc (Thesis) MEng (Course Based) PhD	Medical Microbiology and Immunology MSc (Thesis) PhD
Cell Biology and Anatomy MSc (Thesis) PhD	Elementary Education MEd (Thesis) MEd (Course Based) EdD, PhD	Medical Sciences MSc (Thesis) PhD
Chemical and Materials Engineering MSc (Thesis) MEng (Course Based) PhD	English MA (Thesis) MA (Course Based) PhD	Medicine MSc (Thesis) PhD (See Note 1)
Chemistry MSc (Thesis) PhD	Etudes en Langue et Culture (Faculté Saint-Jean) MEd (Thesis) MEd (Course Based)	Modern Languages and Cultural Studies MA (Thesis) MA (Course Based) PhD
Civil and Environmental Engineering MSc (Thesis) MEng (Course Based) PhD	Health Promotion Studies MSc (Thesis)	Music MMus, MA (Thesis) DMus, PhD
Comparative Literature, Religion, and Film/Media Studies MA (Thesis) MA (Course Based) PhD	History and Classics MA (Thesis) MA (Course Based) PhD	Neuroscience MSc (Thesis) PhD
Computing Science MSc (Thesis) MSc (Course Based) PhD	Human Ecology MA, MSc (Thesis) MA, MSc (Course Based)	Nursing MN (Thesis) MN (Course Based) PhD
	Laboratory Medicine and Pathology MSc (Thesis) PhD (See Note 1)	Occupational Therapy MSc (Thesis) MSc (Course Based) PhD (See Note 3)

Notes

- (1) Offered as part of the PhD in Medical Sciences interdisciplinary program.
- (2) This Department participates in offering an MSc degree through the Medical Sciences program.
- (3) Offered as part of the PhD in Rehabilitation Science.
- (4) Subject to approval.

Graduate Studies Chart 1 Graduate Degrees (cont'd)

<p>Oncology MSc (Thesis) (See Note 2) PhD (See Note 1)</p>	<p>Physical Therapy MSc (Thesis) PhD (See Note 3)</p>	<p>Rehabilitation Science PhD</p>
<p>Ophthalmology MSc (Thesis) (See Note 2) PhD (See Note 1)</p>	<p>Physics MSc (Thesis) MSc (Course Based) PhD</p>	<p>Renewable Resources MSc (Thesis) MAG, MF, MBA-MF, MBA-MAg (Course Based) PhD</p>
<p>Oral Health Sciences MSc (Thesis) (See Note 2), MSc in Orthodontics (Thesis) PhD (See Note 1)</p>	<p>Physiology MSc (Thesis) PhD</p>	<p>Rural Economy MSc (Thesis) MAG, MBA-MAg (Course Based) PhD</p>
<p>Paediatrics MSc (Thesis) PhD (See Note 1)</p>	<p>Political Science MA (Thesis) MA (Course Based) PhD</p>	<p>Secondary Education MEd (Thesis) MEd (Course Based) EdD, PhD</p>
<p>Pharmacology MSc (Thesis) PhD</p>	<p>Psychiatry MSc (Thesis) PhD (See Note 1)</p>	<p>Sociology MA (Thesis) MA (Course Based) PhD</p>
<p>Pharmacy and Pharmaceutical Sciences MSc (Thesis) MPharm (Course Based) PhD</p>	<p>Psychology MA, MSc (Thesis) PhD</p>	<p>Speech Pathology and Audiology MSc (Thesis) MSLP (Course Based) PhD (See Note 3)</p>
<p>Philosophy MA (Thesis) PhD</p>	<p>Public Health Sciences MPH (Thesis), MSc (Thesis) (See Note 2) MPH (Course Based) PhD (See Note 1)</p>	<p>Surgery MSc (Thesis) PhD</p>
<p>Physical Education and Recreation MA, MSc (Thesis) MA (Course Based) PhD</p>	<p>Radiology and Diagnostic Imaging MSc (Thesis) PhD (See Note 1)</p>	
<p>Notes (1) Offered as part of the PhD in Medical Sciences interdisciplinary program. (2) This Department participates in offering an MSc degree through the Medical Sciences program. (3) Offered as part of the PhD in Rehabilitation Science. (4) Subject to approval.</p>		

172.2 Information for Foreign Students

Foreign students (i.e., neither Canadian citizens nor permanent residents) studying in Canada require a Student Authorization from Employment and Immigration Canada. Some students will also require a visa. Student Authorizations and Visas must be obtained before coming to Canada—they cannot be issued here.

While it is not possible to obtain a Student Authorization until an official letter of admission from the Faculty of Graduate Studies and Research has been issued, students are advised to begin the procedures necessary to secure admission to Canada and to complete the documentation required by the Canada Employment and Immigration Commission as soon as possible after submitting an Application for Graduate Admission. Information on immigration regulations is available from Canadian embassies, high commissions and British consular offices. Immigration officials in these offices will be able to give advice and help.

The Faculty of Graduate Studies and Research Application for Graduate Admission form also contains information of interest to foreign applicants. On acceptance to the University of Alberta, a pamphlet entitled *Preparing for Your Studies in Canada* is sent to students along with their official admission letter. The International Centre conducts orientation seminars and assists students after they arrive in Canada.

172.3 Fees

The University of Alberta's fees policies and procedures are discussed in §22.2 of the Calendar. Information related specifically to fees for graduate students is found in §22.2.2. Individuals seeking fees information should consult these sections.

173 Regulations of the Faculty of Graduate Studies and Research

The general Faculty regulations outlined below apply to all graduate students. Faculty regulations specific to particular degree programs are found under the appropriate program heading in §175.

173.1 Application

The University of Alberta may at its discretion refuse admission to any applicant.

All documents submitted to the Faculty of Graduate Studies and Research must be in English and (where applicable) in the original language in which they were written. Documents submitted in support of an application become the property of the Faculty of Graduate Studies and Research and will not subsequently be released or copied except to other University of Alberta offices.

Letters of recommendation are considered to be confidential. Students may be permitted to look at the contents of their files in the Faculty of Graduate Studies and Research except for their letters of recommendation.

At the students' request documents in their file will be made accessible to certain university officials. The Faculty of Graduate Studies and Research will release photocopies regarding a student's previous education where the information is needed for scholarship purposes for attendance at the University of Alberta.

Application for admission to the Faculty of Graduate Studies and Research must be made directly to the department in which the student wishes to

pursue a program of studies. Applicants must use the official Faculty of Graduate Studies and Research application for admission form provided to them by the department.

Application deadlines are set by many departments. Applicants should consult the department for deadline dates. Students are encouraged to make contacts and enquiries well in advance of any department admission deadline to maximize consideration for admission. Completed applications for admission and supporting documents from foreign students should reach departmental offices well in advance of the following deadline dates so that immigration authorizations can be obtained in time for arrival prior to the commencement of the term.

Deadlines for foreign admissions are: July 1 for September admission; November 1 for January admission; March 1 for May admission; and May 1 for July admission. These are the dates by which a completed foreign student application file with a departmental recommendation must be received in the Faculty of Graduate Studies and Research. Since departments may set earlier deadlines for application documents to be received in their offices, applicants should consult the department.

An applicant must arrange to have forwarded direct to the department concerned official or certified true transcripts or marksheets and degree certificates from all institutions attended other than the University of Alberta. The Faculty of Graduate Studies and Research or the department may require the applicant to furnish an official description of the content of any or all courses listed on the transcripts. Letters of recommendation and other documents may also be required. Applicants should refer to the information attached to the application for admission forms and consult the department prior to applying.

Application documents are compiled and reviewed by the department, which makes a recommendation for admission to the Faculty of Graduate Studies and Research as to the student's admissibility according to departmental standards. A final assessment is done and a decision regarding a recommendation for admission is reached by the Faculty of Graduate Studies and Research. Successful applicants are notified as soon as possible of the Faculty of Graduate Studies and Research's decision regarding their admission. Applicants who are unsuccessful will be notified by the department.

Admission to the Faculty of Graduate Studies and Research is valid only for the term indicated. If circumstances prevent a student from registering for that session the Faculty of Graduate Studies and Research reserves the right to reconsider the application for admission.

173.2 Admission

Individuals seeking admission should review the University of Alberta Code of Applicant Behavior located in §27.

The minimum requirements for admission to the Faculty of Graduate Studies and Research are outlined below. Some departments impose additional admission requirements. Even though an applicant may appear to satisfy the general admission requirements, acceptance into a graduate program is not guaranteed.

173.2.1 Academic Requirements

(1) Applicants to the Faculty of Graduate Studies and Research must have obtained a University of Alberta baccalaureate degree or its academic equivalent from this or another recognized academic institution. The grade point average obtained during the last 60 units of course weight (★60) of undergraduate (or graduate) study must be at least 6.5* on the 9-point grading scale used at the University of Alberta or an equivalent standing from another recognized institution (see below). When it is not possible to evaluate a ★60 grade point average or equivalent, the evaluation will be based on the overall coursework completed for the degree(s). Failing marks and reexamination marks are included in the GPA calculation. Individual departments may require a higher average. Consult the appropriate departmental information in §175.

Some departments recommend students as candidates for the course-based master's degree with three-year baccalaureate degrees. However, these are course-based master's programs where the program requirements include at least ★30 in excess of the Faculty of Graduate Studies and Research minimum course requirement of ★24.

Applicants will not be admissible to a doctoral degree program at the University of Alberta if they have previously obtained a similar or identical degree.

Equivalent Qualifications

Grading systems differ widely in various countries. Experience with these systems over the years indicates that to give reasonable assurance

of success in a graduate program at the University of Alberta, applicants must have an academic background at least equal to one of the equivalent qualifications below:

Canada and USA – GPA of 6.5 out of a possible 9.0 on the University of Alberta marking system, or 3.0 on most 4-point systems, or 72%, or a B (second class) standing, or equivalent in the work of the last two full years of previous degrees.

Egypt – Honors degree with a standing of at least Very Good (80%).

India, Pakistan, and Bangladesh – First class or first division bachelor's and master's degrees.

Japan – 2.3 out of 3 or 3 out of 4.

People's Republic of China – 80% or 4 out of 5.

Taiwan – A average (usually 80% or better).

United Kingdom, Australia, New Zealand and other Commonwealth countries whose university systems follow that of Great Britain – Upper second class honors degree.

(2) Applicants must be recommended for admission to the Faculty of Graduate Studies and Research by the department to which they are applying, indicating that the applicant is in all respects acceptable to the department.

173.2.2 Aboriginal Applicants

The Faculty of Graduate Studies and Research is committed to the development of a University environment which encourages honor and respect for Aboriginal communities, in recognition of their unique position as descendants of the First Peoples Nation and the spirit and intent of their relationships in Canada.

Students of Aboriginal ancestry, within the meaning of the Constitution Act, 1982, section 35(2), are strongly encouraged to apply for admission. The Faculty of Graduate Studies and Research has developed a series of recruitment and retention initiatives to enhance the learning experiences of Aboriginal students on the campus.

In accordance with the Faculty of Graduate Studies and Research admission policy, Aboriginal students may be considered for admission on the basis of their life experience. The Faculty of Graduate Studies and Research advocates the admission of Aboriginal applicants by individual departments.

173.2.3 English Language Requirement

Since English is the primary language of instruction and communication at the University of Alberta, proficiency in English is a prerequisite for graduate admission.

All applicants will be required to demonstrate English language proficiency prior to admission. This demonstration may take one of several forms:

- (1) Possession of a baccalaureate degree or its academic equivalent from an academic institution recognized by the University of Alberta, in which the language of instruction is English. It is the responsibility of the applicant to present satisfactory evidence that the baccalaureate instruction was provided in English.
- (2) A satisfactory score on an approved English language examination as described below.

Notwithstanding the above, departments and the Faculty of Graduate Studies and Research reserve the right to require a demonstration of English language proficiency.

The Faculty of Graduate Studies and Research recognizes three English language examinations – the Test of English as a Foreign Language (TOEFL), the Michigan English Language Assessment Battery (MELAB), and the International English Language Testing System (IELTS).

All applicants who are required to write the English language examination are advised to do so at an early date because a satisfactory score is required before the Faculty of Graduate Studies and Research will issue an official admission approval letter. The minimum acceptable score is 550 (paper-based) or 213 (computer-based) on the TOEFL, 85 on the MELAB, and a minimum overall band score of 6.5, with at least 5 on each test band, on the IELTS. Applicants should arrange for their English language test results to be sent direct to the department.

These are minimum scores acceptable for admission to the Faculty of Graduate Studies and Research. Individual departments may require higher scores. Consult the appropriate departmental information in §175.

173.2.4 University of Alberta Staff as Graduate Students

University of Alberta staff may be recommended and considered for admission to graduate programs provided the Faculty of Graduate Studies and Research has reviewed the case and established that conflict of interest between the candidate's role as staff member and as graduate student will be absent or minimal. University of Alberta staff may not be full-time graduate students and full-time staff at the same time.

Guidelines are available from the Faculty of Graduate Studies and Research. Any department wishing to recommend admission of a University staff member to a graduate program should first consult with the Faculty of Graduate Studies and Research.

173.3 Registration

Students are responsible for the completeness and accuracy of their registration. They are also responsible for adjustments in registration.

173.3.1 Maintenance of Registration

Course-based Programs: Students in course-based degree programs must register in coursework or in M REG 800 Maintaining Registration for at least one term in each September to August period to keep the program active. Other registration patterns for students in exceptional circumstances will be considered by the Faculty of Graduate Studies and Research.

Thesis-based Programs: In order to keep their program active, students registered in thesis-based master's and doctoral programs must register each year in coursework and/or Thesis, or in M REG 800 Maintaining Registration for both terms of Fall/Winter (September to April), except at the end of the program as described in §173.3.3. Students who have registered in Fall/Winter and are working only on thesis research during May to August do not need to register separately for that period. See §173.3.5 for registration procedures. Other registration patterns for students in exceptional circumstances will be considered by the Faculty of Graduate Studies and Research.

Students who fail to keep the program active as described above will be considered to have withdrawn from their program. If they wish to resume work on the program they must apply for readmission and have their program reassessed in terms of the regulations in force at the time of reapplication. There is no guarantee for readmission. If a student is recommended for readmission, a readmission fee will be charged in addition to the fees assessed in the usual manner.

173.3.2 Minimum Units of Course Weight Registration Requirements and Fee Assessments for Thesis-Based Programs

Thesis-Based Master's Programs: Over the duration of their program students in thesis-based master's programs must register in and be assessed fees for a minimum of ★24, which may consist of a combination of courses and thesis research. Notwithstanding the above, students are required to fulfil the department's thesis-based program requirements as approved by Faculty of Graduate Studies and Research Council and as stated in the department's graduate program requirements §175 of the Calendar.

Course-Based Master's Program: Over the duration of their program students in course-based master's programs must register in and be assessed fees for a minimum of ★24. This is minimum requirement; students are required to fulfill the department's program requirements that for most departments are higher than the minimum ★24.

Doctoral Programs: Over the duration of their program students in a doctoral program must register in and be assessed fees for a minimum of ★36, which may consist of a combination of coursework (where required) and thesis research. Notwithstanding the above, students are required to fulfill the department's doctoral program requirements as approved by the Faculty of Graduate Studies and Research Council and as stated in the department's graduate program requirements §175 of the Calendar.

173.3.3 Registration at the End of Programs

Course-Based Programs: When a student in a course-based master's program completes all of the coursework and other required assignments and the department submits a Notice of Final Completion for Course-Based Master's Degree to the Faculty of Graduate Studies and Research, the student's name will be placed onto the list for the next available convocation.

Thesis-Based Programs: Students in thesis-based master's and doctoral programs must register in Thesis during the registration period in which the

thesis and accompanying evidence of program completion is submitted to the Faculty of Graduate Studies and Research. This enables the Faculty of Graduate Studies and Research to award credit for the thesis at that time. If the thesis is submitted to the Faculty of Graduate Studies and Research during September-December, the student must be registered for Fall Term and does not need to register in second term. If the thesis is submitted to the Faculty of Graduate Studies and Research during January-April, the student must be registered for the full Fall/Winter. If the thesis is submitted to the Faculty of Graduate Studies and Research during May-August the student must be registered for the full Fall/Winter immediately preceding. Thesis-based programs are not recorded as complete until the thesis and accompanying documentation have been submitted to the Faculty of Graduate Studies and Research. See §173.12 for information about convocation.

173.3.4 Registration Status

A student's registration status is determined automatically by the total units of course weight (including a project or a thesis where appropriate) in which the student is registered for credit in a given term. Audited courses are not included in the calculation of registration status.

Full-Time Registration in Fall/Winter: These students are registered in the equivalent of ★9 or more for credit in a term and are working full time on their academic program in that term.

Part-Time Registration in Fall/Winter: These students are registered in the equivalent of less than ★9 for credit in a term. This generally means that more than 12 hours per week of working time is devoted to matters other than the academic program.

Full-Time Registration in Spring/Summer: These students are registered in the equivalent of ★6 or more per term.

Part-Time Registration in Spring/Summer: These students are registered in the equivalent of less than ★6 per term.

M REG 800 Maintaining Registration: Students who are not registered in any courses in a given term, and are not working on thesis or project research, but still wish to maintain their status as graduate students register in M REG 800.

173.3.5 Registration Procedure

Newly admitted and continuing graduate students in degree programs register using the Telephone Registration System. Registration information and materials are normally provided by the department after students arrive in Edmonton. Special and Visiting graduate student registrations will be processed by the Faculty of Graduate Studies and Research.

In order to register at the University of Alberta, graduate students must:

- (1) **Consult and Receive Counselling** from their supervisor and department.
- (2) **Register**
- (3) **Confirm Registration** by claiming their Class Timetable Notice.

The following is an elaboration of these three steps for registration.

Step 1. Consult and Receive Counselling

All graduate students in degree programs in the Faculty of Graduate Studies and Research must consult with their department and discuss their program with their supervisor prior to registering.

Thesis Registration is restricted to students in thesis-based graduate degree programs. Qualifying, Special, and Visiting graduate students may not register in Thesis. The specific thesis registration selected by the student will depend upon the amount of time during the term(s) that the student will devote to work on their program.

Thesis sections are scheduled according to units of course weight equivalency. Students should consult with their department to determine which of the Thesis sections is appropriate. The selection will depend on the amount of time that the student will devote to work on the program. By registering in the appropriate Thesis designation (along with any other courses), the registration status of the student is calculated automatically. Refer to the Course Listings of the Calendar under Thesis for the appropriate Thesis section for the student to register in.

These Thesis sections are to be used in combination with course registrations in order to achieve the correct units of course weight for registration status (i.e., FT or PT). For example, if a student registers in a ★2 course, then the addition of THES 901 would bring the registration status to part-time (i.e., ★3).

To register full-time in a thesis program in Fall/Winter, students must register in a combination of course work and/or thesis research comprising a minimum of the equivalent of ★9 (equivalent to three half-courses) each term. Students registered in less than the equivalent of ★9 in a Fall/Winter term are considered part-time students.

Research Project Registration for students in the course-based master's route normally involves registering in the appropriate 900-level course. Registration in this is restricted to students in a course-based graduate degree program. Consult the department course listings in the Calendar for the appropriate section.

Step 2. Register

Once newly-admitted and continuing graduate students in degree programs have determined their program requirements in consultation with their departments, they pick up registration materials from their departments and register using the Telephone Registration System. Students are responsible for the completeness and accuracy of their registration.

The Telephone Registration System cannot be used for the following:

- (1) Audited Courses: All graduate students (excluding special graduate students) who are registered full-time or part-time may seek permission to audit a course. Since permission to audit cannot officially be granted until the number of students registered for credit is known, students will not be allowed to register for audit until after classes close for registration for credit (after the sixth day of class in Fall/Winter).

To add a course for audit students must

- a. complete a *Course Audit* form available from the department;
- b. have it signed by
 - 1) the instructor of the course and
 - 2) the graduate coordinator or department chair; and
- c. submit the form to Faculty of Graduate Studies and Research for approval and processing.

Students who wish to change their status in a course from credit to audit must first consult with their supervisor or program advisor. If permission is granted, a *Course Audit* form must be signed and submitted to the Faculty of Graduate Studies and Research office. Deadlines for submitting such a change are found in the Academic Schedule.

Audited courses will not be considered as meeting prerequisite, admission, or course requirements for any University of Alberta degree or diploma program. For further information on auditor status refer to §21.1.3 of the University Calendar.

- (2) Courses Extra to Degree: To designate a course as Extra, students must
 - a. complete an *Extra to Degree* form available from the department;
 - b. have it signed by the graduate coordinator or department chair; and
 - c. submit the form to the Faculty of Graduate Studies and Research for approval and processing.
- (3) Courses taken toward doctoral program requirements: Students who are still candidates for a master's degree cannot use the Telephone Registration System to register in courses toward their doctoral program requirements. Such doctoral level courses may be taken for one Fall/Winter only by master's degree candidates. Students must
 - a. complete an *Extra to Degree* form available from the department;
 - b. have it signed by the graduate coordinator or department chair; and
 - c. submit the form to the Faculty of Graduate Studies and Research for approval and processing.
- (4) Registration in more than one degree program: The Telephone Registration System can only be used to register in one degree program. Students who have been approved to register in more than one program (e.g. PGME students also completing a graduate program) must contact the Faculty of Graduate Studies and Research office for approval to register in the graduate degree program. Registration in more than one program requires the knowledge and consent of the department(s) and the Faculty of Graduate Studies and Research.

- (5) Registration as an Extramural student, or late registration:
 - a. Normally, in order to be registered extramural, students must be registered in courses that are designated as off-campus. See the Glossary of the Calendar for a definition of an extramural student.
 - b. Graduate students who are registered only in Thesis, a project course, or M REG 800 and live more than 80 kilometres from Edmonton can be designated as extramural students.

Students must contact the Faculty of Graduate Studies and Research office.

Step 3. Confirm Registration

All students who register, including Special and Visiting graduate students; students registered in courses for credit and/or audit; and students registered in thesis, research projects, or M REG 800 only must officially

confirm their registration by claiming the Class Timetable Notice. Students who fail to do so will have their registrations cancelled.

173.3.6 Reregistration in Courses

- (1) Students may not repeat any University course passed or courses for which they have received transfer credit except for reasons deemed sufficient, and verified in writing, by the dean of the faculty in which they are enrolled.
- (2) Students may not reregister for credit or audit more than once in any failed University course, except for reasons deemed sufficient by the Dean (or designate) of the Faculty in which they are enrolled.
- (3) Students may not reregister for credit or audit more than once in any University course in which they have received a final grade of W, except for reasons deemed sufficient by the Dean (or designate) of the Faculty in which they are enrolled.
- (4) In cases where a student contravenes regulations (1), (2), or (3) above, the Dean (or designate) may withhold credit or indicate the course as extra to the degree on the course registration that contravenes the regulation.
- (5) Students may repeat a first-term course in the second term if it is offered in the second term, as long as the student complies with regulations (1), (2), and (3) above.
- (6) Withdrawals recorded on a student's record prior to September 1, 1988 would not be included in that reregistration count.
- (7) Students are responsible for monitoring the number of times they have repeated a course.

173.3.7 Changes to Registration

If students wish to make changes to their registration in any of the following cases, they must first consult the department in which they are registered. Students make changes to their registration for all unrestricted courses through the Telephone Registration System during the period that it is available for a particular session or term. They can

- (1) drop courses
- (2) add courses
- (3) cancel their entire registration

The Telephone Registration System is available for registration until the deadline dates listed in the Academic Schedule in this Calendar.

After the close of telephone registration in a particular term or session, any changes to a graduate student's registration require the approval of the student's department chair or graduate coordinator and the Faculty of Graduate Studies and Research. After the close of telephone registration, a Course Audit or Withdrawal form must be used for the following registration changes:

- (1) Withdrawal from courses
- (2) Withdrawal from program
- (3) Changes from credit to audit
- (4) Changes of course section.

Such changes of registration, once approved by the student's department, must be received by the Faculty of Graduate Studies and Research no later than the deadline dates found in the Academic Schedule. No credit will be given for any course unless it is included in the student's registration.

Faculty of Graduate Studies and Research deadline dates may differ from undergraduate deadline dates (consult the Academic Schedule).

There may be academic record and fee implications for withdrawing from courses. Refer to §§11, 22.2.6, and 23.9.3.

Change of Personal Information

Personal information, such as name and address, is recorded at the time of initial application. It is the student's responsibility to inform the University of any change in this information by completing a Change of Name or Change of Address form, available from the Faculty of Graduate Studies and Research or the Registrar's Office. Students need to submit the completed form to either of the two offices to ensure that the change is noted on all their academic records at the University of Alberta.

173.3.8 Cancellation of Registration

Students in the Faculty of Graduate Studies and Research who wish to withdraw from courses should follow the procedure described in §22.1.9. Students who wish to withdraw from a session, or from their program should

complete a Withdrawal form. This form must then be signed/authorized by their department and submitted to the Faculty of Graduate Studies and Research for approval. Students who do not properly withdraw as indicated above are not eligible for any refund of fees, nor for exemption from fees in the event that they have not been paid.

Refer to §22.2.6 for fee refund information.

If after withdrawing from a graduate program students wish to apply again for admission, their application will be considered in the current competition for places with all other applicants. See also §§22.2.7 and 23.9.3.

173.4 Classification of Graduate Students

The classification of students is generally determined upon admission to a program on the basis of the student's previous academic background. Graduate students at the University of Alberta are classified as one of the following:

- (1) **Qualifying graduate students:** Such students are those whose academic background entitles them to serious consideration for admission to graduate studies but who are considered to be inadequately prepared to enter a graduate program in the subject area they have chosen. Generally, students who hold a three-year bachelor's degree from the University of Alberta (or an equivalent qualification from some other recognized institution) and students who have graduated from a four-year degree program, but who are entering a new field, may be admitted as qualifying graduate students.

Qualifying graduate students are registered in the Faculty of Graduate Studies and Research and as such are subject to the regulations of the Faculty of Graduate Studies and Research; however, qualifying students are not considered to be candidates for a degree.

Students who are not eligible for admission to the Faculty of Graduate Studies and Research as qualifying students should consult the appropriate undergraduate faculty regarding admission to that faculty to clear course deficiencies. They may apply for admission to the Faculty of Graduate Studies and Research at a later date.

Normally, a qualifying period will not exceed five full course equivalents (★30). Courses taken during a qualifying period will be specified by the department concerned. Completion of the work in a qualifying period does not automatically entitle the student to proceed toward a degree program. However, upon satisfactory completion of a qualifying period the department may recommend to the Faculty of Graduate Studies and Research that the student be reclassified as one of the following: probationary graduate student, candidate for a master's degree or provisional candidate for a doctoral degree. Students should note that neither the courses taken nor the fees paid during a qualifying period will be credited toward a subsequent degree program.

- (2) **Probationary graduate students:** Such students are those whose academic record is either (i) difficult to assess, as in the case of some foreign students; or (ii) below the standard normally required by a department, where the department's minimum requirements are above those of the Faculty of Graduate Studies and Research. Probationary graduate students must meet the admission requirements of the Faculty of Graduate Studies and Research.

Conditions of Admission—Probationary graduate students

- In the first term in which probationary graduate students register, students must take a graduate courseload which is considered normal for the department and which is specified by the department at the time of admission. Students will not normally be permitted to register in thesis or project courses, and will not be permitted to register in directed reading courses.
- Departments may impose other probationary conditions provided they are identified at the time of admission and approved by the Faculty of Graduate Studies and Research (e.g., must achieve a grade 7 or higher in specified courses.) Students must achieve at least the Faculty minimum (6 in a course and a minimum cumulative grade point average of 6.5) but departments may impose higher minimums.
- The probationary conditions will be clearly stated in the admission letter followed by the statement that if the student fails to satisfy the stated conditions, the student may not be allowed to continue in the program.

Completion of the first term of probationary registration

- Full-time Students:** If probationary graduate students are registered full time and meet all of the probationary conditions of admission,

the department will recommend acceptance of probationary students as candidates for a master's degree or provisional candidates for a doctoral degree. All courses successfully completed during the probationary term may be credited toward the students' graduate degree.

- Part-time Students:** If probationary graduate students are registered part time in the first term and meet all of the probationary conditions for that term, the department may recommend a second term of probationary registration and shall specify the conditions of that registration.
- If students do not meet all of the conditions of admission as probationary graduate students the department will recommend one of the following to the Faculty of Graduate Studies and Research:
 - that the student be granted a second four-month term as a probationary graduate student. This written recommendation to the Faculty of Graduate Studies and Research must include (a) designation of how the Failure in or Failure to Complete a Course in the first term of registration will be managed (see §173.8.3 of the University Calendar) and (b) specification of a minimum number of graduate-level courses which are to be taken by the student.
 - that the student not be permitted further registrations in the student's program. This written recommendation to the Faculty of Graduate Studies and Research will include a rationale for this decision.

Completion of second term registration as probationary graduate students: Any student who does not meet the conditions of a second probationary registration will not be permitted to continue in the program.

(3) Candidates for a master's degree

- (4) **Provisional candidates for a doctoral degree:** All PhD, EdD, and DMus students are first admitted as provisional candidates; they are reclassified as candidates only when they have met certain requirements outlined in the special regulations for the relevant degree (see §174).

- (5) **Candidates for a doctoral degree:** Upon satisfactory completion of the candidacy examination all provisional doctoral candidates are reclassified as candidates for a doctoral degree.

- (6) **Candidates for a postgraduate diploma:** Such students must meet the general admission requirements of the Faculty of Graduate Studies and Research (§173.2). The postgraduate diploma program is a specialized program designed for persons who have had previous work experience. It can normally be completed in one academic year of full-time study.

- (7) **Special graduate students:** Such students are those who in every respect are eligible for admission to the Faculty of Graduate Studies and Research, but who wish to take graduate level courses for credit without proceeding toward an advanced degree at the University of Alberta.

Special graduate students are not candidates for a degree at this University and will not receive any residence or fee credit toward a subsequent degree program for the work completed as a special graduate student. In addition, the number of courses allowable for transfer credit is limited (see §173.5).

Admission as a special graduate student does not imply eligibility for admission to a degree program in any department.

Individuals who wish to study under this classification must apply and be admitted each year in which they take courses.

Special graduate students require a written recommendation from the department concerned to register in a course. They are not permitted to take courses for audit.

Only graduate level courses may be taken by special graduate students. Individuals wishing to take courses at undergraduate levels should contact the appropriate faculty regarding registration as a special student in that faculty.

- (8) **Visiting graduate students:** This category is used for students who are registered in a graduate degree program at another university or college, who have obtained written permission in advance from the home and host institutions to take one or more courses for transfer of credit toward that graduate degree program. Visiting students are not permitted to register in thesis or departmental project courses.

Note: For classification purposes postgraduate medical students are considered to be graduate students. As such, they have the option of paying fees to the Graduate Students' Association (see §22.2.2).

173.5 Transfer Credit, Course Exemption/ Substitution, and Credit by Special Assessment

Transfer Credit refers to the formal transfer of credit for a course(s) which has been earned outside the program. Transfer credit for certain courses may be granted by the Faculty of Graduate Studies and Research, provided the courses have not been counted toward a previous degree or program and were not used to satisfy admission requirements of the Faculty of Graduate Studies and Research.

Course Exemption refers to the reduction in required credit weights of a student's program by removal of specific courses normally required. In special circumstances the Faculty of Graduate Studies and Research may approve exemption of certain courses if the student has completed appropriate equivalent coursework here or elsewhere, but the program will not be reduced by more than the value set out below.

Course Substitution. It is more normal for departments which exempt specific required courses from a student's program to substitute more appropriate courses equivalent in weight to the courses exempted. This is called Course Substitution and is a departmental prerogative.

Limits. The description of each program in §175 contains a listing of the required and optional courses.

Thesis-based programs: The total credit weight required for any thesis-based program will not be reduced by any combination of Transfer Credit and Course Exemption from the requirement set out in §175 by more than ★6 (except as noted below).

Course-based programs: The number of courses nearest to, but not exceeding, 1/3 of the total units of course weight of a student's program can be met through transfer credit and/or course exemption if recommended by the department and approved by the Faculty of Graduate Studies and Research on a case-by-case basis.

In exceptional circumstances and with the explicit prior approval of the Faculty of Graduate Studies and Research, up to 1/2 of the total units of course weight for the program may be met through transfer credit and/or course exemption.

Exceptions: For students who have commenced an equivalent graduate program at a recognized university and are relocating to the University of Alberta, consideration will be given to departmental recommendations for transfer credit which exceeds the limit stated above. Other exemptions specific to individual programs are discussed in the Program descriptions in §175.

Students should note that they cannot apply directly for transfer credit or course exemption; the department must petition the Faculty of Graduate Studies and Research on the student's behalf. Transfer credit and course exemption are granted at the discretion of the Faculty of Graduate Studies and Research.

The Faculty of Graduate Studies and Research does not accept credit by special assessment.

173.6 Residence Requirement

Master's Programs: Residence requirements for master's programs are established and monitored by the department. Most course-based master's programs have no residence requirements. Consult the department listing for program details.

Doctoral Programs: Residence supports two important objectives in these programs:

- (1) A doctoral program provides students with significant contact with the University of Alberta, through time spent on campus and through interactions with the faculty and graduate students at the University.
- (2) A doctoral program educates the student as an independent researcher and scholar in an academic discipline, through activities such as course work, participating in seminars, involvement in teaching, interactions with faculty members and other graduate students, and research under the direction of a faculty member.

Specific residence requirements to support these objectives will be established by the department. Changes or exceptions to departmental residence requirement are to be submitted to the Dean, Faculty of Graduate Studies and Research for approval. In the absence of a specific department requirement, the default residence requirement for the PhD and DMus programs is two academic years (where an academic year is defined as the eight-month period from September through April), and 12 continuous months for the EdD.

When a department changes a student's status in the middle of a program, the time spent as a master's candidate or probationary graduate student may count toward the residence requirement. Time spent as a qualifying graduate student does not count toward the residence requirement.

The University of Calgary and the University of Alberta have an agreement allowing, under certain conditions, PhD students at one institution to take up to one year of their two-year residence requirement at the other institution. Contact the Faculty of Graduate Studies and Research for further information.

Postgraduate Diploma Programs: There is no Faculty of Graduate Studies and Research residence requirement for postgraduate diploma programs

173.7 Language Requirement

It is a program requirement in some departments that students show proof of proficiency in one or more languages other than English. Programs with a second language requirement may accept ASL (deaf language). (For information on specific language requirements see the detailed program information under the appropriate departmental entry in §175.)

Language proficiency is recorded on the student's transcript if **one** of the following is provided by the department:

- (1) Proof of credit in the language course specified.
- (2) Documentation from an appropriate language department attesting to satisfactory proficiency at a level set by that department.

It is the responsibility of the department in which the student is undertaking the graduate degree program to complete and forward to the Faculty of Graduate Studies and Research for approval a *Notice of Completion of Language Requirement*.

173.8 Academic Standing

173.8.1 Explanation of Grading System

The University of Alberta uses a nine-point grading system for most courses. For students registered in the Faculty of Graduate Studies and Research the normal passing grade is 6.0 (see §173.8.2 below). In addition, some courses are offered on a credit/fail basis.

The grade distribution according to the 9-point system is as follows:

Course Grades Obtained by Graduate Students

	9 8	} Excellent
	7	Good
Pass	6	Satisfactory (see §173.8.2)
Fail	5 4 3 2	} Unsatisfactory (see §173.8.2 and 173.8.3)

173.8.2 Minimum Faculty Requirements

Regardless of the student's category, the pass mark in any course taken while registered in the Faculty of Graduate Studies and Research is a grade of 6.0.

All students in degree programs (including time spent as a qualifying graduate student) or diploma programs must maintain a minimum cumulative program grade point average of 6.5 throughout the course of the program. (In cases where the cumulative program grade point average falls between 6.0 and 6.5, departments may recommend continuation in the program for a specified probationary period; in any case, convocation may not take place with a cumulative program grade point average of less than 6.5.)

Students should keep in mind that courses are weighted differently. A grade of 8.0 and another of 6.0 will give an average of less than 7.0 if the 6.0 is received in a course carrying greater weight.

The above are minimum grades and grade point averages acceptable to the Faculty of Graduate Studies and Research. Individual departments may require higher grades than these.

173.8.3 Failure in or Failure to Complete a Course or Research Work

Satisfactory performance in the coursework component of a graduate program entails completion of all courses taken as part of the student's program

requirements (i.e., courses designated as extra to the student's program requirements and audited courses are excluded). Normally, the minimum acceptable passing grade in individual courses is 6.0 (see §173.8.2 above); however, some departments may require higher grades.

Graduate students are not permitted to take reexaminations. Regardless of their category, students who do not obtain an acceptable grade, or fail to complete a course that is required as part of their graduate program, must have the approval of the department and the Faculty of Graduate Studies and Research to retake the course and must obtain a passing grade. Alternatively, students may take an alternate course recommended by the department and approved by the Faculty of Graduate Studies and Research, but they must also obtain a passing grade.

In calculating a student's GPA, both the original failing grade and the grade received when the course is retaken or the alternate taken will be used. The failing grade AND the grade achieved for the repeated or substitute course will appear on the student's transcript. Alphabetical grades of ABF, WF, DB and INF are counted as numeric grades of one in the computation of the GPA.

A student whose course and/or research work is unsatisfactory may at any time be required to withdraw.

173.9 Supervision

Every student in a program leading to a graduate degree is required to have a supervisor. Ideally, the supervisor should be appointed as soon as the student arrives to begin the program. If this is not possible due to the organization of the department's program, an interim supervisor or advisor may be appointed until the permanent supervisor is assigned. In any case, the permanent supervisor must be approved by the Faculty of Graduate Studies and Research within the first 12 months of the student's program.

In all doctoral programs, and in some master's degree programs (where required by departments), students must also have a supervisory committee.

The Dean of Faculty of Graduate Studies and Research is ultimately responsible for approving the appointment of supervisors and supervisory committee members.

The members of the supervisory committee for doctoral students should be appointed before the second year of the student's provisional doctoral program and well in advance of the candidacy examination. The committee shall consist of at least three faculty members who shall normally be full time and be appointed by the Faculty of Graduate Studies and Research, based on recommendations from the department concerned. The chair of the committee shall be the faculty member under whose supervision the student is carrying out the dissertation research. Where appropriate, one or more members of the committee may be chosen from a department other than that in which the research is being carried out.

The committee for a student in a master's program should be appointed in accordance with departmental regulations; its function is to provide guidance on the student's thesis research.

The department should ensure that the members of a supervisory committee are sufficiently competent and experienced to serve at the required level. In forming a supervisory committee the department should consider the rank and experience of the prospective members, their publications and other demonstrations of competence in the field of specialization, and the prospective members' experience in graduate supervision.

As minimum criteria, supervisors (and normally members of supervisory committees) must:

- (1) be active in the general area of the student's research;
- (2) have a tenured (or tenure track) faculty appointment (including soft tenure track faculty appointments such as University Research Fellows and Heritage Scholars) in a department relevant to the field;
- (3) hold a degree equivalent to or higher than that for which the student is a candidate. (This would always be the case for newly appointed faculty, but certain recognized and well-established exceptions should be respected.);
- (4) demonstrate continuing scholarly or creative activity of an original nature.

Because of diverse interpretations of the term "scholarly or creative activity," the Faculty will always find it necessary to rely on sound and informed judgement of Chairs and Graduate Coordinators to ensure adherence to minimum Faculty criteria.

Additional criteria approved by the Dean, Faculty of Graduate Studies and Research, may be added by individual departments, and these should be included in departmental graduate handbooks.

The determination of "scholarly or creative activity" assumes a continuing peer review process which, at least indirectly, is included

annually at the appropriate Faculty Salaries and Promotions Committee. Thus, the following list summarizes criteria used by various faculties to describe scholarly or creative activity:

- publication of research papers in refereed journals
- publication of research papers in journals acceptable to the discipline
- publication of books and/or monographs
- publication of research findings in conference proceedings
- publication and/or performance of new compositions or plays
- exhibition of new artistic works
- peer recognition of outstanding professional practice
- invitations to speak at conferences or at other institutions
- editorial or refereeing responsibilities for journals
- invitations to serve as external examiner for the PhD
- presentations at professional society meetings or workshops
- invitations to review grant proposals or manuscripts
- invitations to referee requests for promotions to full professor in recognized institutions

It is recommended that department Chairs monitor and review the performance of supervisors.

The Faculty of Graduate Studies and Research Council has approved eligibility criteria for service on supervisory committees by those such as retired professors, adjunct professors, clinical appointees, etc. Details are available from the Faculty of Graduate Studies and Research office or in the Graduate Program Manual.

Once a supervisory committee has been appointed, it shall be reviewed annually by the department. The department shall ensure that the supervisory committee has a formal regular meeting with the student at least once a year.

It is the responsibility of the supervisor to guide the student in the determination and modification, if necessary, of the student's program of study and research. The supervisor or supervisory committee (where applicable) is responsible for ensuring students' awareness of all program requirements and regulations governing their activities related to the graduate program. Such matters as course requirements for the degree program, language requirements (where applicable), and any pre-candidacy requirements or special skills needed are normally specified by the student's supervisor or supervisory committee.

It is the responsibility of supervisors to make adequate provision for supervision of their graduate students during their leave. Therefore, if a supervisor is to be absent from the University for a period exceeding two months, it is the supervisor's responsibility to nominate an adequate interim substitute and to inform the student, the department and the Faculty of Graduate Studies and Research.

Students are normally involved in the process of the selection of their supervisor although this process varies depending upon the department. However, when arrangements are being made for the formal approval of supervisors, supervisory committees, and examining committees by the Faculty of Graduate Studies and Research, or the scheduling of meetings and examinations, the student shall be consulted and kept closely informed although the student shall not be asked to conduct such activities.

It is recommended that departments prepare a set of guidelines for supervisors and students. Guidelines should deal with the selection and functioning of supervisors and should outline the joint responsibilities of faculty members and graduate students. Avenues of appeal open to students who feel they are receiving unsatisfactory supervision should also be specified.

For further information on supervision see the Calendar preface, *Responsibilities Related to Graduate Programs*.

The University of Calgary and the University of Alberta have agreements on graduate student supervision for the following:

- an academic staff member from one university may serve as a co-supervisor for a graduate student at the other university
- an academic staff member from one university may serve as a member of the supervisory or examining committee of a graduate student from the other university

The terms of the agreements include the following:

- The appointee shall be counted as a regular member of the supervisory committee internal to the student's home department unless it is agreed at the outset that the member will be treated as coming from another department.
- The appointment should not be made unless a satisfactory level of interaction can be maintained between the appointee and the graduate student, and between the appointee and the other supervisory committee members. It is the responsibility of the chair of the student's home department to define a satisfactory level of interaction and to ascertain that this can be maintained throughout the student's program.

- If additional expenses will be incurred because of the appointment it is the responsibility of the chair of the student's home department, in consultation with the appointee, to make satisfactory arrangements for meeting these additional expenses. Otherwise, the appointment should not be made.
- Co-supervisors and supervisory committee members will be bound by the procedures and policies of the student's home institution and shall be made known to the committee member in writing prior to approval.

173.10 Thesis Requirement

All candidates in a thesis degree program shall present a thesis embodying the results of their research. The topic of the thesis must be approved by the candidate's supervisor or supervisory committee.

For candidates in a master's degree program, the thesis should reveal that the candidate is able to work in a scholarly manner and is acquainted with the principal works published on the subject of the thesis. As far as possible it should be an original contribution. A doctoral thesis must embody the results of original investigations and analyses and be of such quality as to merit publication; furthermore, it must constitute a substantial contribution to the knowledge of the candidate's field of study.

The thesis should normally be written in English. In some departments candidates may be permitted to write their thesis in a language other than English, provided that language has been approved for use by the supervisory committee, the department and the Faculty of Graduate Studies and Research. Theses written in a language other than English must have one abstract in the language of the thesis and one in English.

Arrangements and expenses for thesis preparation, including typing, production of photographs and tables, and duplicating are the responsibility of the student. Instructions regarding thesis format and methods of thesis reproduction are available from the Faculty of Graduate Studies and Research office in a booklet entitled, *Regulations and Guide for the Preparation of Theses*. In any case of uncertainty about thesis preparation students should consult the Faculty office before final production.

It is the responsibility of both the student and the supervisor to be familiar with all regulations of the Faculty of Graduate Studies and Research with respect to theses, and with any specific requirements of the student's department. Students should consult their department and their supervisory committee to determine whether they should use either the traditional or the paper format in the preparation of the thesis.

It is the responsibility of the student to present three copies (four copies for Education students) of the thesis to the Faculty of Graduate Studies and Research for approval before the copies are bound. Additional copies may be required by individual departments. Students should also keep in mind that it is customary for a copy of the thesis in its final form to be given to the supervisor.

Following completion of the final oral examination at which the thesis is approved (or approved subject to revisions), the candidate shall make the appropriate revisions where necessary and submit the approved thesis to the Faculty of Graduate Studies and Research office within six months of the date of the final oral examination. Departments may impose earlier deadlines for submitting revisions. If the thesis is not submitted to the Faculty of Graduate Studies and Research within the six-month time limit, the candidate will be considered to have withdrawn from the program. After this time, the candidate must reapply and be readmitted to the Faculty of Graduate Studies and Research before the thesis can be accepted.

If the final oral examination is adjourned or postponed, the six-month time limit will take effect from the date of completion of the examination where the thesis was approved with or without revisions.

To ensure qualification for the earliest convocation following completion of the thesis, students must submit the unbound copies of their thesis to the Faculty of Graduate Studies and Research office on or before the deadline date set by the Faculty, to allow enough time for the student's name to be included in the convocation program. Deadlines for submission of theses are found in the Academic Schedule of the Calendar.

173.11 Oral Examination

Every candidate in a thesis degree program must pass a final oral examination following submission of the thesis to the department. It is the responsibility of the supervisor to ensure that proper arrangements are made for the candidate's examination, and that it is scheduled and held in accordance with Faculty of Graduate Studies and Research regulations. It is also the responsibility of the supervisor to ensure that the candidate is not required to make these arrangements. In the absence of the supervisor, these

responsibilities shall be borne by the departmental Graduate Coordinator or designate. The finished thesis must be submitted to the examining committee and a completed *Notice and Approval of Oral Examination Committee* form must be submitted to the Faculty of Graduate Studies and Research at least three weeks before the oral examination.

The language used to conduct the final oral examination shall be English. However, the supervisory committee may petition the Dean of the Faculty of Graduate Studies and Research, and on receiving written approval may conduct the examination in a language other than English.

Each department offering a doctoral degree is required to establish detailed examination procedures for the candidacy and final oral examination. These procedures should be made available to staff and students in the department and to the Dean, Faculty of Graduate Studies and Research.

173.12 Convocation

There are two convocations each year, normally held in June and November.

In order to convocate, students in thesis programs must complete all coursework and submit three unbound copies (four copies for Education students) of the thesis to the Faculty of Graduate Studies and Research by the deadline dates specified in the Academic Schedule. For further details on thesis submission refer to the *Regulations and Guide for the Preparation of Theses*.

Students in course-based programs must complete all program requirements prior to the deadlines set out in the Academic Schedule. It is the responsibility of the department to forward a completed *Report of Final Completion for Course-based Master's* form to the Faculty of Graduate Studies and Research by the deadline dates specified in the Academic Schedule, to ensure that the student's name will be included in the convocation list.

173.13 Time Limit for Completion of Graduate Programs

The time limit (or the maximum period of time permitted to complete the requirements for a degree) is calculated from the start of the term in which the student first registers in that specific program.

Thesis-based Master's: Candidates must complete all the requirements within four years of the term in which they first register as probationary graduate students or as candidates in the master's program.

Course-based Master's: Course-based master's students have six years to complete their program unless the department has opted for a shorter time limit for its course-based master's program. Consult the department listing in §175.

Doctoral degree: Candidates must complete all the requirements within six years of the term in which they first register as probationary graduate students or as provisional candidates for a doctoral degree. In the case of master's students who are reclassified as provisional candidates for a doctoral degree, all degree requirements must be completed within six years of the time they first register as a probationary graduate students or master's candidates.

Postgraduate diploma: Candidates must complete all the requirements within four years of the time they first register in the postgraduate diploma program.

173.14 Program Extensions

In exceptional circumstances a candidate who has failed to complete all the requirements for the degree within the appropriate period specified in §173.13 may be considered for an extension, provided that the department so recommends and the Faculty of Graduate Studies and Research approves. Requests for extensions will only be considered if there are well-documented reasons specific to a particular type of research that precludes completion within the time limit, or unless there are sufficient, and substantial unforeseen circumstances beyond the control of the student and/or supervisor which prevent completion of the program within the time limits. Extensions may also be given for such considerations as parental leave.

A candidate's program may be considered for an extension of up to one year at the time of initial request. Under exceptional circumstances an additional extension of up to one year may be granted by the Faculty of Graduate Studies and Research.

A candidate who is granted an extension may be required to remain in or resume residence (i.e., be in close geographic proximity to the campus)

until all degree requirements have been met. An extension is calculated as beginning immediately upon termination of the maximum permitted period of completion for that degree.

173.15 Intellectual Property

Guidelines for Ownership of Research Materials and Guidelines for Authorship are available from the Faculty of Graduate Studies and Research or on its website at <http://www.ualberta.ca/~graduate/graduate.html>

173.16 Appeals and Grievances

Student grievances of an academic nature sometimes arise. Students in the Faculty of Graduate Studies and Research are advised first to approach the instructor or supervisor concerned; in most cases, the issue can be resolved at this level. If the matter is not resolved, students are advised to see the department chair. Departments are encouraged to have internal appeal procedures. Where these exist, they should be followed before moving the matter to the Faculty level. The Dean or Associate Dean may be approached by students for advice in these matters.

The Academic Appeals Committee of the Faculty of Graduate Studies and Research hears and determines appeals from appellants of decisions of the Faculty of Graduate Studies and Research which affect academic standing.

The Committee shall have no jurisdiction to hear an appeal with respect to:

- (1) the academic judgments inherent in marks or grades awarded in individual courses;
- (2) the examination decisions of Faculty of Graduate Studies and Research;
- (3) decisions to refuse admission or readmission to the Faculty;
- (4) decisions relating to the granting of credit for courses taken or to be taken outside the University of Alberta.

For further information regarding appeals procedures at the Faculty level, students should consult the appeal regulations available from the Faculty of Graduate Studies and Research office. All formal appeals of a decision of the Faculty of Graduate Studies and Research must be initiated within 30 calendar days of the student's receipt of the Faculty of Graduate Studies and Research decision.

Grade grievances initiated by graduate students are not within the jurisdiction of the Faculty of Graduate Studies and Research, but rather within the jurisdiction of the faculty from which the graduate student had taken the course in question.

Additional information on appeals and grievances found in §23.8 of the University Calendar.

174 Degree and Postgraduate Diploma Regulations

The minimum requirements for all graduate programs are set by the Council of the Faculty of Graduate Studies and Research of the University of Alberta. In this calendar the minimum requirements acceptable are outlined under the respective headings. Students should note that the department offering the graduate program may impose additional requirements.

174.1 Master's Degrees

Two types of master's degree programs are offered – thesis-based and course-based. Most departments and faculties offer a master's program with thesis. Many offer course-based programs in addition to the thesis-based route. In such programs the emphasis is on coursework, supplemented by a *capping exercise*. Details may be obtained from the departments concerned.

The regulations outlined below apply to all master's degree programs.

174.1.1 General Regulations Governing Master's Programs

- (1) **Course Requirements:** Considerable variation is permitted in the balance between research and course requirements for the master's degree.

Graduate students may not take for credit to satisfy the graduate program requirements any undergraduate course in their field of specialization and/or major area of study. In course-based programs, all coursework must be at the graduate level.

- (2) **Residence:** Residence requirements are established and monitored by the department.
- (3) **Language Requirement:** It is a requirement in some departments offering master's degrees that students show proof of proficiency in a language other than English. (For specific information on language requirements see the detailed program information under the appropriate departmental entry in §175.)

Master's degree candidates in programs that do not have a language requirement, who are planning to proceed to a doctoral degree, are advised to take note of any language requirement for that degree in advance. See also §173.7.

- (4) **Supervision:** Each student in a master's program shall have a supervisor, whether the student is in a thesis-based or course-based program. The Dean of the Faculty of Graduate Studies and Research is ultimately responsible for approving the appointment of a supervisor and, if it exists, a supervisory committee. See also §173.9.

174.1.2 Thesis-based Programs

All candidates for a thesis-based master's degree must submit the results of their research in the form of a thesis conforming to Faculty of Graduate Studies and Research regulations.

An examining committee of at least three faculty members who are normally full-time (one from a department other than that in which the student is registered), must be approved by the Faculty of Graduate Studies and Research at least three weeks before the examination. The department must notify the examiners of the examination date and ensure they receive a copy of the thesis at least three weeks in advance, so that they may have adequate time to appraise the thesis. The committee will review the thesis and conduct an oral examination designed to test the candidate's knowledge of the thesis subject and of related fields. It is the responsibility of the supervisor (or a member of the departmental staff officially designated to do so), and not the student, to arrange the candidate's examination, ensuring that it is scheduled and held in accordance with Faculty of Graduate Studies and Research regulations. The Dean (or Associate Dean or Dean's designate), Faculty of Graduate Studies and Research, may participate fully in the examination. Persons other than the examiners may attend with the approval of the Dean, Faculty of Graduate Studies and Research, or the chair of the committee. If a final oral examination is adjourned, the examining committee shall decide upon a date for reconvening the examination and shall inform the Faculty of Graduate Studies and Research and student in writing. The final date set for reconvening shall be no later than six months from the date of the examination. A final decision of the examining committee must be made within six months of the initial examination.

The decision of the examining committee will be based both on the content of the thesis and on the candidate's ability to defend it.

Immediately after the oral examination, departments should advise the Faculty of Graduate Studies and Research of the examining committee's decision on a *Report of Completion of Final Oral Examination* form.

174.1.3 Course-based Programs

All students in a course-based master's degree program must complete the required coursework and a final capping exercise. The intent of the capping exercise is to demonstrate the candidates' ability to synthesize the varied information accumulated through the program. For those course-based master's programs where the capping exercise is a research project, the project will be evaluated by the student's supervisor and normally at least one evaluator. The supervisor is responsible for maintenance of Faculty of Graduate Studies and Research and departmental standards for the project. The student is responsible for producing a report of the project or some other finished product to be deposited in the department.

It is the responsibility of the department to verify and notify the Faculty of Graduate Studies and Research that all courses, the capping exercise, and any other program requirements have been successfully completed by submitting a *Report of Final Completion for Course-Based Master's*.

174.2 Doctoral Degrees

The essential requirement for the doctorate is the planning and carrying out of research of high quality leading to an advance in knowledge in the candidate's field of study.

174.2.1 The Degree of PhD

- (1) **Provisional Candidacy:** Students may be admitted as provisional candidates for the degree of Doctor of Philosophy if they hold a bachelor's or a master's degree, or equivalent, from an approved academic institution. Admission is contingent upon recommendation by a department, approval by the Faculty of Graduate Studies and Research, and the availability of: suitable supervision; suitable courses of study; and adequate library, laboratory and other facilities. Students will remain as provisional candidates until they have successfully completed their candidacy examination (see (5) below).
- (2) **Residence Requirements:** See §173.6.
- (3) **Language Requirement:** A department may require a student to demonstrate a knowledge of one or more languages in addition to English. Where this is the case, the student must satisfy the language requirement before being allowed to take the candidacy examination. See also §173.7.
- (4) **Supervisory Committee:** The student's program shall be under the direction of a supervisory committee of at least three faculty members who shall normally be full-time and be appointed by the Faculty of Graduate Studies and Research upon the recommendation of the department. The chair of the committee shall be the faculty member under whose supervision the student is carrying out the research. Where appropriate, one or more members of the committee may be chosen from a department other than that in which the research is being carried out. The committee shall arrange for the necessary examinations and for adjudication of the thesis. See also §173.9.
- (5) **Candidacy Examination:** Students in doctoral programs are required to pass a candidacy examination in subjects relevant to their general field of research. The candidacy exam is an oral examination; some departments may also require that students take comprehensive written examinations prior to the candidacy exam.

The candidacy examination is normally held within two years of the commencement of the program at a time when most, if not all, of the required coursework is completed and the thesis started or well defined. The candidacy examination must be passed no less than six months prior to taking the final oral examination.

The candidacy examination is arranged by the supervisor (or other officially designated staff member), and not the student, ensuring that it is scheduled and held in accordance with Faculty of Graduate Studies and Research regulations.

The candidacy shall be chaired by a faculty member who is not the supervisor but is a member of the student's home department. Each department shall establish a mechanism by which individuals are assigned this responsibility. The chair is responsible for moderating the discussion and directing questions and may participate in the questioning. If the chair is not a member of the committee, the chair does not vote or sign the thesis. It is the chair's responsibility to ensure that departmental and Faculty regulations relating to candidacy examinations are followed.

Each department is responsible for establishing detailed examination procedures for the candidacy examination. These procedures should be made available to staff and students in the department and to the Dean, Faculty of Graduate Studies and Research.

Students must demonstrate to the satisfaction of the examining committee that they possess: (a) an adequate knowledge of the discipline and of the subject matter relevant to the thesis; and (b) the ability to pursue and complete original research at an advanced level. During the candidacy examination only minor attention should be given to the work done on the thesis.

This examination shall be under the direction of the supervisory committee to which two other full-time members of the teaching staff have been added. At least one member of the examining committee shall be a person from a department other than that in which the research is being carried out. It is the responsibility of the department to nominate the committee members and forward their names to the Faculty of Graduate Studies and Research for approval at least three weeks in advance of the candidacy examination. The Dean, Faculty of Graduate Studies and Research, (or the Dean's designate) may participate fully in the examination. Persons other than the examiners may attend only with the permission of the Dean, Faculty of Graduate Studies and Research, or the chair of the committee. Visitors may not participate in the committee's discussion concerning its decision on the student's performance.

If the student successfully completes the candidacy examination, the department is responsible for sending to the Faculty of Graduate Studies and Research for approval a completed *Recommendation for Change of*

Category form. Upon receipt of the form, the student's category will be changed from provisional candidate for a doctoral degree to candidate for a doctoral degree.

If the student is not successful in the examination, the department will inform the Faculty of Graduate Studies and Research in writing (copy to the student) of the outcome of the examination and the departmental recommendations for the student's program.

- (6) **Thesis Requirement:** Candidates shall present their research results in a thesis which satisfies the requirements of the Faculty of Graduate Studies and Research as set out in the *Regulations and Guide for the Preparation of Theses*. The material must be of sufficient merit to meet the standards of reputable scholarly publications.
- (7) **Final Examining Committee:** Before the thesis is forwarded to the external examiner, PhD supervisory committee members shall each declare in writing to the supervisor either that the thesis is of adequate substance to warrant that the student proceed to the final examination or that the thesis is unsatisfactory and that the student should not be allowed to proceed to the final oral examination.

Each doctoral thesis shall be reviewed, and the final oral examination conducted, by an examining committee which includes the supervisory committee and at least two other examiners. At least five examiners shall be in attendance at the examination. Because the external examiner is normally not present at the examination, at least one of these five examining committee members must have an arm's length relationship with the candidate. One member of the examining committee shall be from a department other than that in which the student is registered. In addition there must be an external examiner from outside the University of Alberta who is a recognized authority in the student's disciplinary area and an experienced supervisor of doctoral students. The proposed external examiner must be in a position to review the thesis objectively and to provide a critical analysis of the work and the presentation. It is therefore essential that the external examiner not have a current or previous association with the student, the supervisor, or the department which would hinder this type of objective analysis. For example, a proposed examiner who has recently been associated with the student as a research collaborator or co-author would not be eligible. A proposed external examiner must not have had recent association with the doctoral candidate's supervisor (as a former student, supervisor, or close collaborator, for instance). A proposed external examiner should not normally be nominated more frequently than once every two years. External examiners are nominated by the department and approved and invited by the Faculty of Graduate Studies and Research. Supervisors who are in doubt about the eligibility of a potential external examiner are urged to call the Associate Dean in the Faculty of Graduate Studies and Research to review the case before approaching the external. It is the responsibility of the department to recommend the committee members and forward their names to the Faculty of Graduate Studies and Research for approval at least three weeks in advance of the final oral examination, however, the request for the external examiner shall normally be submitted for Faculty of Graduate Studies and Research approval at least two months prior to the examination. The external examiner shall receive the thesis from the department at least four weeks before the examination.

The department must notify the examiners of the examination date and should supply them with a copy of the thesis at least three weeks in advance (four weeks for the external), so that they may have adequate time to appraise the thesis.

The final oral examination shall be chaired by a faculty member who is not the supervisor but is a member of the student's home department. Each department shall establish a mechanism by which individuals are assigned this responsibility. The chair is responsible for moderating the discussion and directing questions and may participate in the questioning. If the chair is not a member of the committee, the chair does not vote or sign the thesis. It is the chair's responsibility to ensure that departmental and Faculty regulations relating to final oral examinations are followed.

- (8) **Final Oral Examination:** A final oral examination, based largely on the thesis, shall be conducted by the examining committee. The final oral examination is arranged by the supervisor (or other officially designated staff member), and not the student, who ensures that it is scheduled and held in accordance with Faculty of Graduate Studies and Research regulations.

Each department is required to establish detailed examination procedures for final oral examinations. These procedures should be made available to staff and students in the department and to the Dean of the Faculty of Graduate Studies and Research.

Members of the staff of the student's major department, as well as members of the Council of the Faculty of Graduate Studies and Research (or their alternates), have the right to attend but should so notify the chair of the examining committee. Other persons may attend with special permission of the Dean, Faculty of Graduate Studies and Research, or the chair of the examining committee.

The Dean (or the Dean's designate) of the Faculty of Graduate Studies and Research, may participate fully in the examination. Persons who are not members of the examining committee (a) may participate in the questioning only by permission of the chair of the committee, and (b) are not permitted to participate in the discussion of the student's performance and must withdraw before such discussion commences.

If a final oral examination is adjourned, the examining committee shall decide upon a date for reconvening the examination and shall inform the Faculty of Graduate Studies and Research and the student in writing. The final date set for reconvening shall be no later than six months from the date of the examination. A final decision of the examining committee must be made within six months of the initial examination.

Immediately after the examination, the departments should advise the Faculty of Graduate Studies and Research of the examining committee's decision on a *Report of Completion of Final Oral Examination* form.

174.2.2 Combined Program for the Degrees of MD and PhD

Highly qualified students wishing to pursue a career of teaching and research in either basic medical science or in clinical medicine may enrol in a program of approximately six years' duration leading to the acquisition of both an MD and a PhD degree.

Students in the first year of the MD program are invited to apply to the Combined Program. If acceptable to the appropriate department, the Faculty of Medicine and Dentistry and the Faculty of Graduate Studies and Research, the student would be admitted to the PhD program. Normally, upon completion of two years of the MD program, the student would then register in the PhD program. The time needed to complete the requirements for the PhD would depend upon the previous training of the applicant and the nature of the research. Upon completion of the PhD program the student would re-enter the Faculty of Medicine and Dentistry and complete the requirements for the MD degree.

Students interested in such a program may obtain further information from the Office of Research, Faculty of Medicine, 2J2 WC Mackenzie Health Sciences Centre.

174.2.3 The Degree of DMus

The regulations pertaining to the PhD degree also apply to the Doctor of Music degree; exceptions and special conditions are noted in §175.51.

174.2.4 The Degree of EdD

The degree of Doctor of Education attests proficiency in a program of graduate study in which the emphasis is upon preparation for competent professional performance. The general regulations for the EdD degree concerning admission, residence requirements, the candidacy examination and final oral examination (based largely on the thesis) are the same as those outlined under the PhD degree, with the following exceptions:

- (1) Several years of successful teaching and an MEd degree or its equivalent are prerequisites for admission into the EdD program.
- (2) The program emphasizes breadth in educational theory, practice and research rather than intensive specialization in a particular area.
- (3) The student's program may make provision for supervised field experience.
- (4) The minimum period of continuous residence is 12 months of full-time study at the University of Alberta, unless otherwise noted in the departmental listing in §175.

174.3 Individual Interdisciplinary Studies

The Faculty of Graduate Studies and Research has a procedure for students and departments to propose individual interdisciplinary studies. Although many graduate programs are already interdisciplinary to some extent and include the flexibility for students to meet their objectives within the existing program, it may be that a proposed area of study for an individual student cannot be effectively accommodated within a single department. An

individual, interdisciplinary graduate program may be an appropriate response. There should be strong reasons for establishing an individual program rather than operating within the context of a current program. There is no obligation for departments to offer an interdisciplinary program to a student. However, departments may consider creating a program for an individual student if they are prepared to provide an appropriate program and if they have adequate supervision, facilities, and other resources necessary to offer such a program.

Both the home and conjoint department will be designated on the degree. Departments may also propose an individual specialization at the outset of the program. Individual interdisciplinary graduate programs are restricted to thesis-based programs (master's and doctoral) and are not applicable to probationary or qualifying students.

Applicants should have a superior academic record with substantial background in at least one of the disciplines.

The initial impetus for an individual interdisciplinary program will come from the student who shall prepare a brief written proposal and apply through the home department. More detailed guidelines are available from departments or from the Faculty of Graduate Studies and Research.

174.4 Postgraduate Diploma Programs

Information regarding specific postgraduate diploma programs is provided under the appropriate departmental listing in §175 below.

175 Graduate Programs

175.1 General Information

A brief description of each program offered under the auspices of the Faculty of Graduate Studies and Research is given in the following section. Entries are arranged alphabetically by department. Prospective applicants should note, in addition to the general requirements of the Faculty of Graduate Studies and Research, the particular admission requirements, potential fields of research and the specific requirements for each program. Graduate and undergraduate courses that may be taken in order to fulfil the requirements for a graduate program are listed in §201, Course Listings.

The Faculty of Graduate Studies and Research supports the concept of interdisciplinary studies. Guidelines for proposing such a program are available from the Faculty of Graduate Studies and Research office.

175.2 Agricultural, Food, and Nutritional Sciences

Department of Agricultural, Food, and Nutritional Sciences
4-10 Agriculture/Forestry Centre
University of Alberta
Edmonton, Alberta T6G 2P5
E-mail: chair@afns.ualberta.ca

175.2.1 General Information

The Department of Agricultural, Food, and Nutritional Sciences offers thesis programs leading to Master of Science and Doctor of Philosophy degrees, as well as course-based programs leading to Master of Agriculture and Master of Engineering degrees.

The Department has active research programs in

- (1) Agricultural Sciences: agronomy, animal genetics, animal nutrition, animal physiology, animal science, bioengineering, horticulture, plant breeding, plant molecular biology, plant pathology, plant physiology, plant science, rangeland and wildlife resources, and weed science; and
- (2) Food and Nutritional Science: animal nutrition, food processing and engineering, food chemistry, food quality, foods and nutrition, food science and technology, horticulture, and nutrition and metabolism.

The Department's laboratory complex is well known internationally for its state-of-the-art equipment and well-developed support facilities. A Biotechnology Centre has been established to serve as a focus for interdisciplinary research in animal, microorganism, and plant molecular biology and biotechnology. The Department also maintains greenhouses; plant growth chambers; field research facilities; beef, cattle, dairy, poultry, and swine

research units; a wildlife field research station; and the Laird McElroy Environment and Metabolism Centre.

Course requirements in graduate programs are based on the student's previous training and anticipated needs in the student's field of specialization. Students should contact the Department for further information concerning course requirements.

Entrance Requirements

The Department's minimum admission requirements for an MSc, MAg, or MEng degree is an undergraduate degree with a grade point average (GPA) of at least 6.5 in the last two years of study at the University of Alberta, or an equivalent qualification from a recognized institution, and a TOEFL score of 550 where applicable. For admission to the PhD program the minimum requirements are an average of 7.0 in the last two years of study at the University of Alberta, or an equivalent qualification from a recognized institution, and a TOEFL score of 550 where applicable.

Financial Assistance

A limited number of assistantships in teaching and research are available to well-qualified candidates. Most students are either on scholarship or funded by research grants obtained by professors in the Department.

For further information on the graduate programs and financial assistance, prospective students should direct their inquiries to the Coordinator, Graduate Studies Committee.

175.2.2 The Degree of MSc

Program Requirements

In addition to satisfying the general requirements of the Faculty of Graduate Studies and Research, candidates for the MSc degree must

- (1) Normally complete ★9 as recommended by the supervisor and the supervisory committee, and department seminar courses AF NS 600 and AF NS 601.
- (2) Prepare an acceptable thesis presenting results of the research conducted. Candidates will be examined orally on their thesis results by committees formed according to Faculty of Graduate Studies and Research regulations.
- (3) Complete the minimum period of residence of two, four-month terms of full-time attendance at the University of Alberta.

No language other than English is required for the MSc degree.

Length of Program

The time required to complete the program will vary according to the previous training of the applicant and the nature of the research undertaken. Normally two years of study and research are needed to complete the degree program. There is a four-year time limit.

175.2.3 The Degree of MAg

Program Requirements

For the MAg degree, candidates normally are expected to

- (1) Have completed three years of satisfactory professional experience; and
- (2) Take graduate-level ★24 as recommended by the supervisor and the supervisory committee and complete a research project equivalent to at least ★3.

No language other than English is required for the MAg degree.

Length of Program

The time required to complete the MAg program will vary; however, the time limit for program completion is six years from the date of initial registration.

175.2.4 MBA/MAg Joint Program

The Faculty of Business and the Faculty of Agriculture, Forestry and Home Economics offer a program of joint study which permits students to earn both the MBA and MAg degrees after two calendar years of full-time study.

Refer to §175.8.4 under Business for program details.

175.2.5 MBA/MF Joint Program

The Faculty of Business and the Faculty of Agriculture, Forestry and Home Economics offer a program of joint study which enables students to earn both

the MBA and MF degrees after two calendar years of full-time study.

Refer to §175.8.6 under Business for details.

175.2.6 The Degree of MEng

To qualify for the MEng degree, candidates normally are expected to

- (1) Possess a bachelor's degree in engineering;
- (2) Have completed three years of satisfactory professional experience; and
- (3) Take ★24 as determined by the supervisor and the supervisory committee and complete a research project equivalent to at least ★3.

No language other than English is required for the MEng degree.

Length of Program

The minimum completion time required for the program with all required course prerequisites is two terms of full-time study. The maximum permitted time for completion is six years from the date of registration.

175.2.7 The Degree of PhD

Program Requirements

The PhD program normally consists of

- (1) ★9 as recommended by the supervisor and the supervisory committee, plus department seminar courses AF NS 600 and AF NS 601;
- (2) Preparation of a thesis presenting results of the research conducted. Candidates will be examined orally on their thesis results by committees formed according to the Faculty of Graduate Studies and Research regulations;
- (3) A minimum residence requirement of four, four-month terms of full-time attendance at the University of Alberta.

There is no language requirement other than English for the degree.

Outstanding MSc candidates in the Department can switch into a PhD program after approval by the Department.

Length of Program

Normally three years are required to complete the PhD degree. There is a six-year time limit.

175.3 Anthropology

Department of Anthropology
13-15 Tory Building
University of Alberta
Edmonton, Alberta T6G 2H4
E-mail: gail.mathew@ualberta.ca

175.3.1 General Information

The Department of Anthropology offers the Master of Arts and Doctor of Philosophy degrees. Students contemplating graduate work in anthropology should direct their inquiries to the Associate Chair of the Department.

Deadline for receipt of completed applications for admission is February 1; however, applicants for admission to the PhD program who wish to be considered for University of Alberta PhD Scholarships are encouraged to apply well in advance of February 1.

Entrance Requirements

The Department's minimum admission requirements are (1) for the MA program, a four-year undergraduate degree; (2) for the PhD program, a master's degree with a written thesis; and a grade point average of 7.0 in the last ★60 (or equivalent) of undergraduate or graduate study at the University of Alberta or an equivalent qualification from a recognized institution. In exceptional cases, the department may grant admission to the PhD program directly from a bachelor's program in Anthropology. Generally, students with a degree in a concentration other than Anthropology are advised to complete at least one year as a qualifying student before applying for a graduate degree program. Where applicable (refer to §173.2.3), candidates must have a TOEFL score of 550 or MELAB score of 85 or higher, or IELTS overall band score of 6.5, in order to be considered for admission.

Financial Assistance

Graduate teaching and research assistantships and a number of scholarships are available to qualified students. For details, see §175.3.3.

175.3.2 The Degree of MA

Program Requirements

In addition to satisfying the general requirements of the Faculty of Graduate Studies and Research, candidates for the MA degree must complete the following courses

- (1) Four ★3 courses in Anthropology and/or areas relevant to their specialization, and
- (2) Two ★3 courses in areas outside their specialization, one from within Anthropology, the second from within Anthropology or another department.

Specific courses taken to meet these requirements must be chosen in consultation with the student's supervisor and the graduate program's advisor.

In addition to the course requirements, candidates must prepare an acceptable MA thesis according to Faculty of Graduate Studies and Research regulations and Department expectations. Candidates must demonstrate to the satisfaction of the examining committee proficiency in the handling of any research tools necessary for the MA thesis.

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

Normally, two years of study and research are needed to complete the requirements for the degree of MA. There is a four-year time limit (§173.13).

175.3.3 The Degree of PhD

Program Requirements

- (1) Students entering the PhD program must have already completed an MA for which a written thesis is a requirement. Applicants must successfully defend their thesis by August 31 of the admission year and meet the Fall convocation deadline of their university. Failure to provide the University of Alberta with notification of the MA thesis defense by August 1 of the admission year can negate the offer of admission. Those with an MA degree other than in anthropology are normally required to complete the coursework for an MA in the Department of Anthropology at the University of Alberta.
- (2) Residence requirements are those of the Faculty of Graduate Studies and Research (§173.6)—a minimum of two years. Provisional PhD candidates must enrol in three ★3 courses per term in the first year of residence. The nature of the work will be determined by the student and the supervisor.
- (3) In accordance with Faculty regulations, a supervisory committee will be struck as soon as possible. This supervisory committee will formulate a program of advanced study and research and will require demonstration of proficiency in any research tools necessary for writing the thesis.
- (4) Demonstrated proficiency in a language other than English is required.
- (5) Prior to the candidacy examination, the student must submit a satisfactory research proposal that will lead to production of a thesis of publishable quality based on original advanced research and theoretical interpretation.
- (6) According to Faculty regulations (§174.2.1) the student shall pass an oral candidacy examination in subjects relevant to the general field of research. Normally the candidacy examination shall be held at the end of the second year or the beginning of the third year.
- (7) The dissertation shall be examined by a committee, the composition of which is specified in Faculty regulations (§174.2.1(7)). A final oral examination, based largely on the thesis, shall be conducted by the examining committee.

Length of Program

The time limit for completing the PhD degree is six years from the date of first registration in the program.

175.3.4 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading Anthropology (ANTHR).

175.4 Art and Design

Department of Art and Design
3-98 Fine Arts Centre
University of Alberta
Edmonton, Alberta T6G 2C9
E-mail: artdes@gpu.srv.ualberta.ca

175.4.1 General Information

The Department of Art and Design offers graduate programs leading to the Master of Fine Arts and Master of Design degrees in a wide range of studio disciplines. The Department also offers graduate programs leading to the Master of Arts degree in history of art and design.

Programs leading to the MDes degree provide advanced studies in visual communication design, industrial design, or drawing. Programs leading to the MFA degree are designed to provide advanced studies in painting, sculpture, printmaking, or drawing.

Programs leading to the MA degree in the history of art and design provide for advanced study and research.

Graduate students in studio are provided with adequate independent working spaces and with access to all the equipment necessary to develop their studies and explorations. A well-endowed University library and a departmental slide library holding over 120,000 slides provide reference material. Nineteen full-time members in the academic staff are available for supervision and discussion.

Inquiries should be addressed to the Coordinator of Graduate Studies, Department of Art and Design.

Entrance Requirements

The Department's minimum admission requirements are a general undergraduate degree with a grade point average of 6.5 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution, and a TOEFL score of 550 where applicable (refer to §173.2.3).

Financial Assistance

Graduate teaching and research assistantships and a number of scholarships are available to qualified students. For details, see §180.

175.4.2 The Degrees of MDes and MFA

Entrance Requirements

An applicant must normally hold a bachelor's degree in fine arts or design (or its equivalent) from a recognized institution. Candidates who, in the view of the Department, need to make up prerequisite courses will normally spend one additional year in preparation.

Applicants will be required to submit visual records or a portfolio of work and documentation of their previous experience to the Department before February 15 of the year of application.

Program Requirements

All candidates require credit in ART 630.

Candidates in fine arts programs require credit in two studio courses at the 600-level and two history of art and design courses chosen from 400, 500 or 600-level courses with consent of the Department.

Candidates in design programs require credit in

- (1) either of DES 672, 692 or DES 640 and either of DES 673, 693 or DES 641;
- (2) DES 675 or DES 695 or a history of art and design course chosen from a 400, 500 or 600 level course in aspects of design in the 19th or 20th centuries;
- (3) a course chosen from selected courses offered by other departments, or from courses at the 400, 500 or 600 level in the history of art and design, or courses in studio or design theory and technology at the 400 or 500 level in an area other than the student's own division. Consent of the Department is required.

Course work must be completed before commencement of the thesis. First term studio courses may not be repeated; however, second term studio courses may be repeated with consent of the Department.

After all other program requirements have been satisfactorily met, candidates must make a major presentation of their creative work. Such a presentation will be considered the equivalent of a master's thesis. The Department of Art and Design reserves the right to select and retain up to two works from the final thesis presentation.

There is no language requirement for the degrees.

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

Candidates will normally require two academic years to complete their program of studies.

175.4.3 The Degree of MA in the History of Art and Design

Entrance Requirements

An applicant must normally hold an Honors degree in the History of Art (or its equivalent) from a recognized institution.

Applicants with a bachelor's degree other than History of Art will be considered for admission provided that an adequate background in the History of Art, equivalent to an Honors degree in the discipline, can be demonstrated. Applicants are advised to have reading ability and course credits in a language other than English at a level satisfactory to the department. Applicants will be required to submit current samples of writing and documentation of previous education and work experience to the department before February 15th, for admission in September, and before October 15th, for admission in January of the year of application.

Program Requirements

Applicants who are accepted will normally require two academic years in residence to complete their program of studies. Exceptions to this regulation will require the consent of the Department and the Faculty of Graduate Studies and Research.

Candidates who, in the view of the Department, need to make up prerequisite courses will normally have to make up the deficiencies prior to acceptance into the graduate program.

The graduate program consists of two phases:

Phase I (first year)

In the first year of the program students will normally be required to take:

- (1) ★18 approved
- (2) of these ★18 approved, ★12 must be taken from History of Art and Design offerings at the 500- and 600-levels
- (3) of the ★12 required from the 500- and 600-course offerings, ★3 must be taken in a 600-level graduate seminar
- (4) up to ★6 of the ★18 required to be taken may, subject to the approval of the thesis or graduate advisor, be taken outside the Department.

Students will be required to pass a translation test in a language other than English (normally French, German or Italian), or a language reading course or approved equivalent with a minimum grade of 6.0 before proceeding to thesis.

Phase II (second year)

Admission to Phase II is contingent upon the satisfactory completion of all the requirements in Phase I. Course work from Phase I may not be repeated.

Phase II consists of the preparation, presentation and defense of a master's thesis on a topic approved by the Department.

Length of Program

Applicants who are accepted will normally require two years to complete their program of studies. Candidates who, in the view of the Department, need to make up prerequisite courses will normally spend a longer period of time to complete their graduate program.

175.4.4 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the following subject headings:

- Art (ART)
- Design (DES)
- Art History (ART H)

175.5 Biochemistry

Department of Biochemistry
474 Medical Sciences Building
University of Alberta
Edmonton, Alberta T6G 2H7
E-mail: janet.wright@ualberta.ca

175.5.1 General Information

The Department of Biochemistry offers programs leading to the degrees of Master of Science and Doctor of Philosophy. Both require the completion of a research program and the preparation of a thesis.

The Department of Biochemistry strives to train scientists with both a broad knowledge of the disciplines of Biochemistry, Biophysics and Molecular Biology, and with an in-depth knowledge of a particular specialized area thereof. It also attempts to develop critical and creative scholars who can effectively communicate with their scientific peers and with the broader community, and who can also teach effectively at both the undergraduate and graduate levels. The Department also seeks to develop scientists with a sound ethical sense who are willing to serve the wider scientific community. Students develop these qualities and attitudes through their formal course work, through participation in both general and specialized seminar courses, through modest instructional responsibilities in the undergraduate student laboratory, through participation in scientific integrity and teaching workshops, and especially through completion of an independent research program, and the production and defense of a thesis, of highest quality.

The research interests of the faculty members cover a broad spectrum, including bile acid metabolism and hypercholesterolemia, mechanisms of cell-mediated cytotoxicity and apoptosis, role of lipid second messengers in signal transduction, mechanisms of cellular regulation, regulation of intracellular pH, mechanisms of regulation of gene expression, protein synthesis and design, regulation of protein phosphatases and phosphorylation, three-dimensional structure of proteins, assembly of mitochondrial enzymes, structure and function of biological membranes, regulation of gene expression by endoplasmic reticulum proteins, structure and function of lipid transport proteins, regulation of transcription and chromatin assembly, structure and function of extracellular matrix macromolecules, neoplastic transformation of cultured cells by dominant oncogenes, cell cycle regulation, structure and function of proteins regulating muscle contraction, molecular biology of phospholipid biosynthesis, and membrane protein structure and bioenergetics.

The Department, which is located on several floors of the Medical Sciences Building and the Heritage Medical Research Centre, is extremely well-endowed in terms of both equipment and support facilities. These include state-of-the-art X-ray area detectors and computer facilities, protein sequencers, amino acid analyzers, peptide synthesizers, automated systems for DNA synthesis and sequencing, fluorimeters, spectropolarimeters, TEM/STEM electron microscope, scanning calorimeters, Fourier transform infrared spectrometers, high-field NMR spectrometers, as well as numerous other spectrophotometers, high-pressure liquid chromatography instruments, centrifuges, scintillation counters, and extensive tissue culture facilities. It is the home of The MRC Group in Protein Structure and Function, the Lipid and Lipoprotein Research Group, the MRC Program in the Molecular Biology of Membranes, and to the Molecular Mechanisms of Growth Control group. It is also the location of the primary node of the Protein Network of Centres of Excellence. Research funding, primarily from agencies such as the Medical Research Council of Canada and the National Cancer Institute, amounts to well over \$10 million per year.

Entrance Requirements

The Department generally does not consider accepting students with an overall grade point average of less than 7.0 in their undergraduate years at the University of Alberta, or an equivalent qualification from another institution, a TOEFL score of 600 (see §173.2.3) and high GRE general and subject area scores (where appropriate).

Financial Assistance

Students who are accepted into the graduate program are encouraged to apply for studentships from either the Medical Research Council of Canada, the Natural Sciences and Engineering Research Council, or the Alberta Heritage Foundation for Medical Research. All successful applicants to any one of the agencies are eligible to receive a research allowance from the Heritage Foundation to defray costs (including travel to scientific meetings) of their research project. Awards can also be obtained from the Faculty of Graduate Studies and Research and the Faculty of Medicine and Dentistry. Graduate assistantships are also available from the Department and some students are supported directly by their supervisor's research grants. All students receive a base-level supplementary support by the Department, if required, so that their net stipend does not fall below the MRC minimum (currently, \$15,694 per annum) after all tuition and fees are paid.

175.5.2 The Degree of MSc

Program Requirements

The minimum graduate course requirements are ★12, although actual course requirements depend on the area of specialization and on the

undergraduate background of the student. The Department provides intermediate-level courses in five key subjects which cover a wide area of this discipline: Integration and Regulation of Metabolism; Protein Chemistry, Structure and Function; Eukaryotic Gene Expression; Structure and Function of Biological Membranes; and Lipids and Lipoproteins. Graduate students in either the MSc or PhD stream should have demonstrated competence in all of these core areas before they receive the graduate degree. In addition, the Department offers a number of other more specialized courses at the 500- and 600-level.

Graduate students normally will also enrol in at least two formal, advanced-level courses in the 500- or 600-series. These will usually be related to their research interest. The list of suitable advanced courses to be taken for credit presently includes BIOCH 510, 520, 530, 541, 550, 555, 560, 609, 620, 630, 641, 655, and 675. In addition, all students are required to enrol and present two seminars in BIOCH 671 (as an audit in the first and for credit in the second year of their program), and to enrol in one other seminar course (BIOCH 623, 626, 640, 650) that is appropriate to their research program.

To be eligible for an MSc degree, students are required to have a cumulative GPA of not less than 6.5 in all formal (non-seminar) courses taken during the graduate program. Failure (a grade of 5.0 or lower) in two, one-term courses, or in a single, two-term course, will normally result in the automatic recommendation to the Faculty of Graduate Studies and Research to terminate a student's program in the Department, unless the student's cumulative GPA at that time is 6.5 or higher.

All candidates for the MSc degree must prepare an acceptable thesis describing the results of their research activities, and be examined orally on the thesis by a committee formed according to Faculty of Graduate Studies and Research regulations.

The Department does not require knowledge of any language other than English for the MSc degree.

Length of Program

The time required to complete the program will vary according to the previous training of the applicant and the nature of the research undertaken, but normally, two to three years of study and research is required.

175.5.3 The Degree of PhD

Program Requirements

The minimum graduate course requirements are ★12, although actual course requirements depend on the area of specialization and on the undergraduate background of the student. The Department provides intermediate-level courses in five key subjects which cover a wide area of this discipline: Integration and Regulation of Metabolism; Protein Chemistry, Structure and Function; Eukaryotic Gene Expression; Structure and Function of Biological Membranes; and Lipids and Lipoproteins. Graduate students in either the MSc or PhD stream should have demonstrated competence in all of these core areas before they receive the graduate degree. In addition, the Department offers a number of other more specialized courses at the 500- and 600-level.

Graduate students normally will enrol in at least two formal, advanced-level courses in the 500- 600-series. These will usually be related to their research interest. The list of suitable advanced courses to be taken for credit presently includes BIOCH 530, 555, 575, 609, 620, 630, and 641. In some cases, a student may substitute a 400-level course for the advanced course requirement. In addition, all students are required to enrol and present two seminars in BIOCH 671 (as an audit in the first and for credit in the second year of their program), to enrol in one other seminar course (BIOCH 623, 626, 640, 650) that is appropriate to their research program, and in the final year of the program, to present a BIOCH 671 seminar describing the results of their research program.

To be eligible for a PhD degree, students are required to have a cumulative GPA of not less than 7.0 in all formal (non-seminar) courses taken during the graduate program. Failure (a grade of 5.0 or lower) in two one-term courses, or in a single two-term course, will normally result in the automatic recommendation to the Faculty of Graduate Studies and Research to terminate a student's program in the Department, unless the student's cumulative GPA at that time is 6.5 or higher.

All candidates for the PhD degree must prepare an acceptable thesis describing the results of their research activities, and be examined orally on the thesis by a committee formed according to Faculty of Graduate Studies and Research regulations.

The Department does not require knowledge of any language other than English for the PhD degree.

Length of Program

The time required to complete the PhD will vary according to the previous training of the candidate, but normally, a minimum of four years of study and

research is required. Students already possessing an MSc degree in Biochemistry may be able to complete the PhD program within three years.

175.5.4 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading Biochemistry (BIOCH)

175.6 Biological Sciences

Department of Biological Sciences
CW312 Biological Sciences Building
University of Alberta
Edmonton, Alberta T6G 2E9
E-mail: bio.grad.coordinator@ualberta.ca

175.6.1 General Information

The Department of Biological Sciences offers programs leading to the degrees of Master of Science and Doctor of Philosophy. It strives to develop scholars familiar with literature in their field, capable of identifying new problems and new directions of endeavor in their field, and competent with the methods of data collection and analysis essential to do research. Students will fulfill these objectives through several forums: a supervised research program, coursework, participation in seminar programs, and defending their dissertation.

The Department has research laboratories and instructional facilities for 250–300 graduate students. There are facilities for electron and confocal microscopy, analytical chemistry, molecular biology, fermentation, biotechnology, DNA synthesis and sequencing, cultivation of microbial cells and cells of yeasts, plants, insects and mammals. Facilities include large holding tanks for aquatic animals, and environment rooms including an extensive greenhouse complex. Off-campus facilities include the Devonian Botanic Garden and mycology herbarium, several field stations including the Meanook Biological Research Station, George Lake Field Station, and Ellerslie Plant Genetics Station, all near Edmonton, and the Bamfield Marine Biology Station on Vancouver Island. Extensive reference collections are available for research with microfungi, vascular and cryptogamic plants as well as vertebrates and invertebrates, including major collections of fishes, fossil plants and vertebrates, insects and parasites.

There are five research interest groups within the Department: Environmental Biology and Ecology, Microbiology and Biotechnology, Molecular Biology and Genetics, Physiology and Cell Biology, and Systematics and Evolution. Students either register in one of these areas of specialization for their program or, with permission of the supervisor and approval of the Associate Chair (Graduate Studies), register toward a degree of MSc or PhD with Specialization in Biological Sciences. Declared specialization in one of the five research interest areas can be indicated on a student's thesis title page, degree diploma, and transcript.

Potential applicants, especially PhD students, are encouraged to first correspond with academic staff in whose research laboratories they might want to study. Additional information is found on the Worldwide Web at <http://www.biology.ualberta.ca>.

Entrance Requirements

The Department's minimum admission requirements are a four-year undergraduate degree, or its academic equivalent, from a recognized university, and a grade point average of at least 7.0 in the last two years of undergraduate study at the University of Alberta, or an equivalent qualification (for example, 77%, 3.2/4.0) from another institution. A minimum Test of English as a Foreign Language (TOEFL) of 600 is required, where applicable (see §173.2.3).

Financial Assistance

Graduate students may be supported by 1) scholarships from a variety of sources including the Natural Sciences and Engineering Research Council, Alberta Heritage Fund for Medical Research, and the Province of Alberta; 2) Graduate Teaching or Research Assistantships; or 3) funds from research trust accounts. Normally, no student is accepted without some financial support.

A minimum grade point average of 7.5 at the University of Alberta (or 3.4–3.5 on a scale of 4.0, about 79% for institutions using a percentage grading system, or equivalent) is normally required for competition for departmental funding (graduate teaching assistantships and scholarships.)

Foreign students with a Test of English as a Foreign Language score below 630 seldom receive graduate teaching assistantships. The Graduate Record Examination General and Subject Tests are not required, but are useful in determining acceptability.

175.6.2 The Degree of MSc

Program Requirements

Required courses depend on the area of specialization (see below) and the undergraduate background of the student; however, the MSc program requires registration in a combination of coursework and thesis research comprising the equivalent of a minimum of ★24. This normally consists of a minimum of ★6 graded courses (equivalent to two single-term graduate-level, or approved undergraduate, graded courses) and a thesis. Generally, courses should be taken in the first year of the program. Beyond the basic course requirements of the Department, each student's individual program will be developed by agreement between the student and the supervisor or the supervisory committee.

Students will be asked to present their thesis research to the Department in the form of a public seminar within two weeks prior to the date of the thesis defense. In addition, students will be encouraged to present progress reports (oral and poster formats) to the Department or research group in an informal setting at an early stage in their research program.

There is no language requirement for the degree of MSc.

Candidates for the master's degree must complete a minimum of two (four-month) terms in full-time residence at the University of Alberta.

Requirements within Research Groups

The Degree of MSc with Specialization in Biological Sciences

The MSc program consists of research leading to a thesis, and a minimum of ★6 graded course work, of which ★3 must be in a graded seminar or discussion-oriented course.

The Degree of MSc with Specialization in Environmental Biology and Ecology

The MSc program consists of research leading to a thesis, and a minimum of ★6 graded course work, of which ★3 must be in a graded seminar or discussion-oriented course. Enrolment in BIOL 620 is recommended.

The Degree of MSc with Specialization in Microbiology and Biotechnology

The MSc program consists of research leading to a thesis and a minimum of ★6 graded course work. All students register in MICRB 514 in their first or second year and complete a ★3 graded course selected from the approved list (found in §201) and approved by student's supervisor/supervisory committee. Students will register in MICRB 607 in the second year and register and/or participate in MICRB 606 in all other years.

The Degree of MSc with Specialization in Molecular Biology and Genetics

The MSc program consists of research leading to a thesis, and a minimum of ★6 graded course work. In their first year, students typically register in GENET 500 (Term I) and GENET 510 (Term II). In special cases, students may opt out of one of these courses on recommendation of their supervisory committee. However, all students must register in at least ★3 graded courses in their first year, and at least ★3 of their total graded course weight must be chosen from the 500 or 600 level as advised by their supervisory committee. (GENET 500 and GENET 510 will normally fulfill this requirement.) Each year, all students will register in GENET 601 and GENET 605.

The Degree of MSc with Specialization in Physiology and Cell Biology

The MSc program consists of research leading to a thesis, and a minimum of ★6 graded course work. Students will register in BIOL 642 during each of the first two years of their program. In subsequent years, they will register either in BIOL 642 or any other seminar course, as determined by the supervisor.

The Degree of MSc with Specialization in Systematics and Evolution

The MSc program consists of research leading to a thesis, and a minimum of ★6 graded course work. This includes registering in BIOL 606 at least once during their program (students should participate in this course throughout their program). Students are encouraged to select a course from the following list after consultation with their supervisor or supervisory committee: BIOL 321, 335, 380, 430, 435, and 520. Students are strongly encouraged to take BIOL 620 during the first or second year of their program.

Length of Program

The time required to compete the MSc degree will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of two years is normally required. Candidates must complete their degree program within four years of the time they first register.

175.6.3 The Degree of PhD

Program Requirements

Required courses depend on the area of specialization (see below) and the undergraduate background of the student; however, the PhD program requires registration in a combination of coursework and thesis research comprising the equivalent of a minimum of ★36. This normally consists of a

minimum of ★6 graded courses (equivalent to two single-term graduate-level graded courses) and a thesis. Generally, courses should be taken in the first year of the program. Beyond the basic course requirements of the Department, each student's individual program will be developed by agreement between the student and the supervisor or the supervisory committee.

Students will be asked to present their thesis research to the Department in the form of a public seminar either on the same day, or the day before, the thesis defense. In addition, students will be encouraged to present progress reports (oral and poster formats) to the Department or research group in an informal setting at an early stage in their research program.

There is no language requirement for the degree of PhD.

Candidates for the PhD degree must complete a minimum of two academic years (equivalent to four terms) in full-time residence at the University of Alberta.

Requirements within Research Groups

The Degree of PhD with Specialization in Biological Sciences

The PhD program consists of research leading to a thesis, and a minimum of ★6 graded course work, of which ★3 must be in a graded seminar or discussion-oriented course.

The Degree of PhD with Specialization in Environmental Biology and Ecology

The PhD program consists of research leading to a thesis, and a minimum of ★6 graded course work, of which ★3 must be in a graded seminar or discussion-oriented course. Enrolment in BIOL 620 is recommended.

The Degree of PhD with Specialization in Microbiology and Biotechnology

The PhD program consists of research leading to a thesis, and a minimum of ★9 graded course work. All students register in MICRB 514 in their first or second year and complete ★6 graded course selected from the list in §201 and approved by the student's supervisor/supervisory committee. Students will register in MICRB 607 in the second year and will register and/or participate in MICRB 606 in all other years.

The Degree of PhD with Specialization in Molecular Biology and Genetics

The PhD program consists of research leading to a thesis, and a minimum of ★9 graded course work. In their first year, students typically register in GENET 500 (Term I) and GENET 510 (Term II). In special cases, student may opt out of one of these courses on the recommendation of their supervisory committee. However, all students must register in at least ★3 graded courses in their first year, and at least ★6 of their total graded course weight must be chosen from the 500- or 600- level as advised by their supervisory committee. (GENET 500 and GENET 510 will normally fulfill this requirement.) Each year, all students will register in GENET 601 and GENET 605.

The Degree of PhD with Specialization in Physiology and Cell Biology

The PhD program consists of research leading to a thesis, and a minimum of ★6 graded course work. Students will register in BIOL 642 during each of the first two years of their program. In subsequent years, they will register either in BIOL 642 or any other seminar course, as determined by the supervisor.

The Degree of PhD with Specialization in Systematics and Evolution

The PhD program consists of research leading to a thesis, and a minimum of ★6 graded course work. This includes registering in BIOL 606 at least once during their program (students should participate in this course throughout their program). Students are encouraged to select a course from the following list after consultation with their supervisor or supervisory committee: BIOL 321, 335, 380, 430, 435, and 520. Students are strongly encouraged to take BIOL 620 during the first or second year of their program.

Length of Program

The time required to compete the PhD degree will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of three years is normally required. Candidates must complete their degree program within six years of the time they first register.

175.6.4 Graduate Courses in Biological Sciences

Graduate courses can be found in §201, Course Listings, under the following subject headings:

- Biological Sciences - Biology (BIOL)
- Biological Sciences - Botany (BOT)
- Biological Sciences - Entomology (ENT)
- Biological Sciences - Genetics (GEN)
- Biological Sciences - Interdisciplinary Courses (INT D)
- Biological Sciences - Marine Science (MA SC)
- Biological Sciences - Microbiology (MICRB)
- Biological Sciences - Zoology (ZOO)

175.7 Biomedical Engineering

Department of Biomedical Engineering
10-102 Clinical Sciences Building
University of Alberta
Edmonton, Alberta T6G 2G3
E-mail: biomed.eng@ualberta.ca
World Wide Web site: <http://www.bme.med.ualberta.ca>

175.7.1 General Information

Research facilities and lecture courses for graduate programs are offered by the Department of Biomedical Engineering. The Department offers programs leading to the degrees of Master of Science and Doctor of Philosophy, the latter being offered as a part of the PhD in Medical Sciences interdisciplinary program (see §175.36). Under the Individual Interdisciplinary Studies program (see §174.3) students may study and carry out their research in the Department of Biomedical Engineering and another department in the University. The Department of Biomedical Engineering is also part of the Coordinated Graduate Program in Biomedical Engineering in the Province of Alberta, a program that includes several departments in the University of Alberta and The University of Calgary and under any of which students may be co-supervised and carry out their research.

The research activities of the Department are directed at aspects of biomedical engineering and medical physics, including, but not limited to, biomaterials, digital image processing, functional neuromuscular stimulation, electrical topography of the brain, gait analysis, growth factor delivery, in-vivo nuclear magnetic resonance, including vascular imaging, functional magnetic resonance imaging (fMRI), as well as non-invasive biochemical analysis through spectroscopic methods, man-machine interfaces, orthotics and assisted locomotion, rehabilitation engineering, and tissue engineering.

Professional Associations and Technical Societies

It should be clearly understood that an MSc in Biomedical Engineering does not automatically qualify one for membership in the Association of Professional Engineers, Geologists, and Geophysicists of Alberta (APEGGA).

Entrance Requirements

The Department's minimum admission requirements are an undergraduate degree with a grade point average of at least 7.0 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from another institution, and a TOEFL score of 600 or higher where applicable (refer to §173.2.3).

Financial Assistance

Students who receive scholarships from external agencies, including the Natural Sciences and Engineering Research Council of Canada (NSERC), the Medical Research Council of Canada (MRC), and the Alberta Heritage Foundation for Medical Research (AHFMR), may hold these awards in the Department of Biomedical Engineering. Financial assistance is also available to qualified students through the Department. Exceptionally qualified applicants seeking the PhD degree may be nominated by the Department for a University of Alberta PhD Scholarship (see §180.7).

175.7.2 The Degree of MSc

Program Requirements

The requirements for this degree consist of coursework and a thesis. Required courses depend on the undergraduate background of the student; however, normally a minimum of ★15 in graduate courses must be completed. Of the required courses, a minimum ★6 must be obtained through credit in BME 513, 529, 553, 555, 575; EE BE 512 or 540. The remaining courses are determined by the student's supervisory committee and are relevant to the chosen area of research. Undergraduate courses taken for graduate credit carry only half the course weight assigned to that course.

There is no language requirement for the MSc.

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the program will vary according to the previous training of the applicant and the nature of research undertaken; however, a minimum of two years is normally required.

175.7.3 The Degree of PhD in Medical Sciences

Program Requirements

The PhD program is offered as part of the medical sciences interdisciplinary program and normally consists of five single-term graduate

courses (or equivalent) and the preparation and defence of a dissertation on an approved topic.

No language other than English is required for the degree.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

Normally, a minimum of three years are required to complete the PhD.

175.7.4 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the following subject headings:

Biomedical Engineering (BME)

Electrical Engineering/Biomedical Engineering (EE BE)

Physics/Biomedical Engineering (PH BE)

175.8 Business

Faculty of Business
323 Faculty of Business Building
University of Alberta
Edmonton, Alberta T6G 2R6
E-mail: mba@gpu.srv.ualberta.ca

175.8.1 General Information

The Faculty of Business offers programs leading to the degrees of Master of Business Administration and Doctor of Philosophy in Business Management. In addition to the standard MBA program, specializations are available in International Business, Public Management, Leisure and Sport Management, Educational Administration, and Health Administration.

Entrance Requirements

The minimum admission requirements of the Faculty of Business are those of the Faculty of Graduate Studies and Research; namely, an undergraduate degree with an average of at least 6.5 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution.

All applicants are required to write the Graduate Management Admission Test, and have their scores forwarded to the appropriate individual (i.e., Associate Dean – MBA Programs; or the Director – PhD Program; Faculty of Business). The GMAT is now administered as a computer-adaptive test (CAT) throughout North America and in many other parts of the world. Visit the MBA Explorer Web site at <http://www.gmat.org> for the latest GMAT information. Further information and application forms are available from the Student Access Centre, Administration Building, University of Alberta, Edmonton, Alberta. Although no arbitrary standard is employed, a score well above 500 is desirable.

In addition to the above requirements, all students for whom English is not their native language must write and pass the Test of English as a Foreign Language. Students must obtain a minimum score of 600 before formal admission approval can be given. Further information and application forms are available from the Student Access Centre.

Additional entrance requirements are listed below, under the heading of the specific degree program.

Financial Assistance: Master's Programs

The Faculty of Business has a limited number of graduate assistantships in the range of \$1,100/term (1997/98 scale) depending on the academic status of the student.

Most graduate assistantships awarded by the Faculty of Business will be determined early in August, and are awarded to continuing students.

A limited number of fellowships and scholarships are also available.

For more information write to the Associate Dean, MBA Programs, or the Director, PhD Program, Faculty of Business.

175.8.2 The Degree of MBA

Entrance Requirements

Admission to a program of graduate studies in the Faculty of Business is based on the applicant's undergraduate grades, three letters of reference, a statement of purpose explaining how the MBA relates to the applicant's career goals, and the applicant's Graduate Management Admission Test score. For candidates interested in this program, work experience is also desirable.

Program Requirements

The two-year MBA program is designed for students from various educational backgrounds; no specific undergraduate major is required for

entrance. All MBA students are required to fulfil a total of ★57 (including thesis or course-based).

Phase one: The first year of the MBA program provides a foundation of 20 six-week courses covering basic managerial skills. Each six-week course is equivalent to ★1.5. Because the full-time courses are taught as an integrated unit involving teamwork, exemptions are not normally permitted. Completion of all ★30 in the core courses requires one full academic year.

The second phase of the program provides students with the opportunity to pursue, in some depth, courses in fields of their choice.

Phase two: The course-based option consists of ★27, which includes a capstone business policy course, ORG A 641, and a practicum, BUS 601, each equivalent to ★3. The business practicum involves a project for a public or private organization and gives students the opportunity to apply theory and use basic managerial skills in a business setting.

The thesis-based option consists of ★15. ORG A 641 and BUS 601 are required along with ★9 in electives. The thesis is equivalent to ★12 and is undertaken with the supervision of an advisor and a committee.

Length of Program

The equivalent of two full-time academic years are normally required to complete the program; however, it may be possible to accelerate studies with the completion of courses during Spring/Summer. The course-based MBA may be taken on a part-time evening basis; however, the program must be completed within six consecutive years from initial registration in the program.

For the thesis-based MBA, the minimum period of residence is two four-month terms of full-time attendance.

175.8.3 The MBA-LLB Joint Program

The Faculty of Business and the Faculty of Law offer a program of joint study which permits highly qualified students to earn both the MBA and LLB degrees in four years.

Each student must apply separately to the Faculty of Law (for admission into the LLB program) and to the Faculty of Graduate Studies and Research (for admission into the MBA program).

In addition, each student must apply to the combined program by completing an MBA-LLB application form available from the Faculty of Law or the Faculty of Business.

In addition to new entrants, students in the first year of either the regular MBA program or the Faculty of Law are eligible to apply for the joint program.

Entrance Requirements

Acceptance by the Faculty of Graduate Studies and Research (for admission into the MBA program) and by the Faculty of Law (for admission into the LLB program) separately, are prerequisites for admission into the MBA-LLB program. Admission into each faculty will be determined by the same selection process and criteria as for other students. In addition, each student must be admitted into the combined program; in this case admission will be determined by a selection committee composed of representatives of the Faculty of Law and the Faculty of Business. Since this is a special program, particular attention in the selection process will be given to:

- (1) the student's past academic achievement; and
- (2) the student's maturity, interest and a rationale of how such a combined program will enhance the student's career and professional skills.

Program Requirements

The first year is taken entirely within one program (Law or MBA), and the second year entirely within the other. In these first two years, candidates will take the regular first-year program offered by both schools, with the sequence being at the student's option. The third year will consist of a mixed program in both Faculties, and the fourth year will be in the Faculty of Law. The Law portion of the program consists of approximately 75 hours of coursework while the Business portion of the program consists of 45 hours of coursework.

During the joint third year of the MBA-LLB program, the courseload requirements are as follows: Students must register in the Faculty of Graduate Studies and Research in Fall/Winter and must successfully complete a minimum of ★30 for credit, or which at least ★15 must be Law courses/credits.

MBA courses: students who obtain a grade of less than 6 or who fail to complete one of the MBA courses may, upon the recommendation of the Associate Dean (MBA), with the approval of the Faculty of Graduate Studies and Research, retake the course(s) or take an alternate course(s). Students repeating or taking an alternate course(s) must obtain a minimum grade of 6 and must maintain a cumulative grade point average of 6.5 (U of A Calendar, §173.8.2).

Law courses: students who obtain a grade of 5 will have passed that course according to the Faculty of Law regulations but will have failed according to the

Faculty of Graduate Studies and Research regulations. In these instances, students will take a substitute but equivalent Law course in the fourth year of their program. This alternate Law course is to be recommended by the Associate Dean (Law) and approved by the Faculty of Graduate Studies and Research *prior* to students beginning their fourth year in the MBA/LLB program. Students must register for this course(s) in the Faculty of Graduate Studies and Research and must obtain a minimum grade of 6.

Students in the MBA-LLB program may register in Spring/Summer; however, in the joint third year of this program, they must be registered in the Faculty of Graduate Studies and Research as outlined above.

Upon the successful completion of the third year, candidates will receive the MBA degree. Upon the successful completion of the fourth year, candidates will receive the LLB degree.

Inquiries regarding the joint MBA-LLB degree program may be directed to the MBA Office in the Faculty of Business or the Faculty of Law.

Academic Standing:

During the first year of the combined program, a student is subject to the academic standing regulations and routes of appeal for grades and for academic standing of the Faculty in which the student is registered.

Therefore, if the student registers in the Faculty of Law in the first year of the joint program, the student shall refer to that Faculty's academic standing regulations and right of appeal procedures.

If the student registers in the Faculty of Graduate Studies and Research in the first year of the joint program, the student shall refer to the Faculty of Graduate Studies and Research's academic standing regulations and right of appeal procedures.

In the second year of the joint program, a student is subject to the academic standing regulations and routes of appeal for grades and for academic standing of the Faculty in which the student is registered.

Therefore, if the student registers in the Faculty of Law in the second year of the joint program, the student shall refer to that Faculty's academic standing regulations and right of appeal procedures.

If the student registers in the Faculty of Graduate Studies and Research in the second year of the joint program, the student shall refer to the Faculty of Graduate Studies and Research's academic standing regulations and right of appeal procedures.

In the third year of the joint program students must maintain a level of academic standing that is satisfactory to both Faculties. The student shall be subject to the routes of appeal for grades and for academic standing of the Faculty of Graduate Studies and Research.

Since the fourth year's work is done entirely in the Faculty of Law to complete the LLB degree, the student shall register in the Faculty of Law and shall be subject to the academic standing regulations and routes of appeal for grades and for academic standing of the Faculty of Law.

If a student withdraws from one of the degree programs or is required to withdraw because of unsatisfactory academic standing, but wishes to remain in the other degree program, the student may be permitted to continue the program of study in the Faculty in which the student retains good academic standing.

Length of Program

Students normally finish all the requirements for the MBA degree, by the end of the third year, and will be awarded the MBA degree at this time. All requirements for the LLB degree will be completed by the end of the fourth year.

175.8.4 The MBA/MAg Joint Program

The Faculty of Agriculture, Forestry and Home Economics and the Faculty of Business offer a program of joint study which enables students to earn both the MBA and MAg degrees after two calendar years of full-time study.

Each student must complete a Faculty of Graduate Studies and Research application form to be submitted to the Faculty of Business. A letter indicating the intention to apply to the MBA/MAg program including a statement of the applicant's agricultural specialization, background and interests should also be enclosed.

Entrance Requirements

Normally only students with a BSc degree in an agricultural-related discipline will be admissible to this program. Applicants must follow the admission procedures and meet the admission requirements of both the Faculty of Business and the specific department of the Faculty of Agriculture, Forestry and Home Economics as governed by the regulations of the Faculty of Graduate Studies and Research. The recommendation for admission will be made by the MBA/MAg Joint Program Selection Committee consisting of representatives from the Faculty of Business and the Faculty of Agriculture, Forestry and Home Economics. Admission will be recommended only for those students judged to have the ability and motivation to handle the significant demands of the program. Professional experience is highly desired.

Program Requirements

The course requirements are normally as follows:

- (1) 16 first-year ★1.5 required MBA courses
- (2) Five ★3 elective MBA courses
- (3) Two ★3 graduate elective courses (Business or Agriculture, Forestry and Home Economics)
- (4) Five ★3 approved graduate-level courses in agricultural-related disciplines
- (5) A ★3 project in agriculture with a significant business component.

Students who decide to transfer out of the joint program into the regular MBA or MAg program will have to apply and meet the full degree requirements of that program.

Length of Program

Students enrolled in the joint program on a full-time basis can complete the program in two calendar years. Students may undertake the joint program on a part-time basis. The duration of the total program must not exceed six consecutive calendar years.

175.8.5 The MBA/MEng Joint Program

The Faculty of Business and the Faculty of Engineering offer a program of joint study which enables students to earn both the MBA and MEng degrees after two calendar years of full-time study.

Each student must complete a Faculty of Graduate Studies and Research application form to be submitted to the Faculty of Business. A letter indicating the intention to apply to the MBA/MEng program should also be enclosed.

Entrance Requirements

Only students with an undergraduate degree in engineering will be admissible to this program. Applicants must follow the admission procedures and meet the admission requirements of both the Faculty of Business and the specific engineering department as governed by the regulations of the Faculty of Graduate Studies and Research. The recommendation for admission will be made by the MBA/MEng Joint Program Selection Committee consisting of representatives from the Faculty of Business and the Faculty of Engineering. Admission will be recommended only for those students judged to have the ability and motivation to handle the significant demands of the program.

Program Requirements

The course requirements are as follows:

- (1) 20 first-year ★1.5 MBA courses.
- (2) ORG A 641.
- (3) Three second-year ★3 elective MBA courses.
- (4) Five ★3 graduate engineering courses (excluding engineering management courses) for programs in Mechanical or Electrical Engineering, or seven ★3 graduate engineering courses for programs in other engineering departments.
- (5) One engineering project equivalent to two ★3 courses. The required engineering project must have a significant business related component, and will be cosupervised by a professor from the Faculty of Business and a professor from the degree department within the Faculty of Engineering.

Students will normally take the 20 first-year MBA courses in their first two semesters but may defer up to four first-year MBA courses to the second year of the program and replace them in the first year with graduate engineering courses.

Students are eligible to receive financial assistance from either the Faculty of Business or the specific department within the Faculty of Engineering, but may not receive financial assistance from both Faculties simultaneously.

Students who decide to transfer out of the joint program into the regular MBA or MEng program will have to apply and meet the full degree requirements of that program.

Length of Program

Students enrolled in the joint program on a full-time basis can complete the program in two calendar years. Students may undertake the joint program on a part-time basis but must include one term of full-time attendance within a specified department in the Faculty of Engineering if so required by the specific engineering department. The duration of the total program must not exceed six consecutive calendar years.

175.8.6 The MBA/MF Joint Program

The Faculty of Agriculture, Forestry and Home Economics and the Faculty of Business offer a program of joint study which enables students to earn both the MBA and MF degrees after two calendar years of full-time study.

Each student must complete a Faculty of Graduate Studies and Research application form to be submitted to the Faculty of Business. A letter indicating the intention to apply to the MBA/MF program including a statement of the applicant's forestry specialization, background and interests should also be enclosed.

Entrance Requirements

Normally only students with a BSc degree in Forestry will be admissible to this program. Applicants must follow the admission procedures and meet the admission requirements of both the Faculty of Business and the Department of Renewable Resources. The recommendation for admission will be made by the MBA/MF Joint Program Selection Committee consisting of representatives from the Faculty of Business and the Faculty of Agriculture, Forestry and Home Economics. Admission will be recommended only for those students judged to have the ability and motivation to handle the significant demands of the program. Professional experience is highly desired.

Program Requirements

The course requirements are normally as follows:

- (1) 16 first-year ★1.5 required MBA courses
- (2) Five ★3 elective MBA courses
- (3) Two ★3 graduate elective courses (Business or Agriculture, Forestry and Home Economics)
- (4) FOR 601 and 602 and 3 other approved ★3 graduate-level Forestry courses
- (5) ORG A 641 or BUS 601 or one ★3 project course

Students who decide to transfer out of the joint program into the regular MBA or MF program will have to apply and meet the full degree requirements of that program.

Length of Program

Students enrolled in the joint program on a full-time basis can complete the program in two calendar years. Students may undertake the joint program on a part-time basis. The duration of the total program must not exceed six consecutive calendar years.

175.8.7 The MBA with Specialization in Technology Transfer

The MBA with specialization in Technology Transfer trains managers who can take new ideas and inventions from their source of discovery to the marketplace. It is designed to give students the expertise to assess and realize commercial potential of the latest technologies, as well as to apply entrepreneurial approaches to commercializing technology and innovation.

Entrance Requirements

Applicants must first be enrolled in the MBA program (see §175.8.2) and must have successfully completed the first set of six-week courses to be considered for admission. Admission is based on the applicant's grades in these courses, as well as on the applicability of the individual's undergraduate degree program.

Program Requirements

The course requirements are as follows:

- (1) 20 first year ★1.5 MBA courses
- (2) Technology Transfer Summer Internship equivalent to one ★3 course
- (3) ORG A 641
- (4) Seven ★3 graduate level electives (chosen from an approved list)

Length of Program

Students enrolled in this program can complete it in two calendar years.

175.8.8 The MBA with Specialization in International Business

The MBA with specialization in International Business trains managers to excel in today's global economy. It is designed to give students experience in addressing the challenges and identifying the opportunities of global markets.

Entrance Requirements

Applicants holding any recognized undergraduate degree will be considered for admission to this program. Admission to the MBA (International Business) Program is based on the applicant's undergraduate grades, three letters of reference, a statement of purpose explaining how this program relates to the applicant's career goals, and the Graduate Management

Admission Test score. For candidates interested in this program, some work experience is desirable.

Program Requirements

The course requirements are as follows:

- (1) 20 first year ★1.5 MBA courses
- (2) ORG A 641
- (3) Four ★3 International Business courses
- (4) Three ★3 Business electives
- (5) One ★3 project covering an international topic

Length of Program

Students enrolled in this program on a full-time basis can complete it in two calendar years. Alternatively, this course-based MBA program may be taken on a part-time basis; however, it must be completed within six consecutive years from initial registration in the program.

175.8.9 The MBA with Specialization in Leisure and Sport Management

The Faculty of Business, in conjunction with the Faculty of Physical Education and Recreation, offers a program leading to an MBA with specialization in Leisure and Sport Management. The purpose of this applied administrative studies master's program is to prepare graduate students to become practicing managers/leaders in leisure and sport management.

Entrance Requirements

Applicants holding any recognized undergraduate degree will be considered for admission to this program. Admission to the MBA (Leisure and Sport Management) Program is based on the applicant's undergraduate grades, three letters of reference, a statement of purpose explaining how this program relates to the applicant's career goals, and the Graduate Management Admission Test score. For candidates interested in this program, some work experience is desirable. The recommendation for admission will be made by a selection committee consisting of representatives from the Faculty of Business and the Faculty of Physical Education and Recreation.

Program Requirements

The course requirements are as follows:

- (1) 16 ★1.5 MBA courses and two ★3 elective MBA courses with ORG A 641 strongly recommended.
- (2) Three ★3 graduate Physical Education and Recreation courses chosen from an approved list.
- (3) Two ★3 graduate Physical Education and Recreation courses.
- (4) Two ★3 approved graduate courses from any Faculty at the University of Alberta.
- (5) One internship or project equivalent to two ★3 courses.

Length of Program

Students enrolled in this program on a full-time basis can complete it in two calendar years. Alternatively, this course-based MBA program may be taken on a part-time basis; however, it must be completed within six consecutive years from initial registration in the program.

175.8.10 Executive MBA

The Faculty of Business at the University of Alberta and the Faculty of Management at the University of Calgary offer a joint Executive MBA program which permits individuals with at least seven years of work experience to earn the MBA through a 20 month weekend program.

Entrance Requirements

The minimum admission requirements in terms of undergraduate GPA and English language proficiency are those of the Faculty of Graduate Studies and Research. In some cases, students without an undergraduate degree, but who have 15 years of significant work experience are admissible. Applicants should have at least seven years of work experience to be admitted. Additionally all applicants are required to write the Graduate Management Admission Test (GMAT). Finally a letter of support from the applicant's employer and two letter of reference are desirable.

Program Requirements

The EMBA program is designed for individuals who have been in the workforce for seven years or more, and who are aspiring to top management positions. The course requirements are as follows:

- (1) Four ★1.5 week long intensive courses (including an international study tour)

- (2) Fourteen ★3 required MBA courses (including a year long project in Year 2)
- (3) Two graduate elective courses

Length of Program

Students enrolled in the EMBA can complete the program in 20 months.

175.8.11 The Degree of PhD

Information on the areas of faculty research and other information is contained in a brochure available from the PhD Program Director.

Entrance Requirements

The program seeks prospective candidates with an excellent scholastic record and a strong interest in research related to their chosen field of business studies. Potential students must have at least a bachelor's degree, which may be from any undergraduate program. Students without an MBA degree or equivalent courses are required to take courses that will give them an appropriate business background for their area of study. Applications are evaluated by an admissions committee on the basis of academic potential as evidenced through past grades, the GMAT, letters of recommendation, and a well-written statement of purpose. There are no fixed cut-off levels for consideration (beyond the Faculty of Graduate Studies and Research minimum admission requirement) but as a guideline, past entrants have scored at least in the ninetieth percentile of the GMAT with a 7.0 grade-point average. International students, who do not have English as a first language, must submit scores on the Test of English as a Foreign Language. A minimum TOEFL score of 550 is required. There is no additional language requirement.

Program Requirements

The Business PhD program is a research-oriented program which emphasizes knowledge of a major field of business studies, a cognate area, and strong analytical skills. The distinctive feature of business PhD programs, in general, is the concomitant study of related disciplines found in the University, as well as the study of functional fields of business. The program offered by the Faculty of Business at the University of Alberta consists of a major field of study chosen from accounting, finance, industrial relations, management science, marketing, and organizational analysis. In addition, two minors are selected from disciplines which underlie the major field, and/or from functional areas of business which are complementary to the chosen major field.

There are two basic stages in the program. They are the provisional candidacy (for completion of coursework, comprehensive examinations, and the general oral examination), and candidacy (for thesis completion).

All students in the Business PhD program must maintain a minimum cumulative grade point average of 7.0 throughout the course of the program.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Financial Information

The Faculty of Business offers funding for up to four years, made up of several kinds of support. A number of attractive fellowships are available (see Graduate Financial Aid section of this Calendar).

Length of Program

The program is a full-time program: candidates are expected to need two to three years to complete the required coursework and comprehensive exams and one to two years to complete the PhD thesis.

175.8.12 The MBA-PhD Joint Program

The Faculty of Business offers a joint MBA-PhD program of study to provide students, who are admitted to the Business PhD program without an MBA degree, the opportunity of obtaining the MBA degree if the requirements of that degree are satisfied.

Admission decisions to each part of the joint program are made by the respective offices. For the PhD program the admission recommendation is made by the PhD office, while admission recommendations to the MBA program are made by the MBA office. Both are subject to the approval of the Faculty of Graduate Studies and Research.

Students are required to meet MBA requirements for first-year courses in the program as well as ORG A 641, and ★24 electives. A minimum of ★12 must be 600-level Business courses. The remaining courses may be chosen, with the approval of the Associate Dean of the MBA program, from 600-level courses outside the Business Faculty, or from the Business PhD doctoral-level courses (selected from the approved lists of elective courses contained in a student's major and/or minor areas of PhD concentration). In all cases, the distinct criteria for the MBA program and the PhD program must be met.

Student funding is provided by the PhD program, subject to available funds. In general, those students in the joint program doing MBA qualifying coursework receive funding at the qualifying student rate. Until the MBA is completed, any locally-dispersed scholarships are at the master's rate.

The time limit for completion of both degrees is six years with the MBA portion to be completed within four years from initial registration.

Students in the combined MBA-PhD program are subject to the academic standing regulations and routes of appeal for academic standing of the Faculty of Graduate Studies and Research.

A recommendation to withdraw from the MBA-PhD program because of unsatisfactory academic standing shall be made by the Director of the PhD program to the Faculty of Graduate Studies and Research.

If a student withdraws from the MBA-PhD program and wishes to complete the MBA program, the student must seek admission to the regular MBA program. At the time of withdrawal from the joint program, the student's status, relative to course requirements in the MBA program, will be the decision of the Associate Dean MBA program.

175.8.13 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the following subject headings:

- Accounting (ACCTG)
- Business (BUS)
- Business Law (B LAW)
- Finance (FIN)
- Industrial Relations (IND R)
- Management Science (MGTSC)
- Managerial Economics (MANEC)
- Marketing (MARK)
- Organizational Analysis (ORG A)

175.9 Cell Biology and Anatomy

Department of Cell Biology and Anatomy
514 Medical Sciences Building
University of Alberta
Edmonton, Alberta T6G 2H7
E-mail: rrachubi@anat.med.ualberta.ca

175.9.1 General Information

The Department of Cell Biology and Anatomy, Faculty of Medicine and Dentistry, offers graduate programs leading to the MSc and PhD degrees in cell and molecular biology. Some of the areas of expertise within the Department are organelle biogenesis, protein targeting, cell cycling, cell signaling, cell structure, transcriptional control, cell-cell contact, axonal transport, neural development, and neurobiology of the autonomic nervous system.

The Department is well equipped to carry on experimental work in modern cell biology and neurobiology. The Department has state-of-the-art equipment including ultracentrifuges, tissue culture facilities, a confocal microscope, a transmission electron microscope, a freeze-fracture apparatus, and image analysis system.

Address all inquiries to the Graduate Coordinator, Department of Cell Biology and Anatomy.

Entrance Requirements

Graduate programs are normally open to graduates of general and health-related science programs, provided students obtained a grade point average of 7.0 at the University of Alberta or an equivalent qualification from a recognized institution. Applicants with degrees in other fields will be considered. Where applicable, candidates must have a TOEFL score of not less than 600 (see §173.2.3). Foreign applicants must provide a GRE score.

Financial Assistance

Financial assistance in the form of graduate research assistantships is normally available for students. Students will also be expected to apply for competitive student awards. Further information regarding financial assistance will be supplied upon request.

175.9.2 The Degree of MSc

Program Requirements

Candidates for the MSc must prepare an acceptable thesis presenting the results of original research conducted. Candidates will be examined orally

on their thesis results by a committee formed according to Faculty of Graduate Studies and Research regulations. Course requirements will be determined by the student's graduate advisory committee in accordance with University regulations.

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the MSc will vary according to the previous training of the applicant. A minimum of two years is normally required.

175.9.3 The Degree of PhD

Program Requirements

Students in the PhD program will take a candidacy exam consisting of written and oral parts and a final thesis defence. Each student will be supervised by a committee formed according to Faculty of Graduate Studies and Research regulations.

No language other than English is required for the PhD.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta. Course requirements will be determined by the student's graduate advisory committee in accordance with University regulations.

Length of Program

The time required to complete the program will vary according to the previous training of the applicant and the nature of the research undertaken. A minimum of three years beyond the MSc degree is normally required.

175.9.4 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading Cell Biology.

175.10 Chemical and Materials Engineering

Department of Chemical and Materials Engineering
536 Chemical and Materials Engineering Building
University of Alberta
Edmonton, Alberta T6G 2G6
E-mail: chemical.engineering@ualberta.ca
http://www.ualberta.ca/CHEMENG

175.10.1 General Information

The Department of Chemical and Materials Engineering offers facilities for advanced training and research leading to the Master of Engineering, Master of Science and Doctor of Philosophy degrees in Chemical Engineering and in Materials Engineering. Programs leading to Master of Science, Master of Engineering and Doctor of Philosophy in Process Control (Chemical Engineering) are also available for students wishing to specialize in this area. The MEng degree is intended primarily for part-time students who are working in industry, but can also be taken by full-time students.

General fields for research in chemical engineering include fluid mechanics and rheology; reaction kinetics and catalysis; mass transfer and separation processes; heat transfer; thermodynamics, hydrocarbon P-V-T and phase equilibrium studies; polymer reactor engineering; computer process control; dynamic simulation; biotechnology, mathematical modelling and environmental engineering. Many research programs are oriented toward better utilization of natural resources in the province, e.g. upgrading of Athabasca bitumen and heavy oil feedstocks; processing of natural gas; pulp and paper processing.

Active research areas in materials engineering include mineral processing; coal preparation; modelling and simulation; intelligent processing of materials and solidification processing; hydrometallurgy; pyrometallurgy; high temperature electrochemistry; corrosion; physical and mechanical metallurgy; process metallurgy; welding metallurgy; powder metallurgy; ancient materials; ceramic materials; and electronic materials.

Many research projects are industrially applied, and supported by industry. In some cases research can be carried out at the supporting company. Details of current research projects are available from the Department office.

Entrance Requirements

The Department's minimum admission requirements are an undergraduate degree with an average of 7.0 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution, and a TOEFL score of 600 or an

equivalent approved English language examination where applicable (see §173.2.3). The Department will accept qualified applicants with degrees in other fields of engineering. Graduates with non-engineering backgrounds may be admitted under special arrangements which involve the completion of certain undergraduate engineering courses.

Financial Assistance

Graduate assistantships are available for qualified students on a part-time or full-time basis, with remuneration according to the student's background and hours of service. Scholarships and fellowships are available for research in chemical engineering, materials engineering, and process control.

175.10.2 The Degree of MSc

Program Requirements

MSc programs normally consist of ★18 plus the graduate seminar, research, and a thesis. Certain core course requirements apply. Details of all programs must be worked out in consultation with the Department.

There is no language requirement for the MSc degree.

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the MSc program will vary according to the previous training of the applicant and the nature of the research undertaken; however, an average of 18-24 months is normally required. The maximum time permitted is four years.

175.10.3 The Degree of MEng

Program Requirements

For the Master of Engineering program, work equivalent to ★30 at the graduate level plus an engineering project equivalent to ★3 must be completed. The courses are of the same type and calibre as those taken by the MSc and PhD candidates. Certain core course requirements apply. The project may be completed within a four to six week period following the regular Fall/Winter.

There is no language requirement for the MEng degree.

Length of Program

The time required to complete the MEng program will vary according to the individual candidate and whether the student is studying full-time or part-time. An average of 18-24 months of full-time study is normally required. The maximum time permitted is four years.

175.10.4 The Degree of PhD

Program Requirements

For the PhD program, in addition to the requirements of the Faculty of Graduate Studies and Research, the Department requires the candidate to complete satisfactorily at least ★27 and obtain credit in the graduate seminar. Certain core course requirements apply. Details of all programs must be worked out in consultation with the Department.

A student who intends to study for the PhD degree is required to pass a set of written PhD preliminary examinations. These examinations, which embrace the major areas of chemical engineering, materials engineering or process control, are normally taken by the student after two terms of graduate studies. Although the timing depends on circumstances, PhD preliminary examinations are normally held in May.

There is no language requirement for the PhD degree.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the PhD program will vary according to the individual candidate and whether the PhD program follows the attainment of the BSc or the MSc degree. In the former case at least four years are usually required to complete the program. The maximum time permitted is six years.

175.10.5 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the following subject headings:

- Chemical Engineering (CH E)
- Materials Engineering (MATE)

175.11 Chemistry

Department of Chemistry
E3-43 Chemistry Centre
University of Alberta
Edmonton, Alberta T6G 2G2
E-mail: jeannette.loiselle@ualberta.ca

175.11.1 General Information

The Department of Chemistry has research laboratories and instructional facilities for at least 150 graduate students proceeding to the MSc and PhD degrees in chemistry.

The active research interests of the staff include the following:

- (1) **Analytical:** Chemical modification and characterization of electrode surfaces; voltametric study of cyclic redox processes; electrochemical sensors; inductively coupled plasma emission and mass spectrometry; application of electronic image sensors to spectrochemical measurements; chemical speciation; liquid chromatography; solvent extraction; scanning probe microscopy; micromachined LABS-on-a-chip; capillary electrophoresis; LASER-induced fluorescence; MALDI-electrospray ionization mass spectrometry; protein analysis; DNA and protein sequencing; fourier transform spectrometry.
- (2) **Inorganic:** Transition metal organometallic chemistry; synthesis and chemistry of bimetallic and metallocyclic compounds; metal-metal cooperativity effects; carbon-hydrogen bond activation; organometallic photochemistry; organoactinide complexes; rates and mechanisms of substitution and electron transfer reactions of metal complexes; enantioselective catalysis with chiral metal complexes; fuel cells; catalytic polymerization; X-ray and photoelectron spectroscopy; phosphines and phosphoranes; NMR studies of fluxional species; synthesis of rare-earth and transition-metal pnictides; structure, bonding and properties of solid state compounds.
- (3) **Organic:** Structural and synthetic studies on natural products; degradation of natural products; heterocyclic chemistry; mono- and di-saccharides, selective reductions; organometallic chemistry; small rings; reactive intermediates (ylides, carbenes, nitrenes); alkali metal aromatic complexes; organic photochemistry; acetylenes; allenes; free radicals; conformation and synthesis of carbohydrates; structure-activity correlations of antibiotics; synthetic and mechanistic investigations in heterocycles, with emphasis on the applications of NMR and EPR; mechanism of free radical reactions; photocycloaddition-fragmentation reactions; the invention of new reagents; mechanism and stereochemistry of enzymatic reactions; chemiluminescence, molecular recognition, conjugated molecules and nanostructures, combinatorial chemistry.
- (4) **Physical:** Mass spectrometry; chemistry of ions in gases, ion molecule reactions, chemical ionization; molecular motion in fluids and chemical kinetics by NMR, pulse sequence development in 2D NMR; biophysical chemistry involving NMR studies of peptide structure; kinetic isotope effects, enzyme mechanisms, enzyme stereochemistry; electron transfer, laser spectroscopy, ultrafast molecular dynamics, rotational and vibrational spectra of binary and ternary van der Waals complexes; computational chemistry (study of molecular structure and properties of molecules in excited states; pseudopotential methods; electron correlation and relativistic effects; development of basis sets).

Further information may be obtained by writing the Chair of the Department.

Entrance Requirements

Candidates for the MSc and PhD degrees in chemistry should be graduates in chemistry or chemical engineering from recognized universities, and should have obtained a grade point average of at least 6.5 in the last two years of undergraduate (or graduate) work from the University of Alberta, or an equivalent qualification from a recognized institution. Where applicable (refer to §173.2.3) candidates must have passed a TOEFL examination with a minimum score of 550. To qualify as Teaching Assistants, candidates must have a TOEFL score of at least 570.

Financial Assistance

Financial assistance in the form of scholarships and graduate assistantships is normally available for all graduate students who maintain a satisfactory performance.

175.11.2 The Degree of MSc

Program Requirements

A minimum of ★9 in graduate chemistry courses must be passed. In addition, a research project must be carried out, the results of which are to be presented in thesis form, followed by an oral examination.

Students must obtain a GPA of 6.5 or greater in their first and subsequent years in order to remain in the graduate program.

There is no language requirement for the degree of MSc.

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

The minimum time required to complete an MSc degree is 18 months after a four-year BSc degree in chemistry.

175.11.3 The Degree of PhD

Program Requirements

For students in analytical, inorganic, and physical chemistry: ★18, of which at least 15 are graduate courses in chemistry, must be included. In some circumstances, advance credit for graduate courses in chemistry taken elsewhere may be recommended by the Department to the Faculty of Graduate Studies and Research, up to a maximum of ★6. Students in organic chemistry must take ★12 in graduate courses and write monthly cumulative examinations in organic chemistry (normally a maximum of 20 attempts) until seven have been passed.

In order to continue in the PhD program, a student must achieve a GPA of 6.5 or greater in the first year, and 7.0 or greater in the second and subsequent years.

(Note: A special chemical-physics program is also available, which allows increased emphasis on physics and mathematics.)

Every student must present a seminar on a topic other than the students' research program.

When these requirements are nearly completed, all PhD students must pass an oral candidacy examination in subjects relevant to their general field of research. Finally, the student will be required to present the results of the student's research in thesis form and orally to an examining committee, and as a seminar to the Department as a whole.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The minimum time required to complete a PhD degree is three academic years of study and research after a four-year BSc degree, or two academic years after an MSc degree.

175.11.4 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading Chemistry (CHEM).

175.12 Civil and Environmental Engineering

Department of Civil and Environmental Engineering
220 Civil/Electrical Engineering Building
University of Alberta
Edmonton, Alberta T6G 2G7
E-mail: Graduate_Studies@civil.ualberta.ca
http://www.civil.ualberta.ca

175.12.1 General Information

Degree Programs

The Department of Civil and Environmental Engineering, incorporating the School of Mining and Petroleum Engineering, offers programs of study leading to the advanced degrees of Master of Science, Master of Engineering and Doctor of Philosophy. The degree programs in the Department are organized along the traditional disciplines found in civil engineering including construction engineering and management, environmental engineering or science, geotechnical or geoenvironmental engineering, structural engineering, and water resources engineering. In addition, candidates with strong interests in the resource extraction industries can obtain advanced degrees in mining and petroleum engineering. The Department offers a wide range of course options permitting the flexibility to arrange programs for candidates who

obtained their undergraduate degree in fields other than civil engineering including students with four year science degrees.

Research

Civil and Environmental Engineering

The Department has a major research orientation. Active research areas in the Department include the following:

Civil: construction engineering and management with a focus on productivity improvement, computing applications including artificial intelligence, simulation modeling and information management, optimization of aggregate and concrete manufacturing, and construction planning and control; geotechnical engineering and environmental geotechniques including the study of soil mechanics, rock mechanics, foundation engineering, engineering geology, permafrost, storage, disposal, and containment of industrial wastes and pollutants and contaminated or disturbed earthy material and groundwater; structural engineering with a strong focus in the structural behaviour and design of concrete, masonry, steel and timber members and frames in addition to structural analysis and solid mechanics; and water resources engineering with activities in hydraulics, hydrology and river behavior.

Environmental: environmental engineering and science with a focus on processes in air, soil, and water system risk assessment and public health engineering; solid waste management; environmental hydraulics; applied microbiology and parasitology; applied chemistry; mathematical modelling of environmental systems; neural network technology; industrial waste management; and disposal and fate of pollutants in the environment.

School of Mining and Petroleum Engineering

The School's graduate degree program is operated in conjunction with the Department of Civil and Environmental Engineering reflecting the interdisciplinary nature of advanced research in the resource industries. Areas of research include the following:

Mining: mining engineering including mineral economics, geomechanics, geostatistics, simulation of mining systems; mine planning and design; surface and underground mining equipment and methods; and mine property evaluation.

Petroleum: petroleum engineering including multiphase flow through porous media; immiscible, miscible and micellar flooding; heavy oil recovery using thermal energy; interfacial phenomena; pressure build-up and drawdown analysis; and mathematical simulation of petroleum recovery systems.

Entrance Requirements

The Department's minimum admission requirements are a four-year undergraduate degree with an average of 7.0 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution. Students who meet the minimum average of 6.5 requirement of the Faculty of Graduate Studies and Research but are below 7.0, may be admitted on a probationary basis (§173.4). Students with extensive industrial experience but with a weak academic record are reviewed on a case-by-case basis.

English language proficiency requirements are a TOEFL score of 550 (paper-based) or 213 (computer-based) where applicable (see §173.2.3).

Financial Assistance

Financial assistance is available through the Department in the form of a limited number of graduate assistantships available to students in thesis-based degrees. Students should consult §180.6 for information on other awards that are available through the Faculty of Graduate Studies and Research.

175.12.2 The Degree of MEng

Program Requirements

The Master of Engineering is a course-based degree program that requires a minimum of ★24 (eight single-term courses or equivalent), of which ★15 (five single-term courses or equivalent) should be in the candidate's major field of interest, plus a project that is equivalent to ★3. In some areas of specialization, an additional ★6 (two single-term courses or equivalent) more than the minimum are required. The Department will require more ★3 courses in cases where the undergraduate degree does not provide a superior background for the chosen area of specialization.

There is no second language requirement for the degree of MEng.

Length of Program

Candidates may complete the Master of Engineering program in a minimum of nine months. The maximum time permitted for completion of the program is four years from the date of first registration.

175.12.3 The Degree of MSc

Program Requirements

The Master of Science program requires a minimum of ★18 (six single-term courses or equivalent), of which ★12 (four single-term courses or equivalent) should be in the candidate's major field of interest, plus a research thesis. In some areas of specialization, an additional ★6 (two single-term courses or equivalent) more than the minimum are required. The Department will require more ★3 courses in cases where the undergraduate degree does not provide a superior background for the chosen area of specialization or in cases where the course preparation needs to be augmented to enhance the execution of the research topic.

There is no language requirement for the degree of MSc.

Length of Program

A candidate may complete a Master of Science program in 15 to 18 months. However, students often require 19 to 23 months depending on the thesis topic. The maximum time permitted for completion of the program is four years from the date of first registration.

175.12.4 The Degree of PhD

Program Requirements

The PhD degree is a research degree. Courses in a doctoral program are assigned by the supervisor and supervisory committee, in consultation with the student. They are designed to enhance the depth and breadth of understanding in the field of study. The course requirements are determined on a case-by-case basis depending on the student's background. Students in the doctoral program are expected to maintain a course average of 7.0 or higher before proceeding to their candidacy examination.

All doctoral candidates must prepare and defend a thesis of high calibre on an approved topic.

No language other than English is required for the degree.

The minimum period of residence is two academic terms of full-time attendance at the University of Alberta. The two terms need not be consecutive.

Length of Program

The time required to complete the PhD will vary according to the previous training of the applicant and the nature of the research undertaken. However, two years beyond the MSc is normally the minimum that is required. The maximum time permitted for completion of the program is six years from the date of first registration.

175.12.5 Degree Specializations

The Department of Civil and Environmental Engineering encompasses a broad field of engineering and has seven main engineering disciplines: construction, environmental, geotechnical, mining, petroleum, structural, and water resources. The Department offers the following degree specializations in all of the degree programs. Each has a distinctive course offering designed to provide the student with advanced training in the area.

Construction Engineering and Management: The focus is on the main principles and techniques of planning, control, execution and engineering of construction projects. The degree emphasizes construction management principles, computing applications in construction and the fundamentals of construction engineering.

Environmental Engineering: The degree focuses on the fundamental chemical, physical, and biological processes that can be adapted to water, soil, and air systems. The emphasis is on public health and environmental protection technology with electives in environmental management and impact assessment. Topic areas include water and waste treatment; solid and hazardous waste treatment; industrial waste treatment; water quality modelling; and municipal collection and distribution systems.

Environmental Science: Students who have four-year science degrees and who wish to study applied environmental science specialize in the Environmental Science degree in civil engineering. This degree permits the study of applied environmental science in areas such as environmental health, chemistry, microbiology, zoology, or geography.

Geotechnical Engineering: The degree focuses on the study of soil mechanics, rock mechanics, foundation engineering, engineering geology and permafrost with emphasis on the behavior of natural materials and field problems. Full use is made of modern design tools such as advanced techniques in laboratory and field testing and numerical methods of analysis.

Geoenvironmental Engineering: The geoenvironment is that portion of our environment consisting of natural and man-made earth materials on and below the ground surface. Geoenvironmental engineering focuses on the management and control strategies of the geoenvironment from the

standpoint of storage, disposal, and containment of industrial wastes and pollutants and contaminated or disturbed earthy material and groundwater.

Mining Engineering: The mining industry is a major economic engine in Canada and elsewhere. Mining engineering degrees offered by the Department include studies in mineral economics, geomechanics, geostatistics, simulation of mining systems; mine planning and design; surface and underground mining equipment and methods; and mine property evaluation.

Petroleum Engineering: The petroleum industry is comprised of exploration, production and refining activities related to hydrocarbons. Of great importance is reservoir engineering where efficient recovery of hydrocarbons is a major objective. Important topics include multiphase flow through porous media; immiscible, miscible and micellar flooding; heavy oil recovery using thermal energy; interfacial phenomena; pressure build up and drawdown analysis; and mathematical simulation of petroleum recovery systems.

Structural Engineering: This degree focusses on the analysis and design of buildings, bridges, and other structures. Emphasis is on the mainstream areas of structural engineering—reinforced concrete, structural steel, and numerical analysis—but innovative emerging technologies in areas related to timber, masonry, prestressed concrete and new composite materials are also covered.

Water Resources Engineering: Graduate programs concentrate on the physical aspects of our environment as they relate to water supply, river problems, habitat assessment and enhancement, flood risk. The program offers a wide variety of applications including surface water hydrology; environmental fluid mechanics; computational methods; river engineering; river and lake ice engineering; cold regions hydraulics and hydrology; urban hydraulics; design of hydraulic structures; and water resources planning and management.

175.12.6 Graduate Courses

Undergraduate and Graduate courses can be found in Civil and Environmental Courses, or Mining and Petroleum Courses.

175.13 Comparative Literature, Religion, and Film/Media Studies

Department of Comparative Literature, Religion, and Film/Media Studies
347 Arts Building
University of Alberta
Edmonton, Alberta T6G 2E6
E-mail: literature.religion.film@ualberta.ca

175.13.1 General Information

The Department of Comparative Literature, Religion, and Film/Media Studies was established on April 1, 1998. From April 1, 1995 to March 31, 1998 the Division of Comparative Studies of Literature, Film and Religion was part of the Department of Modern Languages and Comparative Studies.

The Department of Comparative Literature, Religion, and Film/Media Studies offers programs leading to the degrees of Master of Arts and Doctor of Philosophy in all literatures taught at this University, as well as to graduate degrees with specialization in film studies or religious studies.

Entrance Requirements

The Department's minimum admission requirements are an undergraduate degree with an average of at least 7.0 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution, and a TOEFL score of 550 where applicable (see §173.2.3).

Applicants for graduate work in comparative literature should, in their previous programs, have concentrated on the literature of one or two languages. They must have a competent reading knowledge of at least one language other than English in order to undertake an MA program, and of at least two languages other than English in order to undertake a PhD program. Details may be obtained by contacting the Graduate Coordinator.

Financial Assistance

Financial assistance in the form of fellowships and graduate assistantships may be available to qualified students. For further information contact the Graduate Coordinator of the Department and consult the Graduate Financial Aid section of the Calendar.

175.13.2 The Degree of MA in Comparative Literature

Program Requirements

Students admitted to this program are expected to have ten ★3 (★30) in Comparative Literature beyond the 100 level in their undergraduate studies.

Students who satisfy this requirement and who wish to complete a thesis-based master's degree will be required to take six ★3 graduate-level Comparative Literature courses in the first year of their studies, and write a and defend a thesis.

Students who satisfy this requirement and who wish to complete a course-based master's degree will be required to take nine ★3 graduate-level Comparative Literature courses, and complete a capping exercise.

Students admitted with less than the ten-course prerequisite will be required to take up to three additional graduate-level courses in Comparative Literature (bringing the total to nine or 12 courses respectively) or take a qualifying year or a qualifying term. The option to be chosen and exact amount of extra courses will be determined individually by the graduate committee.

The minimum period of residence for the thesis-based MA is two four-month terms of full-time attendance at the University of Alberta. There is no residence requirement for the course-based MA.

Length of Program

A candidate for the thesis-based MA entering from a four-year specialized program and continuing work in the same field is normally required to complete the equivalent of one calendar year's work. Other candidates are normally required to complete the equivalent of two years' work.

For the course-based MA, the normal time to completion is two years and maximum time allowed to complete the program is four years.

175.13.3 The Degree of MA in Comparative Literature with specialization in Religious Studies

Students admitted to this program are expected to have six ★3 courses (★18) in Religious Studies courses beyond the 100 level and four ★3 courses (★12) in Comparative Literature beyond the 100 level in their undergraduate studies. Students who satisfy this requirement and who wish to complete a thesis-based master's degree will be required to take four ★3 graduate courses in Religious Studies, four ★3 graduate courses in Comparative Literature and write and defend a thesis in the area of Religious Studies

Students admitted with less than the above prerequisite will be required to take up to three additional graduate-level courses in Religious Studies and/or Comparative Literature, depending on their academic background, or take a qualifying term, or take a qualifying year. The option to be chosen and exact amount of additional courses will be determined individually by the graduate committee.

Length of Program

A candidate for the thesis-based MA entering from a four-year specialized program and continuing work in the same field is normally required to complete the equivalent of one year of work. Other candidates are normally required to complete the equivalent of two years' work.

For the course-based MA, the normal time to completion is two years and maximum time allowed to complete the program is four years.

The minimum period of residence for the thesis-based MA is two four-month terms of full-time attendance at the University of Alberta. There is no residence requirement for the course-based MA.

175.13.4 The Degree of PhD in Comparative Literature

Program Requirements

Students admitted to this program with an MA in Comparative Literature from the University of Alberta or the equivalent will be required to take six ★3 graduate-level courses in Comparative Literature in their first year of studies, complete three precandidacy examinations, and write and defend a thesis in the area of Comparative Literature. Students admitted with less than the background requirement will be required to take up to six additional graduate courses in Comparative Literature with the exact number to be determined individually by the graduate committee.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The time necessary to complete the requirements for the PhD depends upon the student's progress. For a student with a BA, the minimum requirement is three academic years of study and research, of which two academic years must be in residence at the University of Alberta. For a student with an MA, the minimum requirement is two years of study and research at the University of Alberta. Details are determined by the Department, and an alternative method of meeting the residence requirement may be considered on recommendation of the Department to the Faculty of Graduate Studies and Research.

175.13.5 The Degree of PhD in Comparative Literature with Specialization in Religious Studies

Students admitted to this program with an MA in Comparative Literature with a specialization in Religious Studies from the University of Alberta or the equivalent will be required to take three ★3 graduate-level courses in Religious Studies, and three ★3 graduate-level courses in Comparative Literature. They are also required to take the Comparative Literature precandidacy examination in World Literature and in Literary Theory, and one extensive precandidacy examination in their thesis area within Religious Studies, and to write and defend a thesis in the area of Religious Studies. Students admitted with less than the background requirement will be required to take up to a total of six additional graduate-level courses in Religious Studies and/or Comparative Literature, with the precise nature and number of courses to be determined individually by the graduate committee.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The time necessary to complete the requirements for the PhD depends upon the student's progress. For a student with a BA, the minimum requirement is three academic years of study and research, of which two academic years must be in residence at the University of Alberta. For a student with an MA, the minimum requirement is two years of study and research in residence at the University of Alberta. Details are determined by the Department, and an alternative method of meeting the residence requirement may be considered on recommendation of the Department to the Faculty of Graduate Studies and Research.

175.14 Computing Science

Department of Computing Science
615 General Services Building
University of Alberta
Edmonton, Alberta T6G 2H1
E-mail: gradinfo@cs.ualberta.ca

175.14.1 General Information

The Computing Science Department offers programs leading to the degrees of Master of Science and Doctor of Philosophy in a number of fields, including artificial intelligence, database management, design and analysis of computer algorithms, computer graphics, image processing, computer architecture, parallel and distributed computing, operating systems, programming languages, networks, software engineering, symbolic manipulation, and theory of computation.

The Department owns and operates a network of computers, including several CPU servers (SUN, SGI, DEC, HP, and IBM) and a large number of SUN and SGI workstations and Xterminals, all running under UNIX. All graduate student offices are provided with Xterminals. In addition the graphics/VR, robotics, and image processing laboratories have specialized equipment. Access to the campuswide and regional computing facilities is provided by computer networks.

Further information may be obtained from the Graduate Program Coordinator, Department of Computing Science.

Entrance Requirements

The Department's minimum admission requirements are a University of Alberta undergraduate degree with an average of 6.5 in the last two years of study, or an equivalent qualification from a recognized institution, and a TOEFL score of 600 where applicable (see §173.2.3). Students entering the graduate program are expected to have adequate background in computing science, equivalent to a four-year undergraduate degree. This means that applicants should have credit for eight computing science courses at the 300/400 level, from the following areas: Software Engineering/Programming Languages; Operating Systems; Graphics/Artificial Intelligence/Database Systems; Numerical Methods; Computer Architecture; Theoretical Computer Science. At the University of Alberta these are represented by: CMPUT 401/325/425/379; CMPUT 411/466/391; CMPUT 340/418; CMPUT 429; and CMPUT 304/474.

A departmental admission requirement for non-Canadians, as well as Canadians with a degree from a non-Canadian university, is that they write the Graduate Record Examinations (verbal, quantitative, and analytical components, and for doctoral applicants the advanced subject test) administered by the Educational Testing Service (Princeton, NJ) and have the results sent directly to the Computing Science Department. The GRE is also recommended for students with backgrounds unrelated to Computing Science.

The examinations should be written early enough so that scores will be available by the time the applicant's other supporting documents arrive.

Students in all degree programs will be expected to satisfy the requirements currently in force with respect to attendance at departmental colloquia and seminars, and the public presentation of students' research results.

Financial Assistance

Financial assistance is available throughout the calendar year in the form of graduate assistantships and research grant assistantships. In order to be considered for assistance, students must maintain satisfactory academic performance.

175.14.2 The Degree of MSc

Entrance Requirements

Candidates for the MSc degree in computing science should have a four-year undergraduate degree or the equivalent from a recognized university, with adequate background in computing science and mathematics. Students who do not meet these requirements must take additional courses to those required in the MSc program, either concurrently with the graduate program or in a year of study prior to admission as MSc candidates.

Program Requirements

Two routes to the MSc degree are available, a thesis-based route and a course-based route. Students in the thesis-based MSc program are required to complete a minimum of ★18 in graduate courses including ★15 at the 600-level and write a thesis. Students in the course-based MSc program are required to complete ★30 in graduate courses, including ★18 at the 600-level and a ★6 essay course. Students who do not obtain an average of 6.5 overall in the first year of study may be asked to withdraw from the graduate program.

The minimum period of residence for the thesis-based MSc is two four-month terms of full-time attendance at the University of Alberta. There is no full-time residence requirement for the course-based MSc.

Length of Program

Master's students are expected to complete their program in less than two years. The maximum time limit for a Thesis-based student is four years and for a Course-based student is six years.

175.14.3 The Degree of PhD

Entrance Requirements

To be admitted as a provisional candidate for the PhD, a student must normally have an MSc degree in computing science or a related field. Unusually qualified applicants having the equivalent of a First-Class Honors BSc degree, or MSc candidates who perform unusually well in their first session (eight months) of studies, may be admitted directly into the PhD program.

Program Requirements

A PhD candidate with an MSc degree will be required to take a minimum of ★12 in graduate courses including ★9 at the 600-level (excluding 601 and 603) and satisfy the departmental breadth requirements. A PhD candidate who does not obtain an average of 7.5 over the best four courses in the first year of studies may be asked to withdraw from the doctoral program, but may be admitted to the MSc program. The major part of the student's program will consist of original research, the result of which will be presented in a doctoral thesis.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the PhD will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of 32 months is normally necessary. Candidates must complete all requirements for the degree within six years.

175.14.4 Graduate Courses

Graduate courses can be found in \$201, Course Listings, under the subject heading Computing Science (CMPUT).

175.15 Dentistry

See Oral Health Sciences \$175.44, Department of Oral Health Sciences, Faculty of Medicine and Dentistry.

175.16 Drama

Department of Drama
3-146 Fine Arts Building
University of Alberta
Edmonton, Alberta T6G 2C9
E-mail: lee.livingstone@ualberta.ca

175.16.1 General Information

The Department of Drama offers graduate programs leading to the Master of Fine Arts degree in design or directing and to the Master of Arts degree.

The Department provides in the Timms Centre for the Arts a completely equipped 300-seat proscenium theatre and a second flexible performance space, and in the Fine Arts Building four theatre facilities as dramatic arts laboratories available to graduate students. Two workshops each for costume design and set design serve graduate designers. The theatre collection in the library is extensive. It offers particular opportunities for work in expressionism; German, French, and Spanish drama; and includes a substantial collection of research materials on Canadian theatre.

The aim of the MFA programs is to train candidates to a level of competency sufficient to enter the profession.

The MA program, essentially research oriented, also offers training in dramaturgy as one of the means by which candidates may be actively involved in the creative pursuits of the Department.

Inquiries should be addressed to the Graduate Coordinator, Department of Drama.

Entrance Requirements

The Department's minimum admission requirements are an undergraduate degree with an average of 6.5 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution, and a TOEFL score of 550 where applicable (see \$173.2.3).

Financial Assistance

Graduate assistantships are available to qualified students. Graduate students are also eligible to compete for University and provincial scholarships.

175.16.2 The Degree of MFA

Entrance Requirements

The undergraduate degree (see "General Information: Entrance Requirements", above) must normally be a four-year degree in theatre studies in order for the applicant to be considered eligible for the MFA program. In addition, numerous practical theatre credits are required in the applicant's intended area of specialization along with three letters of recommendation on the applicant's professional promise.

Between the academic and the artistic requirements candidates must: demonstrate a fundamental knowledge of the components of theatre art – acting, design, and directing; have extensive training and experience in the area of their intended specialization; and possess sufficient preparation in dramatic literature, theatre history, and theatre aesthetics.

Interested applicants should write for further application details as they relate to their intended area of specialization.

Program Requirements

Required courses depend on the area of specialization and the undergraduate background of the student; however, the MFA program normally consists of ★33. In addition, an acceptable creative thesis project must be presented in performance.

No language other than English is required for the degree.

Length of Program

Candidates for the program in Directing are normally required to complete two years of study in residence. In certain circumstances advanced standing may be accorded in the candidacy program for previous theatre work accredited by the Department. For the MFA Theatre Design only, the minimum period of residency is one academic year for candidates holding a BFA Theatre

Design Degree from the University of Alberta, or equivalent; all other MFA Theatre Design candidates require a minimum period of residency of two academic years.

175.16.3 The Degree of MA

Entrance Requirements

A candidate must hold a bachelor's degree (or its equivalent) from a recognized institution. To be accepted, the candidate must demonstrate to the Department familiarity with the artistic and practical components of theatre art, as well as sufficient preparation in theatre history and criticism. Candidates are required to submit a sample of their writing.

Program Requirements

The MA program normally consists of some practical training in research skills and ★24 at the graduate level for those candidates who can show evidence of an adequate historical and critical background. Candidates must present an acceptable thesis and defend it orally.

Candidates must demonstrate a reading knowledge of one approved language other than English.

The minimum period of residence is one academic year of full-time attendance at the University of Alberta.

Length of Program

The program normally requires three academic terms of coursework. Those students with insufficient historical and critical background may be required to take up to an additional term of coursework.

175.16.4 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading Drama (DRAMA).

Graduate courses offered by other departments may be taken with the consent of the student's Drama department advisor.

175.17 Earth and Atmospheric Sciences

Department of Earth and Atmospheric Sciences
1-26 Earth Sciences Building
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Edmonton, Alberta T6G 2E3
E-mail: GraduateChair.EAS@ualberta.ca
http://www.ualberta.ca/EAS

175.17.1 General Information

The Department of Earth and Atmospheric Sciences was founded on July 1, 1995 as a result of the merger of the former Departments of Geography and Geology.

The Department offers the degrees of Master of Arts, Master of Science, and Doctor of Philosophy in Earth and Atmospheric Sciences.

The active research fields include atmosphere and ocean modelling, biogeography, carbonate sedimentology, clastic sedimentology, climatology, cultural landscape studies, desert geomorphology, economic geology, engineering geology, environmental geology, experimental petrology, fluvial geomorphology, geochemistry, geochronology, geographic information systems, geo-processing, geotectonics, glacial geomorphology and hydrology, health and environment, human/environment interactions, hydrogeology, ichnology, igneous, sedimentary and metamorphic petrology, invertebrate and vertebrate paleontology, isotope geology, location-allocation analysis, marine icing, medical geography, meso-scale meteorology, metalliferous mineral deposits, microclimatology, micrometeorology, mineralogy, periglacial geomorphology, petroleum geology, quaternary studies, recreation and leisure studies, remote sensing, sedimentology, stratigraphy, and structural geology.

The Department will approve only thesis topics which lie within the research speciality of one or more of its staff members.

The Department of Earth and Atmospheric Sciences has research laboratories, instructional facilities, and technical support for up to 120 resident graduate students proceeding to the MA, MSc, and PhD degrees.

Entrance Requirements

The Department's minimum admission requirements are an undergraduate degree with an average of 6.5 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution, and a TOEFL score of 550 where applicable (see §173.2.3).

Financial Assistance

In addition to scholarships administered by the University a number of graduate assistantships are awarded by the Department.

175.17.2 The Degrees of MA and MSc

Program Requirements

Requirements for the MA and MSc degrees include satisfactory completion of a thesis and at least ★9 at the University of Alberta, with no more than ★6 from the same instructor. Substantially more coursework will be necessary if there is a significant change in discipline area from the undergraduate to graduate programs. No more than ★3 of the required coursework may be at the 400-level within the Department and only one ★3 research or reading (directed studies) course may be counted towards the requirement, except with permission of the Department.

There is no language requirement for the degrees of MA and MSc.

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

An MA or MSc program should normally be completed in two academic years of work beyond a four-year honors or specialization degree from the University of Alberta, or an equivalent degree from another institution.

175.17.3 The Degree of PhD

Program Requirements

The essential requirement for the degree of PhD is the planning, execution, and reporting of high quality research. A candidacy examination, is taken as soon as possible, normally within 20 months after admission to the program, in order to ensure that a student has the necessary knowledge, background, and ability to complete a PhD thesis. In addition, at least ★18 beyond the bachelor's degree program are required for completion of the degree. At least ★9 of the required coursework must be taken at the University of Alberta. No more than ★6 of the University of Alberta courses may be taken from the same instructor, except with permission of the Department. No more than ★3 of the required coursework may be at the 400-level within the Department and only one (★3) research or reading (directed studies) course may be counted towards the requirement.

A reading knowledge of foreign languages is not a formal requirement although candidates may be required to acquire language skills if these are appropriate to their particular programs.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the PhD will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of three years of study and research is normally required.

175.17.4 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the following subject headings:

Earth and Atmospheric Sciences (EAS)
Interdisciplinary (INT D)
Paleontology (PALEO)

175.18 East Asian Studies

Department of East Asian Studies
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University of Alberta
Edmonton, Alberta T6G 2E6
E-mail: smackenz@gpu.srv.ualberta.ca

175.18.1 General Information

The Department of East Asian Studies offers programs leading to the Master of Arts degree in Chinese literature, Japanese literature, and East Asian Studies.

The application deadline for September admission is January 15. Applicants seeking assistantships are required to submit complete applications no later than December 1.

Requests for additional information should be addressed to the Graduate Coordinator, Department of East Asian Studies.

Entrance Requirements

The Department's minimum admission requirements are an undergraduate degree with an average of 7.0 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution, and a TOEFL score of 550 where applicable (see §173.2.3).

The specific requirements regarding language for the three areas:

- (1) Chinese literature: four years of university-level Chinese (or the equivalent) including one year of Classical Chinese.
- (2) Japanese literature: four years of university-level Japanese (or the equivalent).
- (3) East Asian Interdisciplinary Studies: three years of university-level study (or the equivalent) in either Chinese or Japanese.

The Department is prepared to accept a limited number of students who are otherwise well-qualified and show linguistic aptitude (demonstrated to the satisfaction of the Department by passing an exam or some other form of assessment) but who have less than the above amount of preparation in language. Such students will be required to spend one or two extra years in their MA program to meet this qualification and will be admitted initially as a qualifying graduate student.

Financial Assistance

The Department annually appoints a number of graduate research and teaching assistantships. Graduate students may also be eligible for various University fellowships and bursaries. For details see the Awards section of the Calendar.

Application forms, information about fellowships, bursaries, etc., may be obtained from the Graduate Coordinator, Department of East Asian Studies.

175.18.2 The Degree of MA

Program Requirements

In addition to the thesis, a minimum ★18 (normally six ★3-weight courses) will usually be required for the degree. The exact number of courses and their areas shall be determined on an individual basis.

For graduate students in Chinese, Japanese, and the East Asian Studies Interdisciplinary Program, graduate courses from other departments that can strengthen the degree may be counted as part of the program. For example, for students in literature, courses in Western literary theory such as Comparative Literature 547 and 548 or other appropriate graduate-level courses in Comparative Literature, Women's Studies, or English may be considered as part of the degree. The final choice and number of such courses to be counted will be at the recommendation of the student's advisor and at the discretion of the Department's Graduate Studies Committee.

Length of Program

The time required to complete the MA programs will vary with the individual candidate. It is assumed a candidate will normally complete the program requirements in two years. The time limit for completing the MA degree is four years from the date of registration in the program. Residency requirements involves full-time enrolment for two terms.

175.19 Economics

Department of Economics
8-14 Tory Building
University of Alberta
Edmonton, Alberta T6G 2H4
E-mail: lwayne@econ.ualberta.ca

175.19.1 General Information

The Department of Economics offers programs leading to the Master of Arts and Doctor of Philosophy degrees. The MA degree may be taken by either the thesis route or the course-based route.

Entrance Requirements

The Department's minimum admission requirements are an undergraduate degree with a grade point average of at least 6.5 in economics courses, and a TOEFL score of 550 where applicable (see §173.2.3). A GPA of 7.4 in MA work is required for admission to the PhD program.

Applicants whose most recent degree is from a non-Canadian university are required to write the Graduate Record Examinations (verbal, quantitative, and analytical sections) administered by the Educational Testing Service

(Princeton, NJ). The examinations should be written early enough for scores to be available at the same time as the applicant's other supporting documents. No minimum cutoff score is specified, because GRE results are used only in conjunction with other indicators of potential academic success. The Graduate Program Committee will waive this requirement only in exceptional circumstances.

Students entering a graduate program in economics are required to have or to make up credit in a basic course in calculus and one in statistics.

Note: These courses are required in addition to the candidate's normal graduate program.

Inquiries regarding details of programs offered within the Department should be directed to the Graduate Program Office.

Financial Assistance

The Department automatically considers all applicants for graduate teaching and research assistantships. To ensure consideration the candidate's application and supporting documents must be received by the Department before March 1. Applications received after that date will be considered for assistantships only if funds are still available. Details of scholarships and other sources of financial assistance are included in the Awards section of this Calendar.

175.19.2 The Degree of MA

The Department of Economics offers two programs: The MA in Economics and the MA in Economics and Finance. The MA in Economics is a course-based program consisting of at least ★24 including an independent research project (★3). The MA in Economics and Finance, offered collaboratively with the Department of Finance and Management Science of the Faculty of Business is also a course-based program requiring ★40 including an independent research project (★3).

Except in special cases, no language other than English is required for the degree of MA.

The course-based MA in Economics and MA in Economics and Finance have no minimum residence period and can be completed on a purely part-time basis.

Length of Program

The time required to complete either of the MA programs will vary according to the previous training of the applicant. Under normal circumstances, the MA in Economics can be completed on a full-time basis in 12 months or less. The MA in Economics and Finance requires a minimum of four, four-month academic terms of full-time study and therefore requires 20 months to complete.

175.19.3 The Degree of PhD

Program Requirements

The PhD program consists of at least ★28 and a thesis.

Detailed program requirements, including standards of performance, may be obtained by consulting the Department.

It should be noted that students in the PhD program can choose to specialize in Environmental and Natural Resource Economics where this specialization is offered collaboratively by the Department of Economics and the Department of Rural Economy.

Except in special cases, no language other than English is required for the PhD.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the PhD will vary according to the individual candidate; however, a minimum of three years is normally required.

175.19.4 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading Economics (ECON).

175.20 Educational Policy Studies

Department of Educational Policy Studies
7-104 Education North
University of Alberta
Edmonton, Alberta T6G 2G5
E-mail: joan.white@ualberta.ca

175.20.1 General Information

The Department of Educational Policy Studies offers programs leading to the MEd, PhD, and EdD degrees in educational administration and leadership and administration of postsecondary education; to the MEd degree in adult and higher education; to the MEd degrees in First Nations education, international and global education, and social and cultural context of education; and to the PhD degrees in First Nations education, international/intercultural education, sociology of education, history of education, and philosophy of education. The Department provides students with a unique environment to pursue advanced study in the field of education. Inquiries concerning programs or admission should be addressed to the Graduate Coordinator of the Department.

Entrance Requirements

Master's Programs: The minimum admission requirements for the MEd are an undergraduate degree with an average of 6.5 obtained during the last ★60 or an equivalent standing from another recognized institution. Foreign students from non-English speaking institutions will be required to complete a TOEFL (minimum score of 580, or 237 if computer scored) or other acceptable exam. Educational Administration and Leadership and the Administration of Postsecondary Education programs required a TOEFL score minimum of 600. In other MEd programs in the Department of Educational Policy Studies the TOEFL score minimum is 580.

Doctoral Programs: Minimum admission requirements for the EdD or PhD are an average of 7.0 obtained during the last ★60 or an equivalent standing from another recognized institution, and a TOEFL score minimum of 580 (or 237 if computer scored), where applicable.

Financial Assistance

Financial assistance—usually in the form of graduate assistantships, scholarships, and awards—may be available to qualified candidates and is awarded on the basis of academic merit and scholarship.

Inquiries concerning financial assistance should be directed to the Graduate Coordinator of the Department.

175.20.2 Adult and Higher Education

175.20.2.1 General Information

The Department of Educational Policy Studies offers a Master of Education degree in adult and higher education. This program is designed for professional educators holding an approved four-year degree in education or a related field with a successful career background. Normally, the graduate program includes a combination of professional and graduate-level courses offered by the Faculty of Education and other Faculties in the University.

175.20.2.2 The Degree of MEd in Adult and Higher Education

Program Requirements

The MEd in adult and higher education normally consists of a minimum of ★24 in graduate courses and a thesis, or ★30 in graduate courses and a project weighted ★6. For students who have completed an acceptable post-degree diploma in the Faculty of Education or equivalent, the program normally consists of a minimum of ★18 in graduate courses and a thesis, or ★30 in graduate courses and a project weighted ★6. Each student will develop a program of study in consultation with an advisory committee to suit the student's specific background and research interests.

There is no residency requirement for the MEd program. No language other than English is required for the degree.

Length of Program

The time required to complete the MEd will vary with the individual candidate; however a minimum of two academic years is normally required. Normally, the thesis-based degree must be completed in four years and the course-based degree in six years.

175.20.3 Educational Administration and Leadership

175.20.3.1 General Information

In the field of educational administration and leadership, the Department of Educational Policy Studies offers programs of study and research leading to the degrees of MEd, EdD and PhD, as well as a postgraduate diploma.

Research interests of the Department encompass both theoretical studies and field applications.

175.20.3.2 The Degree of MEd in Educational Administration and Leadership

Program Requirements

The MEd degree in educational administration and leadership normally consists of a minimum of ★30 in graduate courses and a thesis, or ★36 in graduate courses and a project weighted ★6. For students who have completed an acceptable post-degree diploma in the Faculty of Education or equivalent, the program normally consists of a minimum of ★18 in graduate courses and a thesis, or ★30 in graduate courses and a project weighted ★6.

There is no residence requirement for the MEd program. No language other than English is required for the degree.

Length of Program

The program may be completed in 14 months of continuous full-time study. Normally, the thesis-based degree must be completed in four years and the course-based degree in six years.

175.20.3.3 The Degree of MEd in Administration of Postsecondary Education

Program Requirements

The MEd degree in administration of postsecondary education normally consists of a minimum of ★30 in graduate courses and a thesis, or ★36 in graduate courses and a project weighted ★6. For students who have completed an acceptable post-degree diploma in the Faculty of Education or equivalent, the program normally consists of a minimum of ★18 in graduate courses and a thesis, or ★30 in graduate courses and a project weighted ★6.

There is no residence requirement for the MEd program. No language other than English is required for the degree.

Length of Program

The program may be completed in 14 months of continuous full-time study. Normally, the thesis-based degree must be completed in four years and the course-based degree in six years.

175.20.3.4 The Degree of EdD in Educational Administration and Leadership

The EdD degree in educational administration and leadership is designed to prepare senior administrators for the field of practice rather than for research and scholarship. The program combines formal academic study, a reflective field experience, and an applied research endeavor culminating in a dissertation. See §174.2.4.

Program Requirements

The EdD program normally consists of ★30 in graduate courses and a dissertation. This minimum requirement consists of four mandatory courses, four optional courses, and two field experience courses. The field experience is a distinguishing and integral component of the EdD program. A collaborative approach is used in defining the field experience component, involving the student, university staff, and practitioners.

No language other than English is required for the degree. The minimum period of residence is 12 months of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the EdD will vary according to the previous education of the applicant and the nature of the research undertaken. Normally, this degree must be completed in six years.

175.20.3.5 The Degree of EdD in Administration of Postsecondary Education

The EdD degree in administration of postsecondary education is designed to prepare senior administrators for the field of practice rather than for research and scholarship. The program combines formal academic study, a reflective field experience, and an applied research endeavor culminating in a dissertation. See 174.2.4.

Program Requirements

The EdD program normally consists of ★30 in graduate courses and a thesis. This minimum requirement consists of four mandatory courses, four optional courses, and two field experience courses. The field experience is a distinguishing and integral component of the EdD program. A collaborative approach is used in defining the field experience component, involving the student, university staff, and practitioners.

The minimum period of residence is 12 months of full-time attendance at the University of Alberta. No language other than English is required for the degree.

Length of Program

The time required to complete the EdD will vary according to the previous education of the applicant and the nature of the research undertaken. Normally, this degree must be completed in six years.

175.20.3.6 The Degree of PhD in Educational Administration and Leadership

Entrance Requirements

The PhD program in educational administration and leadership emphasizes intensive development of conceptual, analytical and research skills as preparation for teaching and administrative positions in various educational organizations.

Program Requirements

The PhD program normally consists of ★30 (four mandatory and six optional courses) and a dissertation.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta. No language other than English is required for the degree.

Length of Program

The time required to complete the PhD will vary according to the individual candidate; however, a minimum of two years of full-time study and research is normally required. Normally, this degree must be completed in six years.

175.20.3.7 The Degree of PhD in Administration of Postsecondary Education

The PhD program in administration of postsecondary education emphasizes intensive development of conceptual, analytical and research skills as preparation for teaching and administrative positions in various educational organizations.

Program Requirements

The PhD program normally consists of ★30 (four mandatory and six optional courses) and a thesis.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta. No language other than English is required for the degree.

Length of Program

The time required to complete the PhD will vary according to the individual candidate; however, a minimum of two years of full-time study and research is normally required. Normally, this degree must be completed in six years.

175.20.3.8 Postgraduate Diploma Program in Education Administration and Leadership

For admission into the postgraduate diploma program in educational administration and leadership, an MEd degree or equivalent and experience in an administrative position is normally required. These requirements are in addition to the minimum admission requirement of the Department.

Program Requirements

The program consists of ★24 in graduate-level courses in educational administration and leadership.

There is no residence requirement. No language other than English is required for the diploma.

Length of Program

The time required to complete the program will vary according to the previous training of the applicant and the nature of the research project undertaken; however, a minimum of one year is necessary if undertaken on a full-time study basis.

175.20.4 First Nations Education

175.20.4.1 General Information

This program will be process driven while articulating an Aboriginal world view. It will combine existing parameters and standards of university education

with the collective efforts of Aboriginal students, scholars and elders to develop Indigenous scholars who will maintain and respect the values, integrity and knowledge of Indigenous people worldwide.

175.20.4.2 The Degree of MEd in First Nations Education

Program Requirements

The MEd in First Nations education normally consists of a minimum of ★24 in graduate courses and a thesis, or ★30 in graduate courses and a project weighted ★6. For students who have completed an acceptable post-degree diploma in the Faculty of Education or equivalent, the program normally consists of a minimum of ★18 in graduate courses and a thesis, or ★30 in graduate courses and a project weighted ★6.

The core courses in this program are usually offered during Spring/Summer (May - August).

There is no residency requirement for the MEd program. No language other than English is required for the degree.

Length of Program

The time required to complete the MEd will vary with the individual candidate; however, the program may be completed in 12 months of continuous full-time study. Normally, the thesis-based degree must be completed in four years and the course-based degree in six years.

175.20.4.3 The Degree of PhD in First Nations Education

Program Requirements

The PhD program normally consists of ★30 (four mandatory and six optional courses) and a thesis. The core courses in this program are usually offered during Spring/Summer (May - August).

The minimum period of residence is two academic years of full-time attendance at the University of Alberta. No language other than English is required for the degree.

Length of Program

The time required to complete the PhD will vary according to the individual candidate; however, a minimum of two years of full-time study and research is normally required. Normally, this degree must be completed in six years.

175.20.5 International and Global Education

175.20.5.1 The Degree of MEd in International and Global Education

Program Requirements

The MEd in international and global education normally consists of a minimum of ★24 in graduate courses and a thesis, or ★30 in graduate courses and a project weighted ★6. For students who have completed an acceptable post-degree diploma in the Faculty of Education or equivalent, the program normally consists of a minimum of ★18 in graduate courses and a thesis, or ★30 in graduate courses and a project weighted ★6.

There is no residency requirement for the MEd program. No language other than English is required for the degree.

Length of Program

The time required to complete the MEd will vary with the individual candidate; however, the program may be completed in 12 months of continuous full-time study. Normally, the thesis-based degree must be completed in four years and the course-based degree in six years.

175.20.6 Social and Cultural Context of Education

175.20.6.1 General Information

The areas of concentration include history of education, philosophy of education, sociology of education and intercultural education, with interdisciplinary study, optional courses and a course in research methods.

175.20.6.2 The Degree of MEd in Social and Cultural Context of Education

Program Requirements

The MEd in social and cultural context of education normally consists of a minimum of ★24 in graduate courses and a thesis, or ★30 in graduate courses and a project weighted ★6. For students who have completed an

acceptable post-degree diploma in the Faculty of Education or equivalent, the program normally consists of a minimum of ★18 in graduate courses and a thesis, or ★30 in graduate courses and a project weighted ★6.

There is no residency requirement for the MEd program. No language other than English is required for the degree.

Length of Program

The time required to complete the MEd will vary with the individual candidate; however, the program may be completed in 12 months of continuous full-time study. Normally, the thesis-based degree must be completed in four years and the course-based degree in six years.

175.20.7 International/Intercultural Education, History of Education, Sociology of Education, Philosophy of Education

175.20.7.1 The Degrees of PhD in International/Intercultural Education, History of Education, Sociology of Education, or Philosophy of Education

Program Requirements

The PhD in international/intercultural education or history of education or sociology of education or philosophy of education normally consists of two or three comprehensive examinations, depending on the area of study, and the preparation and defense of a thesis on an approved topic.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta. No language other than English is required for the degree.

Length of Program

The time required to complete the PhD will vary according to the previous training of the student and the nature of the research undertaken; however a minimum of two years full-time attendance is normally required. Normally, this degree must be completed in six years.

175.20.8 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the following subject headings:

- Education - Administration (EDAL)
- Education - Adult (EDAE)
- Education - Foundations (EDFN)
- Education - Policy Studies (EDPS)

175.21 Educational Psychology

Department of Educational Psychology
6-102 Education North
University of Alberta
Edmonton, Alberta T6G 2G5
E-mail: linda.mcdonald@ualberta.ca
Fax: (780) 492-1318

175.21.1 General Information

The Department offers programs leading to the degree of PhD in the following specializations: educational psychology, counselling and school psychology, and special education. Programs leading to the degree of MEd are offered in the following specializations: educational psychology, counselling and school psychology, instructional technology, special education, and teaching English as a second language (TESL). Included in the special education program are two separate programs: one in deafness studies and the general program focusing on mild to moderate disabilities.

Two separate programs are included in the educational psychology area: measurement and evaluation and a general educational psychology program focusing on learning, development, and multi-cultural education. A course-based program with a specialization in school counselling is also offered by the Department. Applicants following this program are selected based on their potential to serve as school counsellors. The Instructional Technology program is designed for professionals holding an approved four-year degree in education or related field with a successful career background. The MEd and PhD programs are designed to provide specialized education and training for teachers, administrators, consultants, psychologists, professors, research personnel, and others requiring specialized training in the program areas.

Normally, a student's graduate program includes a combination of professional and research graduate-level courses offered by the Department, the Faculty of Education and other Departments and Faculties in the University.

Entrance Requirements

The Department's minimum admission requirements are a four-year undergraduate degree with a minimum average of 6.5 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution, and a TOEFL score of 560 where applicable (see §173.2.3).

The TESL program requires a TOEFL of 580 and a TSE score of 50 for individuals whose first language is not English. More details concerning admission requirements, including prerequisite courses, within each area may be found within the Department's Graduate Brochure.

Financial Assistance

In addition to scholarships awarded by outside granting agencies such as the Social Sciences and Humanities Research Council of Canada and by the University such as the Faculty of Graduate Studies and Research Scholarships, the Department offers financial support to some students in the form of graduate research assistantships and graduate teaching assistantships. Students wishing Departmental support should indicate so with their application for admission.

175.21.2 The Degree of MEd

Program Requirements

For the thesis-based MEd, students must complete a minimum of ★21-★27 in graduate-level courses in addition to a thesis. All candidates are required to demonstrate competence in research methods, and skills specific to their area of specialization. The required competence is usually demonstrated by completion of EDPY 501 and courses specific to each specialization area. For the course-based MEd, students must complete a minimum of ★21-★33 in graduate-level courses in addition to a capping exercise or project.

A course-based MEd in School Counselling has been developed requiring the successful completion of ★36 in graduate-level courses. Students accepted into the program will be practising teachers, and the program is designed to be taken on a part-time basis. Since applicants may not be accepted into this program every year, interested students should contact the Department of Educational Psychology.

More detail concerning required coursework within each area may be found within the Department's Graduate Brochure. Each student, in consultation with the faculty advisor assigned at the time of admission, will develop a program of studies to suit the student's specific background and area of interest.

Length of Program

Students have a maximum four years to complete a thesis-based MEd. The course-based MEd must be completed in a maximum of six years. Most thesis-based and course-based programs do not have residency requirements. Please refer to the Graduate Brochure for the residency requirements for each program.

175.21.3 The Degree of EdD

Not offered in 1999/2000.

Program Requirements

The EdD program consists of a minimum of ★24 to ★30 and the preparation and defence of a thesis on an approved topic (★24 are normally required for the basic educational psychology and special education programs; ★30 for the school psychology and counselling programs).

There is no language requirement for the degree.

The minimum period of residence is 12 months of full-time attendance.

Length of Program

Two years beyond the master's degree are normally needed to complete the requirements for the EdD.

175.21.4 The Degree of PhD

Program Requirements

The PhD program consists of a minimum of ★21-★30, depending on the area of specialization, and the preparation and defence of a thesis on an

approved topic. Currently, PhD programs are offered in Counselling and School Psychology, Educational Psychology and Special Education.

No language other than English is required.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta. In the Counselling and School Psychology program one year of supervised internship is required as part of the residency requirement. More detail concerning required coursework and the development of the thesis within each area may be found within the Department's Graduate Brochure. Each student, in consultation with the faculty advisor assigned at the time of admission, will develop a program of studies to suit the student's specific background and area of interest. By the end of the first year of study, PhD students must have a supervisory committee consisting of at least three faculty members related to the student's area of study.

Length of Program

Candidates are normally required to spend a minimum of two years beyond the master's degree to complete the PhD, with a maximum completion time of six years.

175.21.5 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the following subject headings:

Education – Instructional Technology (EDIT)
Educational – Psychology (EDPY)

175.22 Electrical and Computer Engineering

Department of Electrical and Computer Engineering
238 Civil-Electrical Engineering Building
University of Alberta
Edmonton, Alberta T6G 2G7
E-mail: eegrad@ee.ualberta.ca

175.22.1 General Information

The Department of Electrical and Computer Engineering offers graduate courses leading to the MEng, MSc, and PhD degrees to qualified graduates of recognized universities.

Research is being carried out in a number of areas, including biomedical engineering; electromagnetic heating in the recovery of fossil fuels, and in biological systems; integrated solid state sensors; ultra-short pulse lasers; laser fusion; medical and industrial lasers; micro electronics and VLSI design; micro-processor applications; microwave power; optical fibre communications and microwave communications; plasmas; power electronics; power systems; radio astronomy; robotics; sampled data, adaptive and optimal control systems; signal processing; image processing; software engineering; photovoltaic power systems.

Entrance Requirements

The Department's minimum admission requirements are an undergraduate degree with an average of 6.5 in the last two years of full-time study (or equivalent) at the University of Alberta, or an equivalent qualification from a recognized institution, and a TOEFL score of 580 where applicable (see §173.2.3).

Financial Assistance

Financial assistance can be arranged in the form of graduate assistantships, scholarships and research grant assistantships. Details are found in the Awards section of the Calendar.

175.22.2 The Degree of MSc

Program Requirements

Normal requirements for the MSc degree are ★18 in graduate courses plus E E 600 and a thesis. Of the ★18 required, ★12 must be from those offered by the Department of Electrical Engineering. MSc candidates take E E 600 (Research Project Definition) in the second term of their program.

The minimum period of residence is two consecutive four-month terms of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the MSc will vary according to the previous training of the applicant and the nature of the research undertaken; however, a typical time of two years is normally required.

175.22.3 The Degree of MEng

Program Requirements

The Master of Engineering program consists of ★24 at the graduate level plus a project which is equivalent to ★6.

The minimum period of residence is one four-month term of full-time attendance at the University of Alberta.

Length of Program

A candidate may complete the Master of Engineering program in a minimum of nine months. The maximum time permitted for the completion of the program is four years from the date of the first registration.

175.22.4 The Degree of PhD

Program Requirements

For the PhD program, course requirements depend upon individual circumstances and must be approved by the Department. Emphasis is on research leading to a thesis of high calibre. The student's supervisory committee will recommend courses to be taken by the student to make up for course deficiencies and to support thesis research. All PhD candidates must take E E 609 and submit a research proposal.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the program will vary with the individual candidate.

175.22.5 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading:

Electrical Engineering (E E).

175.23 Elementary Education

Department of Elementary Education
551 Education South
University of Alberta
Edmonton, Alberta T6G 2G5
E-mail: educ.elem@ualberta.ca
FAX: (780) 492-7622

175.23.1 General Information

The Department of Elementary Education offers graduate programs leading to the degrees of MEd, EdD, and PhD, in the following areas: Art; Computer Applications; Curriculum Studies; Early Childhood Education; Instructional Studies; Language Arts; Mathematics; Movement; Physical Education; Music; School Libraries (MEd only); Science; Social Studies; and Teacher Education (PhD only). These programs are designed to help prepare consultants and supervisors, master teachers, and personnel for teacher education institutions.

Application forms for admission to graduate programs can be secured by writing to the Chair of the Department.

Entrance Requirements

The Department's minimum admission requirements to the master's program include a valid teaching certificate, and an undergraduate degree equivalent to a BEd degree from the University of Alberta with a minimum grade point average of 6.5 on the last ★60 completed. Successful teaching experience is also required, and where applicable (see §173.2.3) candidates must have a TOEFL score of at least 550.

To be admitted to the EdD or PhD program a candidate is normally required to have the equivalent of a University of Alberta MEd degree. Under certain circumstances it is possible to enter with the equivalent of the BEd degree, but in such instances potential candidates must plan at least three years of continuous attendance. Successful teaching experience is also a prerequisite for admission into an EdD or a PhD program.

Financial Assistance

A limited number of graduate assistantships are available.

175.23.2 The Degree of MEd

Program Requirements

Two routes to the MEd degree are available: a thesis-based route and a course-based route. No new admissions to the thesis-based program are being accepted until July, 2000. Requirements for the course-based MEd degree normally include graduate coursework equivalent to ★27 plus a capping experience (★3). There is no residence requirement for the course-based master's.

Length of Program

The time required to complete the MEd program varies with the individual candidate and the route selected. The course-based MEd may be completed in two years and must be completed within six years.

175.23.3 The Degree of EdD

Program Requirements

The EdD program requirements are individually defined and normally range from ★24 to ★48 plus a dissertation.

★24 of course work completed within 24 months of continuous registration is normally required.

Length of Program

The time required to complete the EdD program will vary with the individual candidate; however, normally a minimum of 30 months is required.

175.23.4 The Degree of PhD

Program Requirements

The PhD program requirements are individually defined and normally range from ★24 to ★48 plus a dissertation.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta. This involves four (four-month) terms of full-time study with a minimum of ★9 per term.

Length of Program

The time required to complete the PhD will vary according to the previous training of the applicant and the nature of the research undertaken; however, normally a minimum of 30 months of study and research is required.

175.23.5 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading Elementary Education (EDEL).

175.24 English

Department of English
3-5 Humanities Centre
University of Alberta
Edmonton, Alberta T6G 2E5
E-mail: kim.nicholson@ualberta.ca

175.24.1 General Information

The Department of English offers graduate work leading to the Master of Arts and Doctor of Philosophy degrees in English language and literature.

The Department is large and various, and offers courses in all areas of English language and literature, from Old English to contemporary British, American, and Canadian writing. It is particularly strong in Renaissance, nineteenth-century, Canadian literature, and in creative writing.

The University's libraries contain a 6,000,000 volume equivalent, and holdings in English, Canadian, American, and Commonwealth literature totalling more than 198,000 volumes. Special collections in English literature include early editions of Bunyan and Milton; facsimiles of the Dove Cottage Wordsworth papers; first and rare editions of Scott, Thackeray, Dickens (including serial parts); Emily Dickinson manuscript facsimiles; exceptionally large holdings in Lawrence, Yeats, and Joyce; and manuscripts and archives in the literature of Canada, including the manuscripts of the poetry of Dorothy Livesay from 1919-1974.

Entrance Requirements

The normal requirements for admission to the MA program include an Honors degree in English or its equivalent in number of courses (★60),

coverage (★6 in each of the major periods and figures: Old and Middle English, including Chaucer; early Renaissance, including Shakespeare; later Renaissance, including Milton, and/or Restoration and Eighteenth Century Literature; Romantic and Nineteenth Century Literature; Modern British and/or American Literature; and Canadian Literature [though this will not be required of students from outside Canada]), and high academic standing (a minimum 7.5 GPA in courses in English). Where applicable a TOEFL score of 600 is required (see §173.2.3). Applications, complete with supporting documentation, must be submitted by January 7.

Financial Assistance

The Department has regular provision for graduate assistantships. (Part-time MA students are ineligible for Department financial support.) Application should be made by January 7. Because of a generous bequest from a former student, the Department is able to offer the following scholarships: Christie MA Scholarship (\$12,000), Christie PhD Scholarship (\$16,000), and travel bursaries to allow attendance at conferences or study in out-of-town libraries and archives (usually up to \$1000 each). PhD and MA students are urged to apply, in the University's General Scholarship competition, for awards such as the Province of Alberta Scholarships and Fellowships.

175.24.2 The Degree of MA

Program Requirements

For a student with an Honors BA in English (or its equivalent) the MA program will consist of one of two options: ★18 in graduate courses in the Department, some practical training in bibliography, a thesis, and an oral defence of the thesis; or ★24 in graduate courses in the Department, some practical training in bibliography and a project equivalent to ★3. The course-based option may be pursued on a part-time basis. The MA program of a student without an Honors BA in English may require more courses, depending upon the number of English courses that have been taken as an undergraduate.

A reading knowledge of one language other than English will be required of all students (normally French or German, although other languages may be approved).

For full-time MA students the minimum period of residence is two four-month terms of full-time attendance at the University of Alberta for candidates with an Honors degree in English (or its equivalent); for candidates without an Honors BA in English the residence requirement may be somewhat longer.

Length of Program

The time required to complete the MA will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of 12 months is normally required.

175.24.3 The Degree of PhD

Program Requirements

A student with an MA in English (or its equivalent) may be admitted as a provisional candidate for the PhD degree. The program of a provisional candidate will normally include ★18 in graduate courses (three of which may be taken outside the Department of English), as well as departmental examinations, and an oral candidacy examination.

Before the Departmental examinations, PhD students must demonstrate either a reading knowledge of two languages other than English or advanced knowledge of one. After a student has passed all examinations, the student will become a candidate for the PhD and will then submit a thesis and make an oral defence of the thesis.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the PhD will vary with the individual candidate; however, a minimum of two years of study and research is normally required.

175.24.4 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading English (ENGL).

175.25 Faculté Saint-Jean

8406, rue Marie-Anne Gaboury
Edmonton, Alberta T6C 4G9
E-mail: ldesbien@gpu.srv.ualberta.ca

175.25.1 General Information

Faculté Saint-Jean offers a Master of Education degree specializing in educational studies in Language and Culture. This multidisciplinary program recognizes the uniqueness of the Faculté and enables students to pursue studies in French at the master's level. The Master of Education program is oriented to the school milieu and its instructional program is designed to develop competencies as master teachers, specialists in the field of Immersion and Francophone education, and educators who are prepared to assume a leadership role in their educational milieu.

Prospective students should consult the Graduate Program Coordinator for further information on the program.

Entrance Requirements

Faculté Saint-Jean's requirements for admission to the Master of Education program are as follows:

- (1) A baccalaureate degree with a cumulative average of 7.0 or equivalent in the last ★60 of a program with a substantial component from the areas of Education or the Social Sciences.
- (2) Two years of experience as a professional in the field of Education.
- (3) Successful completion of a French language proficiency examination with a grade of 6.0 or more in both oral and written components.
- (4) Acceptance by the Faculty of Graduate Studies and Research.

175.25.2 The Degree of MEd

Program Requirements

Two routes to the MEd degree are available: a thesis-based route and a course-based route. The program consists of ★30. Students in the thesis-based MEd route normally complete ★21 (seven courses), and successfully defend a thesis. Students in the course-based MEd route must successfully complete ★27 (nine courses) and present a final capping exercise (★3).

Structure of the Program:

All students registered in the MEd program are required to take three compulsory courses (★9). Students in the thesis-based MEd program must complete a research seminar for an additional ★3. The remaining courses must be selected in consultation with the Graduate Program Coordinator of Faculté Saint-Jean.

- (1) Compulsory courses:
 - a. M EDU 500 (★3) or 501 (★3)
 - b. M EDU 520 or 521 (★3)
 - c. M EDU 580 (★3)
 - d. M EDU 582 (★3) compulsory only for students in the thesis-based route.
- (2) Options:
 - thesis-based route - ★9
 - course-based route - ★18
- (3) Thesis (equivalent to ★9)
or
Capping exercise - ★3

Length of Program

In order to obtain an MEd degree, students in the thesis-based route must complete all the requirements within four years of the time they first register as candidates in the MEd program. Candidates in the course-based route must complete all the requirements within six years.

Graduate Courses:

Graduate courses are found in the Course Listings under the subject headings Maîtrise en sciences de l'éducation (M EDU) and Thesis (THES).

175.25.3 Information générale

La Faculté Saint-Jean offre un programme de maîtrise en sciences de l'éducation. Le programme multi-disciplinaire en langue et culture intègre plusieurs disciplines avec les théories et les pratiques des sciences de l'éducation. Le programme reflète le caractère unique de la Faculté et permet aux étudiants de poursuivre leurs études en français au niveau de la maîtrise. Le programme est conçu pour des personnes qui oeuvrent dans les milieux d'éducation. Le programme veut former des enseignants et des enseignants maîtres, des spécialistes dans les domaines de l'éducation en immersion et de l'éducation francophone et des professionnels qui peuvent exercer un véritable rôle de leader dans leur milieu scolaire.

Les candidats devraient consulter la coordonnatrice du Programme de Maîtrise à la Faculté Saint-Jean pour obtenir plus de détails sur le programme.

Conditions d'admission:

Les conditions d'admission au programme de Maîtrise en sciences de l'éducation sont les suivantes:

- (1) L'obtention d'un baccalauréat universitaire reconnu, avec une moyenne cumulative minimale de 7,0 ou l'équivalent, dans les ★60 derniers d'un programme axé principalement sur l'éducation ou les sciences sociales.
- (2) Une expérience minimale de deux ans comme professionnel en éducation.
- (3) La réussite à un examen de compétence en français (oral et écrit) avec une note minimale de six dans chacune des composantes.
- (4) L'accord de la Faculté des études supérieures.

175.25.4 Maîtrise en sciences de l'éducation

Les exigences du programme:

Le programme comporte ★30 et offre deux voies possibles: l'une avec thèse, l'autre sans thèse. La première voie comprend ★21 (7 cours) et la préparation et la soutenance avec succès d'une thèse. La deuxième voie comprend ★27 (9 cours) et une activité de synthèse (★3).

La structure du programme:

Tous les étudiants inscrits au programme de MEd doivent suivre trois cours obligatoires (★9). De plus, les étudiants qui ont choisi la voie avec thèse doivent suivre un cours supplémentaire de trois crédits: séminaire de recherche. Les autres cours optionnels sont choisis en consultation avec la personne qui coordonne le Programme de Maîtrise à la Faculté Saint-Jean

- (1) Cours obligatoires:
 - a. M EDU 500 (★3) ou 501 (★3)
 - b. M EDU 520 ou 521 (★3)
 - c. M EDU 580 (★3)
 - d. M EDU 582 (★3) obligatoire seulement pour les étudiants dans la voie avec thèse.
- (2) Options:
 - voie avec thèse - ★9,
 - voie sans thèse - ★18
- (3) Thèse ★9
ou
activité de synthèse - ★3

Durée limite du programme:

Pour obtenir le diplôme de MEd, les candidats dans la voie avec thèse doivent remplir toutes les exigences du programme en quatre ans à compter de la date de leur inscription initiale à titre de candidat au programme de MEd. Ceux dans la voie sans thèse doivent remplir toutes les exigences du programme en six ans à compter de la date de leur inscription initiale à titre de candidat au programme de MEd.

La liste des cours

Les cours du programme de la maîtrise en sciences de l'éducation se trouvent dans l'annuaire sous les catégories Maîtrise en sciences de l'éducation (M EDU) et Thesis (THES).

175.26 Health Promotion Studies

Centre for Health Promotion Studies
5-10 University Extension Centre
8303-112 Street
University of Alberta
Edmonton, Alberta T6G 2T4
http://www.ualberta.ca/~healthpr/
E-mail: health.promotion@ualberta.ca

175.26.1 General Information

The Postgraduate Diploma and Master of Science programs in Health Promotion respond to the demand from individuals in the health sector to provide integrated multi-disciplinary programs focused on the new knowledge and skills needed to successfully engage in health promotion activities. Strategies for health promotion are comprehensive and include research, teaching, advocacy, community development, social marketing, program development, delivery and evaluation, and policy development and implementation.

Health promotion activities are widely recognized as essential for improving the health of the public. Such activities are particularly important as the health system moves toward a wellness perspective and individuals and communities are encouraged to take increased responsibility for their health. The types of health promotion workers who would benefit from the diploma/master's graduate programs include health educators, community nurses, dietitians and nutritionists, occupational and physiotherapists, fitness and lifestyle counsellors, dental hygienists, occupational health workers, workers in drug and alcohol prevention, sexuality educators, and smoking cessation counsellors, among others.

It is expected that students who complete the Postgraduate Diploma will acquire the knowledge and skills in health promotion that will allow them to function effectively in a variety of public, private, and not-for-profit agencies in a reformed health system.

Students graduating with the MSc degree will have similar skills to those who obtain the Postgraduate Diploma, however, MSc graduates will also have the ability to function as scientists/practitioners who provide leadership in health promotion program development, research and evaluation.

Both the Postgraduate Diploma and MSc programs in Health Promotion are available through distance learning. Applicants who wish to enrol in either of these programs must have access to a new or recent model computer (133+ Pentium, 16+ Megabytes RAM, 1 Gigabyte + hard drive), modem and Internet connection. Students who enrol in the distance-based programs are required to participate in an on-campus three-day program at the beginning of their studies.

Entrance Requirements

The Postgraduate Diploma and Master's degree programs in Health Promotion are designed to build on the existing professional/discipline base of degree holders in health sciences or health-related fields. Applicants to the programs must hold a minimum of a four year undergraduate degree in a health-related field with a recommendation that the applicant have significant relevant experience in the health-related field. The minimum grade point average (GPA) for admission will be 6.5 on the last ★60. Individual cases may be considered on merit. Admission will be on the basis of a variety of considerations including academic record, experience, references, and compatibility of student's interests with instructional resources. A TOEFL score of not less than 550 is required where applicable (see §173.2.3).

Financial Information

Some graduate courses that are offered directly by the Centre have a higher than normal instructional fee index. Please refer to specific course listings for more details.

The Centre for Health Promotion Studies annually provides a number of graduate research assistantships. Graduate students are also eligible for various University fellowships and bursaries. For details see the Graduate Financial Aid section of this Calendar.

175.26.2 The Postgraduate Diploma

Program Requirements

Postgraduate Diploma students must complete four required ★3 graduate-level courses (INT D 501, INT D 502, PERLS 541, and NURS 531) and four ★3 optional courses for a minimum total of ★24.

Length of Program

Students may undertake the Diploma program in Health Promotion on a full-time or part-time basis. The program provides the opportunity for students to acquire this qualification in a minimum of one year and a maximum of four years. Students may transfer to the MSc program before completing the Postgraduate Diploma program under certain conditions.

175.26.3 The Degree of MSc

Program Requirements

MSc students must complete the four required graduate-level core courses specified for the Postgraduate Diploma program, two additional required ★3 graduate-level courses (a 500-level INT D course on program planning and evaluation and either PHS 590 or NURS 540), and two optional courses. The minimum total course weight is ★24. In addition, students must spend one year completing a thesis.

Length of Program

Students may undertake the master's degree program in Health Promotion on a full-time or part-time basis. Students may complete the program in less

than two years, but are required to complete the degree within four years of their first registration.

175.27 History and Classics

Department of History and Classics
2-28 Tory Building
University of Alberta
Edmonton, Alberta T6G 2H4
E-mail: ldugbaza@gpu.srv.ualberta.ca

175.27.1 General Information

The Department of History and Classics offers programs leading to the degrees of Master of Arts and Doctor of Philosophy in both History and Classics.

The MA may be earned in Classics (Greek, Latin, and classical studies) where some concentration is possible in classical literature or ancient history, or in Classical Archaeology, which offers an opportunity to pursue archaeological fieldwork. The PhD affords opportunities for specialization in language and literature, ancient history, and classical archaeology.

MA and PhD programs in History are offered in the following fields: Medieval Europe, Early Modern Western Europe, Modern Western Europe, Russia and Eastern Europe, Medieval England, Early Modern England, Modern Britain, Canada, the United States, China, Japan and Korea, Latin America, Africa, Women's History, and the History of Science and Medicine.

The application deadline for September admission is January 15.

Requests for additional information should be addressed to the Graduate Chair, Department of History and Classics.

Entrance Requirements

The Department's minimum admission requirements are an undergraduate degree with an average of 7.5 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution, and a TOEFL score of 580 where applicable (see §173.2.3).

All candidates for the MA in History and all provisional candidates for the PhD in History must demonstrate competence in reading a language other than English by passing an examination administered by the Department. A candidate for the MA in History must satisfy the language requirement before being permitted to proceed to the thesis examination; a provisional candidate for the PhD in History must satisfy the language requirement before being permitted to take the candidacy examination. Exemptions from language examinations may be granted under certain specific conditions. Further details on language requirements are found in the brochure *Higher Degrees in History and Classics* available from the Department.

Financial Assistance

The Department annually appoints a number of graduate research and teaching assistants. Graduate students are also eligible for various University fellowships and bursaries. For details see the Awards section of this Calendar.

Application forms, information about fellowships, bursaries, etc., may be obtained from the Graduate Chair, Department of History and Classics.

175.27.2 The Degree of MA in Classics

The Department offers two Classics MAs, an MA in Classics and an MA in Classical Archaeology, which have different entrance and program requirements. Each of these degrees offers the option of a course-based program or a thesis-based program.

175.27.2.1 MA in Classics

Entrance Requirements

In addition to general Departmental requirements outlined above, a student must have a BA in Classics with a minimum of three senior courses (★9) in Greek, including one (★3) at the 400 level; three senior courses (★9) in Latin including one (★3) at the 400 level; and four additional courses (★12) in Greek, Latin or Classics at the senior level, including one (★3) at the 400-level.

Students who lack the requirements at the senior level in one language, but are otherwise well qualified for graduate study, may be considered for admission as probationary or qualifying students.

Program Requirements

There are two programs available to the student admitted to the MA in Classics. Students must declare which program they intend to follow at the

beginning of their graduate studies. Any student wishing to change program must seek the approval of the graduate committee.

- (1) **Course-based MA in Classics:** A student entering this program must take and pass a minimum of six graduate-level courses (★18), including at least one course in Greek (★3) and one course in Latin (★3). Of the remaining four required courses, one may be taken outside Classics. The program also requires successful completion of a directed research project (CLASS 900, ★6), which requires a formal examination on primary sources relevant to the research topic and the submission of a research paper of about 50 pages. In addition, students are required to complete CLASS 501 Research Methods and Resources in Classics (★1) and to fulfil a modern language requirement in French, German or Italian.
- (2) **Thesis-based MA in Classics:** A student entering this program must take and pass a minimum of five graduate-level courses (★15), including at least one course in Greek (★3) and one course in Latin (★3). Of the remaining three required courses, one may be taken outside Classics. The program also requires the successful completion of a thesis (THES 909 or equivalent, ★9) of about 75-100 pages. In addition, students are required to complete CLASS 501 Research Methods and Resources in Classics (★1) and to fulfil a modern language requirement in French, German or Italian.

Length of Program

A student should be able to complete either program in two or three terms depending on preparation and course selection.

175.27.2.2 MA in Classical Archaeology

Entrance Requirements

In addition to general Departmental requirements outlined above, a student must have a BA with a major in Classics, with a minimum of four senior courses (★12) in Latin and/or Greek, and six additional senior courses (★18) in Classics, Latin or Greek. At least two courses must be at the 400-level.

Students who lack the language requirements, but are otherwise well qualified for graduate study, may be admitted as probationary or qualifying students.

Program Requirements

There are two programs available to the student admitted to the MA in Classics. Students must declare which program they intend to follow at the beginning of their graduate studies. Any student wishing to change program must seek the approval of the graduate committee.

- (1) **Course-based MA in Classical Archaeology:** A student entering this program must take and pass a minimum of six graduate-level courses (★18), of which at least one (★3) will normally be in Greek or Latin, one will normally be in Archaeological Fieldwork (★3) and one may be taken outside Classics. The program also requires successful completion of a directed research project (CLASS 900, ★6) requiring an examination on primary sources and/or secondary literature relevant to the research topic and submission of a research paper of about 50 pages. In addition, students are required to complete CLASS 501 Research Methods and Resources in Classics (★1) and to fulfil a modern language requirement in French, German or Italian.
- (2) **Thesis-based MA in Classical Archaeology:** A student entering this program must take and pass a minimum of five graduate-level courses (★15), of which at least one (★3) must be in Greek or Latin, one will normally be in Archaeological Fieldwork (★3) and one may be taken outside Classics. The program also requires the successful completion of a thesis (THES 909 or equivalent, ★9) of about 75-100 pages. In addition, students are required to complete CLASS 501 Research Methods and Resources in Classics (★1), and to fulfil a modern language requirement in French, German or Italian.

Length of Program

A student should be able to complete either program in two or three terms (one of which may be the spring or summer term) depending on preparation and course selection.

Notes

1. Graduate-level courses are courses at the 500-level or above.
2. Senior courses are courses at the 200-level or above (i.e. they do not include elementary language courses).
3. The Directed Research Project is a credit/no credit course; it is assessed by the supervisor and one other Classics Faculty member.

4. To fulfil the modern language requirement, a student must have completed either a 6-credit course at the 100 level (e.g. Italian 100) or a 6-credit graduate reading course (e.g. French 500, German 500) in a modern language relevant to the research area (normally French or German or Italian) within the four years prior to admission to the Classics graduate program or as soon as possible after admission to the program. Students who do not satisfy these formal requirements may fulfil the requirement by passing a Graduate Language Proficiency Examination offered either by the relevant department or by the Department of History and Classics.
5. Thesis-based MAs normally have a residence requirement of two terms; there is no residence requirement for the course-based MA, which may, therefore, be pursued entirely through part-time study.
6. The maximum allowable time for completion of Classics MAs is four years; supervision for the Directed Research Project is available for a maximum of two terms.
7. Successful completion of a Classics MA does not guarantee admission to the PhD program; students intending to pursue doctoral studies should consult their supervisors about planning a course of study that will allow them to meet PhD admission requirements.

175.27.3 The Degree of MA in History

Entrance Requirements

A student holding a four-year Honors or Special BA in History from the University of Alberta, or a comparable degree from another university, may be admitted to the status of candidate for the MA degree. A student who lacks the above qualification, but who holds an acceptable bachelor's degree (or its equivalent), may be admitted as a qualifying graduate student; as such, the student will be expected to complete additional courses before proceeding to the MA program proper.

A student admitted as a qualifying graduate student must normally take ★30, at least ★18 of which are history courses, and must attain a grade point average of 7.0, with no single grade below 6.0. The courses will usually be senior undergraduate courses at the 300 or 400-level, chosen in consultation with the Graduate Chair of the Department. Advancement to candidacy status may be delayed until the student has passed the language examination.

Program Requirements

There are two programs available to the student admitted to the MA in History. Either may be subsequently used as a qualification for application to the PhD program. Students must declare which program they intend to follow at the beginning of their graduate studies. Any students wishing to change their program must seek the approval of the graduate committee.

- (1) **Thesis MA in History:** A student entering this program must take and pass one of HIST 601 (★3), 603 (★3), 604 (★3), 605 (★3), or 610 (★3), or SOC 519 (★3), if the student does not already have credit in an equivalent course or courses acceptable to the Department; take and pass HIST 609 (★3); take and pass three additional 600-level ★3 courses, no more than two of which should be in the area of concentration. With the approval of the student's supervisor and the graduate committee arrangements may be made for the student to obtain credit for a maximum of ★6 in another department (excluding courses taken to achieve second language proficiency); pass a language examination administered by the Department if this has not been already done; and write a thesis, the text of which should normally be not more than 100 pages in length.
- (2) **Course-based MA in History:** A student entering this program must: take and pass one of HIST 601 (★3), 603 (★3), 604 (★3), 605 (★3), or 610 (★3), or SOC 519 (★3), if the student does not already have transfer credit in an equivalent course or courses acceptable to the Department; take and pass an additional ★18 at the 600-level, no more than six of which may be from any one area of concentration. Arrangements may be made for the student to obtain credit for a graduate course in another department (excluding courses taken to achieve second-language proficiency); pass a language examination administered by the Department if this has not already been done; complete a research paper which normally should not exceed 50 pages in length but which should reflect a significant use of primary materials and research. The paper will be assessed by two readers normally from the Department. Both must approve the project. For project work students should register in HIST 900 (★3). It is expected that this degree will be completed in one to two years. The Department will not provide supervisory services for more than two registrations in HIST 900.

Successful completion of the MA program does not guarantee admission to the doctoral program. Students wishing to go on to a PhD must make formal application.

Additional information on language requirements for the degree of MA in History are outlined above, under "General Information."

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the MA will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of 12 months is normally required.

175.27.4 The Degree of PhD in Classics

Program Requirements

Course requirements, language proficiency and length of program depend to some extent on the student's previous training and on the student's anticipated needs for the chosen area of specialization.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Program Requirements of the Various Specializations:

For a PhD in Classics the entrance requirement is an MA in Classics or equivalent.

The length of the program is three to four years, depending on previous preparation. Course work including PhD reading lists, can normally be completed in two years.

The program consists of the following:

- (1) ★18, ★9 of which must be taken from the Department's 500-600-level Greek, Latin, and Classics course offerings. Another ★3 must be taken inside or outside the Department on a subject relevant to the student's area of specialization.
- (2) A modern language requirement of one of German, French, or Italian. Normally this will be taken as part of the coursework of the first year.
- (3) Departmental qualifying examinations (one each in Greek and Latin) will normally be taken by the middle of the third candidacy year.

The period examinations will consist of two four-hour examinations on a period of Greek History and Culture (514-404 BC) and a period of Roman History and Culture (63 BC-37 AD). In each of these examinations the candidate will be expected to answer in a detailed manner two of three questions in the field of history. The examining committee in consultation with the candidate may substitute a question on art for a question on literature and a question on archaeology or some other aspect of antiquity for a question on history.
- (4) To be advanced to candidacy, students must pass a candidacy oral examination on the subject relevant to their general field of research.
- (5) Thesis

For a PhD in Classical Archaeology the entrance requirement is an MA in Classical Archaeology or equivalent.

The length of the program is three to four years depending on previous preparation. Course work can normally be completed in one year, but for students deficient in a required language an additional year may be necessary.

The program requirements are ★18, at least ★9 of which must be in the Department of History and Classics at the 500-600 level and ★3 of which must be fieldwork or the equivalent. These requirements will normally be completed in the first year. The prerequisites for advancement to PhD candidacy are two author courses in Greek or Latin, whichever is the major language; a 400-level course in Greek or Latin, whichever is the minor language; demonstrated reading knowledge of two modern languages relevant to the student's field of study; successful completion of one PhD candidacy examination on the major ancient literary and archaeological sources relevant to the study of Classical or Hellenistic Greek art, monuments and topography; and successful completion of one PhD candidacy examination on the major ancient literary and archaeological sources relevant to the study of Roman Republican or Imperial art, monuments and topography.

The thesis will normally not exceed 300 pages.

For a PhD in Ancient History the entrance requirements are an MA in Ancient History or equivalent and consent of the Department based on promise in research.

The length of the program is normally three to four years.

The first candidacy year consists of ★18 from the Department's graduate course offerings in Ancient History or Archaeology; and a modern language

requirement of one of German, French, or Italian, whichever has not been passed at the MA level.

In the second candidacy year very well qualified students may be able to begin tests on the PhD Reading Lists in September. Others may need to wait until April. The PhD Reading Lists will then be followed by tests on Greek History and Roman History and a candidacy examination.

The third candidacy year consist only of work on the thesis, if all the examinations have been completed.

For a PhD in Classical Studies the entrance requirement is an MA in Ancient History, Classical Archaeology, Classical Literature, or Classics, with the consent of the Department based on promise of research.

The length of the program is normally three to four years.

The first candidacy year normally consists of ★18 from the offerings of the Department at the graduate level in areas appropriate to the specialization of the student: ★3 at the graduate level, however, may be taken outside the Department in an area relevant to the student's specialization; and a modern language requirement of one of German, French, or Italian, whichever has not been passed at the MA level. The subsequent candidacy years will be similar to those in the PhD in Ancient History, except that the areas examined will be interdisciplinary rather than necessarily historical.

175.27.5 The Degree of PhD in History

Entrance Requirements

A student proposing to enter a PhD in History program is expected to hold an acceptable MA degree or its equivalent. In exceptional cases a student admitted as a candidate for the MA may subsequently be permitted to enter the PhD program without writing a master's thesis.

Program Requirements

All students proposing to proceed to the PhD are admitted initially as provisional candidates. A provisional candidate must: take and pass ★12 in 600-level history courses; take and pass two of HIST 601 (★3), 603 (★3), 604 (★3), 605 (★3) or 610 (★3), or SOC 519 (★3) if the student does not hold credit in equivalent courses acceptable to the Department; pass a graduate language examination administered by the Department, if the student has not previously done so. In addition, the student may be required to pass a second language examination, but the Department never requires any student to pass examinations in more than two languages other than English; and submit a thesis proposal of five to eight pages based on some preliminary research.

When a provisional candidate has completed the requirements outlined above (normally not later than 18 months after entering the program), the candidate will be expected to pass written comprehensive examinations in four fields. The construction of the fields is flexible and explained fully in the Departmental brochure *Higher Degrees in History and Classics*. One of the fields must, however, be selected from the list of fields specified in §175.26.1 above, and this field must be the field of the thesis. Another of the four fields must be a more specialized, more thesis-oriented concentration within the first field. The other two fields are open; options include Philosophy of History, Historical Methodology, Historiography, World History, any of the other fields listed in §175.26.1 above, and individualized fields approved by the graduate committee of the Department.

If the provisional PhD candidate passes written comprehensive examinations, the candidate will be permitted to proceed to the oral examination, generally taken in two stages: an oral examination in the four fields and a defence of a thesis proposal. Upon successful completion of the oral examination, the student will be advanced to formal candidacy for the PhD.

A student who has been admitted to candidacy for the PhD may proceed to the degree by completing a thesis, the text of which should normally be not less than 250 nor more than 400 pages in length.

The minimum period of residence for the PhD is two academic years of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the program will vary according to the previous training of the applicant and the nature of the research undertaken; however, four to six years are normally required.

175.27.6 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the following subject headings:

- Classics (CLASS)
- Greek (GREEK)
- History (HIST)
- Latin (LATIN)

175.28 Human Ecology

Department of Human Ecology
115 Home Economics Building
University of Alberta
Edmonton, Alberta T6G 2M8
E-mail: linda.mckay@ualberta.ca

175.28.1 General Information

The Department of Human Ecology offers graduate programs leading to the degrees of MA and MSc in Textiles and Clothing and MSc in Family Ecology and Practice. A postgraduate diploma in Textile Conservation and Curatorship is also offered. Students come from a variety of academic backgrounds and upon graduation have taken employment in a wide range of careers in social service agencies, museums and cultural agencies, government, research, and teaching.

The research laboratories are well equipped with up-to-date, well maintained instruments. The Department possesses an outstanding collection of clothing and textiles from a variety of time periods and cultures. The library facilities in all areas of specialization are excellent.

Entrance Requirements

Candidates for the MSc or MA degrees should hold a four-year Bachelor's degree with an average of 7.0 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution, and both a TOEFL score of 580 and a Test of Spoken English score of 200 where applicable (see §173.2.3). An applicant proceeding from either a three-year program in a related field, or a four-year program in a different field, may be admitted as a qualifying student. See §175.27.4 for the entrance requirements for the Postgraduate Diploma.

Financial Assistance

A limited number of teaching and research assistantships are available for well qualified students.

175.28.2 The Degrees of MA and MSc in Textiles and Clothing

Program Requirements

Both thesis-based and course-based master's programs are offered by the Department of Human Ecology.

Requirements for the thesis-based master's degree include ★24 to ★36 including HECOL 600, 601, TCC 601, 602, ★6 in qualitative research methods, quantitative research methods and/or statistics, and ★9 to ★21 of additional coursework depending on undergraduate background and the nature of the research problem under investigation. All candidates for the thesis-based master's degree are required to conduct thesis research, and to make a minimum of two professional research presentations, at least one of which must be oral. For students in the thesis-based program, there is a residence requirement of two, four-month terms of full-time attendance at the University of Alberta.

Requirements for the course-based master's degree include ★30 to ★33 including HECOL 500, 600, 601, 900, TCC 601, 602, and ★15 of additional coursework depending on undergraduate background, work experience and the nature of the applied project to be undertaken. All students in the course-based master's program are required to complete an applied project. For students in the course-based program there is no residence requirement.

Length of Program

The time to complete the master's degree will vary with the individual candidate; however, a minimum of two years is normally required.

175.28.3 The Degree of MSc in Family Ecology and Practice

Program Requirements

Both thesis-based and course-based master's programs are offered by the Department of Human Ecology.

Requirements for the thesis-based master's degree include ★24 to ★36 including HECOL 600, 601, FAM 601, 602, ★6 in qualitative research methods, quantitative research methods and/or statistics, and ★9 to ★21 of additional coursework depending on undergraduate background and the nature of the research problem under investigation. All candidates for the thesis-based master's degree are required to conduct thesis research, and to make a minimum of two professional research presentations, at least one of which

must be oral. For students in the thesis-based program, there is a residence requirement of two, four-month terms of full-time attendance at the University of Alberta.

Requirements for the course-based master's degree include ★29 to ★32 including HECOL 500, 600, 601, 900, FAM 601, 602, and ★15 of additional coursework depending on undergraduate background, work experience and the nature of the applied project to be undertaken. All students in the course-based master's program are required to complete an applied project. For students in the course-based program there is no residence requirement.

Length of Program

The time required to complete the MSc will vary with the individual candidate; however, a minimum of two years is normally required.

175.28.4 The Postgraduate Diploma in Textile Conservation and Curatorship

The aim of the diploma program is to provide museum professionals, who have had some practical field experience, the opportunity to obtain additional theoretical knowledge in such areas as textile science, history of costume and textiles, and textile conservation and curatorship.

Entrance Requirements

Students entering the program are required to have a grade point average of 6.5 in the final two years of a four-year degree in a field related to the conservation or curatorship of textiles from the University of Alberta or equivalent, two or more years of work experience in the museum field related to clothing and textiles, and one year each of college-level chemistry and history or art history. Applicants who have not completed a formal Museum Studies program will be advised to complete a museum studies course.

Program Requirements

Students must successfully complete ★21 to ★30 with an academic standing no less than that acceptable to the Faculty of Graduate Studies and Research. An individual program for each student based on needs and prior experience will be approved by the Department's graduate program committee.

No period of residence is required.

Length of Program

The time required to complete the diploma program will vary; however, the diploma must be completed within four years from the first registration in the program.

175.28.5 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the following subject headings:

Consumer Studies (CONS)
Family Studies (FAM)
Human Ecology (HECOL)
Textiles, Clothing and Culture (TCC)

175.29 Laboratory Medicine and Pathology

Department of Laboratory Medicine and Pathology
5B4.02 Mackenzie Health Sciences Centre
University of Alberta
Edmonton, Alberta T6G 2R7
E-mail: lynda.harrison@ualberta.ca

175.29.1 General Information

The Department of Laboratory Medicine and Pathology provides a program leading to the degree of Master of Science in experimental pathology or medical laboratory science. In addition, Laboratory Medicine and Pathology is one of several departments working jointly to offer a PhD program in medical sciences. Further information on the PhD interdisciplinary program is found in the Medical Sciences section.

Inquiries should be directed to the Graduate Coordinator of the Department of Laboratory Medicine and Pathology.

Entrance Requirements

Candidates with either a BSc in medical laboratory science (or related scientific subjects), or an MD or its equivalent in medicine may enter this program. The Department generally does not accept students with an overall

grade point average of less than 7.0 in their undergraduate years at the University of Alberta, or an equivalent qualification from a recognized institution. Where applicable (see §173.2.3), candidates must obtain a score of 580 on the TOEFL test. Prerequisite courses will be specified at the time of arrangement of the candidate's program, although some biological sciences, particularly microbiology, biochemistry and physiology should have been studied.

Financial Assistance

Limited financial assistance is available to some students and is awarded on the basis of merit upon application.

175.29.2 The Degree of MSc

Program Requirements

The requirements for the degree include coursework, seminars and an approved research project. Approved courses offered by other Departments may be included in the candidate's program.

There is no language requirement for the degree of MSc.

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

The MSc program normally requires two years to complete.

175.29.3 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject headings Pathology (PATH) and Medical Laboratory Science (MLSCI).

175.30 Law

Faculty of Law
4th Floor, Law Centre
University of Alberta
Edmonton, Alberta T6G 2H5
E-mail: kwilson@law.ualberta.ca

175.30.1 General Information

The Faculty of Law offers programs of graduate study leading to a master's degree and a postgraduate diploma in laws. The Faculty also offers programs of joint study with the Faculty of Business leading to a combined MBA-LLB or program.

Entrance Requirements

The minimum admission requirements of the Faculty of Law are an undergraduate LLB degree with an average of 6.5 in the last two years of the LLB at the University of Alberta, or an equivalent qualification from a recognized institution, and a TOEFL score of 600 where applicable (see §173.2.3). Specific requirements are found below, under the appropriate degree heading.

Financial Assistance

Financial assistance, including Spring/Summer term graduate fellowships, may be available to suitably qualified candidates. Such assistance will involve candidates in the performance of certain research duties in the Faculty of Law, although such duties will not impede candidates in the pursuit of their own studies.

The Alberta Law Foundation Graduate Scholarship in the amount of \$15,000 is awarded to one graduate student in the LLM program.

The Honourable ND McDermid Graduate Scholarships in Law in the amount of \$10,000 each are available to two graduate students based upon academic excellence and proven ability in their area of study.

In addition, the University of Alberta offers certain scholarships to candidates of sufficiently high academic merit.

Inquiries regarding programs, courses and financial assistance other than University scholarships should be made to the Associate Dean (Graduate Studies and Research), Faculty of Law.

175.30.2 The Degree of LLM

Entrance Requirements

Applicants for this program must hold the degree of LLB or its equivalent from this or some other university, of sufficient standard to satisfy the Graduate Studies Committee of the Faculty of Law that they will be capable of undertaking and profiting by the program.

Program Requirements

All candidates must complete at least one academic year (i.e., normally one academic session from September to May) in residence at the University. To obtain the degree of Master of Laws, candidates must submit and defend a thesis on a topic selected in consultation with the candidate's supervisor and with the approval of the Associate Dean (Graduate Studies and Research). In addition each candidate will attend courses throughout the academic session, the number and character of such courses to be determined in consultation with the Associate Dean (Graduate Studies and Research). Candidates may select courses from a broad spectrum of legal subjects offered in the Faculty of Law, as well as relevant subjects in other faculties.

Length of Program

The time required to complete the LLM will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of 12 months is required, and candidates must complete requirements within four years. Extensions may be granted in exceptional circumstances.

175.30.3 Graduate Courses

Graduate Studies Seminar

During the first term beginning in September, LLM students will be enrolled in the graduate studies seminar. The seminar will provide an advanced analysis of different orientations to doctrinal, empirical, and fundamental research. It will provide the participants with an opportunity to study and respond to current debates about the nature of legal scholarship and to exchange ideas on their own developing theoretical and technical approaches to a legal topic.

Other Courses

In addition to the Graduate Studies Seminar, students may take courses offered in the Faculty of Law, and related disciplines, which have been selected by a candidate in consultation with his or her supervisor, and which have the consent of the Associate Dean (Graduate Studies and Research).

175.30.4 MBA-LLB Joint Program

The Faculty of Business and the Faculty of Law offer a program of joint study which permits students to earn both the MBA and LLB degrees in four years.

Students in the first year of either the regular MBA program or the Faculty of Law, as well as new entrants, are eligible to apply for the joint program. Refer to §175.8.3 under Business for program details.

175.30.5 Postgraduate Diploma Program

The postgraduate diploma program offered by the Faculty of Law during the fall and winter terms may be of interest to members of Canadian law societies and other legally qualified persons.

The program was designed to provide an extensive exposure to a limited area of the law and to help prepare candidates as specialists in that area. The program will also provide candidates with an opportunity to become familiar with the most modern developments and to bring practitioners and other members of the legal profession up to date.

Inquiries regarding programs, courses and admissions should be made to the Faculty of Law.

Entrance Requirements

Applicants for the diploma program must hold the degree of LLB or its equivalent from a recognized academic institution, with a minimum average of 6.5 in the last two years of LLB work, and must have had a minimum of two years experience in the practice of law or in a related field. Admission to the program will be determined by the Faculty of Graduate Studies and Research in consultation with the Graduate Studies Committee of the Faculty of Law.

Program Requirements

The diploma program requires the satisfactory completion of a minimum of ★6 and a research paper, which must be of a calibre suitable for publication in a law journal. The ★6 will normally be single-term courses offered by the Faculty of Law, selected through consultation between the candidate and the Chair of the Graduate Studies Committee. The courses normally should reflect a concentration in one area of the law.

Candidates for the postgraduate diploma will not normally be permitted to take courses they completed for the degree of LLB. This will apply to graduates of other universities as well as to graduates of the University of

Alberta. With the permission of the Associate Dean (Graduate Studies and Research), however, a candidate may be permitted to take certain courses (e.g. taxation, land use planning) where the content has changed significantly since the candidate completed his or her LLB degree.

No language other than English is required for the diploma.

Length of Program

The time required to complete the diploma program will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of one year is normally required, and candidates must complete all the requirements within four years.

175.30.6 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading Law (LAW).

175.31 Library and Information Studies

School of Library and Information Studies
3-20 Rutherford South
University of Alberta
Edmonton, Alberta T6G 2J4
E-mail: office@slis.ualberta.ca

175.31.1 General Information

Historical Note

The School of Library and Information Studies, the only graduate professional library program in the prairie provinces, offers the Master of Library and Information Studies degree.

As the first professional degree, the MLIS represents a program designed to develop the knowledge, understanding, attitudes, and skills that will prepare graduates for positions of responsibility in school, public, academic, and special libraries, and in information centres.

The MLIS program is accredited by the Committee on Accreditation of the American Library Association. This accreditation is also recognized by the Canadian Library Association.

Mission of the School of Library and Information Studies

Education

To prepare individuals for positions of responsibility in the profession of library and information service.

Scholarship

To carry out scholarly study and research that advances the discipline of library and information studies.

Service

To serve as a resource for libraries and information agencies, for their personnel, and for professional associations.

Goals of the MLIS Program

- (1) To provide the knowledge, understanding, and skills sufficient for the practice of library and information service at a basic professional level, including the foundation on which further competence and specialization may be built.
- (2) To examine the cultural and informational role in society of library and information services.
- (3) To emphasize, where appropriate, the Canadian geographic, cultural, social, and governmental context in which libraries and information agencies operate.
- (4) To stress the professional obligation to keep informed of social and technological developments, with particular emphasis on Canadian issues.

Objectives of the MLIS Program

Upon completion of the program:

- (1) Students will be familiar with the history, the philosophy, and the service orientation of libraries and librarianship.
- (2) Students will have an understanding of concepts of knowledge and concepts of information and of the methods of preservation and transmission of cultural records.
- (3) Students will be aware of the responsibility of librarians and information specialists with respect to the free flow of ideas and access to information.
- (4) Students will have an understanding of the functions of librarians and information specialists within the larger societal framework, and of the factors influencing the creation, dissemination, and use of knowledge and information.

- (5) Students will be knowledgeable about basic principles of selection, acquisition, organization, storage, retrieval, and use of recorded knowledge and information resources of all kinds.
- (6) Students will be knowledgeable about the theories and concepts of administration and organizational behavior and their application to the management of libraries and information agencies.
- (7) Students will possess the skills necessary to evaluate library and information systems and services.
- (8) Students will have an understanding of the principles of systems analysis and systems design for libraries and information agencies.
- (9) Students will understand current information technology as an integral part of the operations and services of libraries and information agencies.
- (10) Students will be able to evaluate published research in library and information studies and to apply basic principles and techniques of research in library and information studies.
- (11) Students will be aware of the links between library and information studies and other disciplines, including shared methodologies and common concerns.
- (12) Students will understand the importance of cooperation among libraries and information agencies and of the development and maintenance of collegial relationships with their fellow professionals.
- (13) Students will be aware of the need for continuing professional education and be ready to play an active role in associations and engage in other professional activities.
- (14) Students will be aware of the culturally diverse composition of society, and of the responsibility to serve all client groups with respect and understanding.

Student Organizations

The Library and Information Studies Students' Association represents all students enrolled in the MLIS program. Students elect their own officers, with the presiding officer representing them at meetings of the School Council. LISSA provides liaison between students and faculty and encourages participation in a variety of academic, professional, and extracurricular activities.

Entrance Requirements

An applicant with a four-year undergraduate degree from the University of Alberta, or a comparable degree from another accredited university, who has obtained a minimum grade point average of 6.5 (or its equivalent) in the last 20 half-courses of academic studies may be admitted as a candidate for the MLIS degree. Applicants who lack these qualifications are advised to make up any deficiency in consultation with the School of Library and Information Studies in order to be considered for admission as a candidate for the MLIS.

All non-Canadians for whom English is not the major language must write and pass satisfactorily either the Michigan English Language Assessment Battery (MELAB) or the Test of English as a Foreign Language (TOEFL), before formal admission is granted (see §173.2.3). The passing score for the MELAB is 90 and for the TOEFL is 600.

Applicants without a degree from a Canadian university may be required to take the Graduate Record Examination aptitude tests administered by the Educational Testing Service. Students should arrange for the testing agency to report results to the School of Library and Information Studies, which will judge whether or not the results are satisfactory. Acceptable scores are 600 in the Verbal Section, 525 in the Quantitative Section, and 600 in the Analytical Section.

Applicants are judged not only on their academic record but also by their professional promise as indicated in three letters of reference and in the personal statement required in the application form. A personal interview, arranged at a time and place convenient to the applicant, may also be requested by either party.

No assurance can be given that foreign applications remaining incomplete past July 1, or Canadian applications received after July 15, for Winter Term can be processed in time to permit registration in that session.

Financial Assistance

Inquiries regarding program and course details, and financial assistance should be made to the School of Library and Information Studies. Details about University awards are found in the Graduate Financial Aid section of the Calendar.

175.31.2 Academic Standing

The pass mark for any course taken for credit towards the Master of Library and Information Studies degree is a grade of 6.0. A student who does not achieve a pass mark in any required course must repeat the course. A student who does not achieve a pass mark in an elective course must repeat the course or substitute another elective course.

An overall average of 6.5 must be maintained throughout the program. If the School decides that a graduate student is not making satisfactory progress in either coursework or research, the School may recommend to the Dean of the Faculty of Graduate Studies and Research that the student be required to withdraw.

Reexaminations

Graduate students are not permitted to take reexaminations.

175.31.3 Appeals and Grievances

Students who have grievances related to academic judgements inherent in marks or grades awarded in any course should follow the grievance procedures set out by the School of Library and Information Studies and the Faculty which offers the course.

Students who have grievances related to a decision of the Faculty of Graduate Studies and Research (FGSR) affecting the student's academic program should first exhaust the appeal and grievance procedures of the School and then, if desired, may pursue the appeal procedures of the Faculty of Graduate Studies and Research. These procedures are available from the School and the Faculty of Graduate Studies and Research.

175.31.4 Time Limits for Completion of Program

Candidates in the course-based route must have completed all the requirements within six years of the time they are first registered as a probationary graduate student or candidate in the Master's program.

175.31.5 The Degree of MLIS

Program Requirements

The minimum requirement for the MLIS degree is either ★39 in graduate courses and a thesis, or ★48 in graduate courses and a capping exercise. Students may, with approval, include up to ★9 offered by a department other than the School of Library and Information Studies.

The following courses are required for both the thesis and course-based routes of the MLIS program: LIS 501, 502, 503, 504, 505, and 506. LIS 501, 502, 503, and 504 are normally prerequisites to the rest of the program.

Two terms of full-time attendance as defined by the Faculty of Graduate Studies and Research (at least ★9 during one term) are required to complete the residence requirement for the thesis route. There is no residence requirement for the course-based route.

Credit for courses taken elsewhere may be granted as transfer credit by the Dean of the Faculty of Graduate Studies and Research, on the recommendation of the School of Library and Information Studies, provided that the courses have not been counted towards a previous degree or diploma.

Length of Program

A full-time student who is registered for the MLIS program normally will be able to complete the degree requirements in two years.

175.31.6 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject headings Library and Information Studies (LIS).

175.32 Linguistics

Department of Linguistics
4-32 Assiniboia Hall
University of Alberta
Edmonton, Alberta T6G 2E7
E-mail: dkudryk@gpu.srv.ualberta.ca

175.32.1 General Information

The Department of Linguistics offers graduate programs in linguistics leading to the degrees of Master of Science and Doctor of Philosophy. Candidates for either degree may specialize in experimental phonetics, psycholinguistics, or neurolinguistics.

The Department maintains extensive laboratory and computer facilities for a wide range of research in phonetics, speech perception, and psycholinguistics.

General Entrance Requirements

The Department's minimum admission requirements are an undergraduate degree with an average of 6.5 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or equivalent

qualifications from a recognized institution, and a TOEFL score of 600 where applicable (see §173.2.3). The GRE General Test is required of all applicants from North America and other areas where the test is available.

Financial Assistance

The Department offers a limited number of graduate teaching and research assistantships. Graduate students may also be eligible for various University fellowships, scholarships and bursaries.

Further information concerning programs in linguistics and financial aid may be obtained from the Chair of the Department.

175.32.2 The Degree of MSc

Entrance Requirements

Candidates for the MSc must have completed, to the satisfaction of the Department, certain core courses in linguistics or their equivalents. Candidates who lack this preparation may be expected to undertake a probationary year or a year of qualifying studies before being admitted to the degree program.

Program Requirements

Two routes to the MSc are available: a thesis-based and a course-based route.

Requirements for the thesis-based MSc include a minimum of ★21 including four required courses (LING 601, 602, 603, 604) plus a thesis. Course options must be chosen in consultation with the student's supervisory committee and should include at least one of LING 614, 615, 616, 617. The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Requirements for the course-based MSc consist of a minimum of ★27 at the graduate level including four required courses (LING 601, 602, 603, 604) and a directed research project (LING 900). Course options must be chosen in consultation with the student's supervisor and should include at least one of LING 614, 615, 616, 617. There is no residence requirement.

There is no language requirement for the degree of MSc.

Length of Program

The time required to complete the MSc will vary according to the applicant's previous training and the nature of the research undertaken; however, a minimum of two years should be expected.

175.32.3 The Degree of PhD

Entrance Requirements

Provisional candidates for the PhD must normally hold the equivalent of the MSc in Linguistics at the University of Alberta.

Program Requirements

Requirements for the PhD include completion of the MSc degree in linguistics or its equivalent and a minimum of ★21 including two required courses (LING 610 and 611) plus a dissertation. Specific courses must be chosen in consultation with the student's supervisory committee. The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

There is no language requirement for the degree of PhD.

Length of Program

The time required to complete the PhD will vary with the individual candidate; however, a minimum of two years should be expected.

175.32.4 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading Linguistics (LING).

175.33 Mathematical Sciences

Department of Mathematical Sciences
632 Central Academic Building
University of Alberta
Edmonton, Alberta T6G 2G1
E-mail: gradstudies@math.ualberta.ca

175.33.1 General Information

The Department of Mathematical Sciences offers graduate programs leading to the degree of Master of Science and Doctor of Philosophy in a number of fields in the general areas of pure mathematics, applied mathematics, mathematical finance, mathematical physics, and statistics and applied

probability. The Department also offers a Postgraduate Diploma in Statistics for applicants who wish to take a recognized package of courses with a view to increasing their mastery of an accreditation in Statistics. Prospective graduate students should consult the Graduate Chair with regard to facilities available and the background required for the field in which they are particularly interested.

Entrance Requirements

The Department generally does not accept students with an overall grade point average of less than 7.0 in their undergraduate years at the University of Alberta, or an equivalent qualification from another institution. Where applicable (see §173.2.3), a minimum TOEFL score of 575 is required for all graduate students with Teaching Assistantships. Otherwise, the minimum TOEFL score for graduate students without Teaching Assistantships is 550. Additional information on specific requirements for admission to the MSc and PhD programs is found below, under the respective degree headings.

Financial Assistance

Graduate teaching assistantships are available for candidates working toward a higher degree. They involve at most 12 hours of work per week including teaching, class preparation and working time. All students whose native language is not English or who do not hold a degree from a Canadian, American, or other English-speaking university, will normally be required to take at least one English language course offered by the Faculty of Extension. Assistantships will normally be limited to at most five years for students in the PhD program and to two years for students in the MSc program. Support will not be extended to more than a total of six years. Research grant assistantships are also available.

175.33.2 The Degree of MSc

Entrance Requirements

Candidates for the MSc must have an Honors degree or equivalent from a recognized university, with a strong background in mathematics and/or statistics. Candidates whose background is deemed to be deficient will be required to register as qualifying students and take additional courses.

Program Requirements

The minimum requirement for the MSc degree is either ★18 in graduate courses and a thesis, or ★24 in graduate courses and a project equivalent to ★6. Approval of the Chair of the Mathematical Sciences Department is needed to take graduate courses that are not in mathematical sciences.

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

The MSc program will normally be completed in 20 months; however, it can be done in a minimum of one year.

175.33.3 The Degree of PhD

Entrance Requirements

To be admitted as a provisional candidate for the PhD a student must normally hold the equivalent of an MSc degree in mathematics or statistics from the University of Alberta.

Program Requirements

In addition to the examinations called for by the general regulations, the student must successfully complete a qualifying year which includes an advisory exam and two full terms of course work. The principal requirement for the PhD is a substantial contribution to knowledge, embodied in a thesis. Except in very special cases every PhD student will be required to take a minimum of ★36 in graduate courses after the BSc (Honors) degree or equivalent. In any case, ★6 must be in mathematical sciences courses at the 500-level or 600-level, in areas other than that of the student's thesis. The program of a full-time student who is a provisional candidate for the PhD shall normally include at least three mathematical sciences courses, or courses in approved or allied fields (graduate or undergraduate) in each term of the first year, at least two in each term of the second year, and at least one in each subsequent term.

To satisfy the residence requirement for the PhD, candidates must spend at least two years in advanced study and research after the master's degree.

Length of Program

The time required to complete the program will vary according to the previous training of the applicant and the nature of the research undertaken;

however, a minimum of three years is normally required after the BSc or two years after the MSc.

175.33.4 Programs in Mathematical Physics

The Master of Science and Doctor of Philosophy degrees in Mathematical Physics may be taken in the Department of Mathematical Sciences. The program emphasizes interdisciplinary investigations of the mathematical and physical aspects of theories and mathematical models used in physics.

The entrance requirement for the Master of Science degree in Mathematical Physics is a four-year degree in Mathematical Sciences or Physics with a GPA of 6.5 or better, or equivalent. The MSc degree may be obtained in a course-based or thesis-based program. For the course-based program ★24 graduate courses at the 500-level or higher from a list of approved courses must be taken, and a project is required. For the thesis-based program ★18 graduate courses at the 500-level or higher from a list of approved courses must be taken, and a thesis is required. The course work must include courses from both the Departments of Physics and Mathematical Sciences.

The entrance requirement for the PhD program in Mathematical Physics is, normally, a MSc degree in Mathematical Sciences or Physics, or equivalent. The PhD program requirements are essentially the same as those for the PhD in Mathematical Sciences in Applied Mathematics with certain modifications in the required course work, preliminary examination and qualifying year as outlined in the Faculty of Graduate Studies and Research Regulations. These modifications are meant to enhance the interdisciplinary nature of the program.

175.33.5 The Postgraduate Diploma in Statistics

Entrance Requirements

A four-year undergraduate degree from the University of Alberta with a grade point average of 6.5 in the work of the final two years, or the equivalent qualification from another institution.

Program Requirements

The Postgraduate Diploma in Statistics requires the successful completion of ★21 statistics courses from the Department of Mathematical Sciences. At least ★12 must be at the 500-level or higher; any remaining courses must be at the 400-level or higher. Any courses taken at the 300-level or any courses other than Statistics courses that may need to be taken in order to acquire the appropriate background, may not be counted toward the Diploma. The selection of courses must be approved by the Graduate Committee of the Department of Mathematical Sciences. There is no residence requirement.

Length of Program

The Postgraduate Diploma must be completed within four years from the time of admission.

175.33.6 The Degree of MSc in Mathematical Finance

Entrance Requirements

A four-year undergraduate degree in Mathematical Sciences, Physics, Engineering, or Finance from the University of Alberta, with a GPA of 6.5, or better, in the final two years, or its equivalent.

Program Requirements

The MSc Program in Mathematical Finance is a course-based graduate program which includes course work from the Department of Mathematical Sciences and the Faculty of Business. The program consists of a minimum of ★24 courses at the 500 level and a project, MATH 900. The program of courses must be approved by the Graduate Committee which may, on the recommendation of the advisor or supervisor, require more than the minimum number of courses.

Length of Program

The MSc in the Mathematical Finance program will normally be completed in 20 months.

175.33.7 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the following subject headings:

- Mathematics (MATH)
- Mathematical Physics (MA PH)
- Statistics and Applied Probability (STAT)

175.34 Mechanical Engineering

Department of Mechanical Engineering
4-9 Mechanical Engineering Building
University of Alberta
Edmonton, Alberta T6G 2G8
Web site: <http://www.mece.ualberta.ca>

175.34.1 General Information

The Department of Mechanical Engineering offers graduate courses and provides research facilities for well qualified students of recognized universities who wish to pursue advanced studies leading to the MEng, MSc, and PhD degrees in Mechanical Engineering.

The general fields of study include solid mechanics, dynamics, vibration, thermodynamics, fluid mechanics, heat transfer, combustion, biomedical engineering and manufacturing engineering.

While the general guidelines for entrance and program requirements are listed below, specific details for each of the degrees are found in the document *Program Manual for Graduate Study in Mechanical Engineering*, available from the Department. As well, the currently active areas of research are documented on the Department's home page on the Internet.

Entrance Requirements

The Department's minimum admission requirements are an undergraduate degree with an average of 7.0 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution, and a TOEFL score of 580 where applicable (see §173.2.3).

Financial Assistance

Financial assistance is available in the form of scholarships and fellowships (see Awards section of this Calendar) and through the Department in the form of graduate assistantships and contract research (available for Canadian students and students holding valid work permits). The assistantships are normally available to students registered full time; funding is not normally provided for students registered part time. Summer assistance can usually be arranged for students without scholarship support who continue their research full time through the summer months. Further information is available on the Department's home page.

175.34.2 The Degree of MSc

Program Requirements

For the Master of Science program the candidate must have satisfactorily completed a minimum of ★15 in graduate courses, MEC E 601, plus a thesis acceptable to the Department of Mechanical Engineering and the Faculty of Graduate Studies and Research. One ★3 course (of the ★15) must be a course in applied mathematics, numerical analysis, or finite element methods. No more than one 500-level Mechanical Engineering course can be credited towards the minimum course requirement of the MSc. Note that all courses must be approved by and additional courses may be required by the Department.

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the program will vary according to the previous training of the applicant and the nature of the research undertaken. Normally, it will take 18 to 24 months to complete the MSc. The maximum time permitted is four years.

175.34.3 The Degree of MEng

Program Requirements

The minimum requirement for a Master of Engineering program is credit in ★24 in graduate courses, MEC E 601 or ENG M 601, plus a project equivalent to ★6. ★15 of the required graduate courses must be in the candidate's major field. No more than three 500-level Mechanical Engineering courses can be credited towards the course requirements of the MEng.

There is no residence requirement for the degree of MEng.

Length of Program

Candidates may complete the program in 9 to 12 months. The maximum time permitted for completion of a Master of Engineering program is six years from the date of first registration.

175.34.4 The Degree of PhD

Program Requirements

The Department normally requires candidates to satisfactorily complete approved courses in one major field and at least one minor field. The minimum requirements after a bachelor's degree are ★27 in graduate courses, ★15 of which must be in the major field, including MEC E 602 and 680, plus research leading to a thesis of high calibre. For those students entering the PhD program after a master's degree the minimum course requirement is ★12 in post-master's courses including MEC E 602 and 680. No more than one 500-level Mechanical Engineering course can be credited toward the ★27 and no 500-level courses can be credited toward the ★12 in a post-master's program.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the PhD will vary with the individual candidate; however, a minimum of 30 months is normally required. The maximum time permitted is six years.

175.34.5 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading Mechanical Engineering (MEC E).

175.35 Medical Genetics

Department of Medical Genetics
Faculty of Medicine and Dentistry
839 Medical Sciences Building
University of Alberta
Edmonton, Alberta T6G 2H7
E-mail: Anna.Minarchi@ualberta.ca

175.35.1 General Information

The Department of Medical Genetics offers the MSc in Medical Sciences (Medical Genetics) degree (see §175.34) either as part of a postgraduate training program for post-MD applicants or as an independent degree program for those proceeding from a BSc. PhD degree is granted through the Medical Sciences program (see §175.36). Research may be carried out in a variety of medical genetics-related disciplines for which staff in the Department have active research programs. Inquiries should be directed to the Chair of the Department of Medical Genetics.

Entrance Requirements

The Department's normal requirements for admission of graduate students are those of the Faculty of Graduate Studies and Research but stipulating a minimum of 7.5 or equivalent GPA during each of the previous two years of university and a TOEFL score of at least 580, where applicable (see §173.2.3).

Financial Assistance

Funding from fellowships and studentships is available from external agencies on a competitive basis. Supervisors may support students from operating grants and limited financial assistance is also available from the Department.

175.35.2 The Degree of MSc

Program Description

The general description for the MSc in Medical Sciences (Medical Genetics) is as presented for all MSc programs in Medical Sciences (see §175.36.2).

175.35.3 The Degree of PhD

Program Description

The general description for the PhD in Medical Sciences (Medical Genetics) will be as presented for all PhD programs in Medical Sciences (see §175.36.3).

175.36 Medical Microbiology and Immunology

Department of Medical Microbiology and Immunology
141 Medical Sciences Building
University of Alberta
Edmonton, Alberta T6G 2H7
http://www.ualberta.ca/~mmid/
E-mail: mmid.mail@ualberta.ca

175.36.1 General Information

The Department of Medical Microbiology and Immunology offers programs leading to the degrees of Master of Science and Doctor of Philosophy. Students may specialize in the following areas: bacteriology, immunology, mycology, parasitology, virology, macromolecular crystallography, or clinical microbiology. Both programs require coursework, completion of a research project, and preparation of a thesis.

The staff of the Department of Medical Microbiology and Immunology is currently carrying out research in various aspects of cellular, molecular, reproductive, and tumour immunology; microbial pathogenesis; and the development of novel methods for the diagnosis and treatment of infectious diseases.

The Department is well equipped with the modern facilities required for research in medical microbiology and immunology.

Prospective students are invited to consult with the Chair or the Graduate Coordinator for further information and to visit the Department's home page on the worldwide web.

Entrance Requirements

The Department generally does not accept students with less than an honors grade (7.0 at the University of Alberta) in their undergraduate degree, or an equivalent qualification from another recognized institution. Where applicable, a minimum TOEFL score of 600 is required. GRE scores are also required for foreign applicants.

Financial Assistance

Exceptionally qualified applicants may be nominated for the University of Alberta PhD Scholarship. Students accepted into a graduate program are encouraged to apply for studentship through the Department to outside agencies such as the Alberta Heritage Foundation for Medical Research and the Medical Research Council of Canada. In addition, a very limited number of graduate assistantships are available.

175.36.2 The Degree of MSc

Program Requirements

Course requirements depend on the area of specialization and the undergraduate background of the student; however, a minimum of ★6 in graduate-level courses is required. Each student must participate each year and must register once for credit during the program in the Medical Microbiology and Immunology seminar course.

Terminal MSc students are required to maintain a program GPA of at least 6.5; however, students wishing to proceed to a later PhD in the Department must maintain a program GPA of at least 7.0.

A candidate for the MSc degree must submit an acceptable thesis and defend it orally before a committee formed according to Faculty of Graduate Studies and Research guidelines.

No language other than English is required for the degree.

The minimum period of residence is two years of full-time attendance at the University of Alberta.

Length of program:

The time required to complete the program depends on the student's background and the nature of the thesis project. Normally, a minimum of two years of full-time study and research is required for the MSc degree.

175.36.3 The Degree of PhD

Program Requirements

Course requirements depend on the area of specialization and the undergraduate background of the student; however, a minimum of ★9 in graduate-level courses is required. In addition, each student must participate each year and must register once for credit during the program in the Medical Microbiology and Immunology seminar course.

Students are required to maintain a GPA of at least 7.0.

After completion of required coursework, students must pass an oral candidacy examination in order to continue in the program.

A candidate for the PhD degree must submit an acceptable thesis and defend it orally before a committee formed according to Faculty of Graduate Studies and Research guidelines.

No language other than English is required for the degree.

The minimum period of residence is three years of full-time attendance at the University of Alberta.

Length of program:

The time required to complete the program depends on the student's background and the nature of the thesis project. Normally, a minimum of four years of full-time study and research is required for the PhD degree.

175.36.4 Graduate Courses

Graduate courses can be found in Course Listings, under the subject headings:

Medical Microbiology and Immunology (MMI)
Interdisciplinary (INT D)

175.37 Medical Sciences

175.37.1 General Information

The Medical Sciences program has as its objective the training of medical research scientists who are strongly motivated to pursue a medical research career in areas of ultimate clinical relevance. It may be combined in a flexible manner with an MD degree program, providing the candidate satisfies the admission requirements of each program.

Inquiries concerning the Medical Sciences program should be directed to

Office of Research, Faculty of Medicine and Dentistry
University of Alberta
2J2.11 Walter Mackenzie Health Sciences Centre
Edmonton, Alberta
Canada T6G 2R7
E-mail: coleen.kato@ualberta.ca

Entrance Requirements

Candidates with bachelor's, master's, and/or medical degrees are encouraged to apply. Admission to the program is generally dependent on honors grades in each of the last two years of undergraduate work (or graduate work) at the University of Alberta or a recognized institution, and (where applicable) a TOEFL score of not less than 580 (some departments may require a higher score) (see §173.2.3). Candidates should prepare themselves for the program by taking the basic science courses necessary for the program they have in mind, and they should identify the department they wish to work in, and a faculty member within that department who will act as their mentor.

Financial Assistance

Students who are accepted into the program are encouraged to apply through their prospective supervisors for studentships or fellowships from outside agencies such as the Alberta Heritage Foundation for Medical Research. Each successful applicant to that agency also receives a research allowance from the Alberta Heritage Foundation to defray the cost of the applicant's research project (including travel to scientific meetings). Graduate assistantships are available from some departments. The University offers University of Alberta PhD Scholarships; details are available in the Awards section of the Calendar. The Office of Research, Faculty of Medicine and Dentistry may have information on other possible sources for studentship funding.

175.37.2 The Degree of MSc

Program Requirements

The Departments of Anaesthesia, Medical Genetics, Obstetrics and Gynecology, Oncology, Ophthalmology, Oral Health Sciences, and Public Health Sciences participate in an interdisciplinary MSc program in the medical sciences.

Admission to the MSc in Medical Sciences program is dependent upon the recommendation of the Medical Sciences Committee. Course requirements are recommended by the Department and are based on the background of the student and the area of specialization to be undertaken. Normally, a minimum of ★6 in graduate courses is required.

In addition, an MSc candidate must prepare a thesis describing the results of the candidate's research project and be examined orally by a committee formed according to Faculty of Graduate Studies and Research regulations.

Length of Program

In general, the MSc program will take a minimum of two years to complete, depending on the research project undertaken.

175.37.3 The Degree of PhD

Program Requirements

The Departments of Biomedical Engineering, Medical Genetics, Medicine, Laboratory Medicine and Pathology, Oncology, Ophthalmology, Oral Health Sciences, Paediatrics, Psychiatry, Public Health Sciences, and Radiology and Diagnostic Imaging participate in an interdisciplinary PhD program in the medical sciences. Admission to the PhD in Medical Sciences program is dependent upon the recommendation of the Medical Sciences Committee. The Committee comprises a representative of each department participating in the program, plus the Assistant Dean of Medicine and Oral Health Sciences (Research) and a basic scientist from a department with a long-established PhD program. Course requirements are recommended by the Department and are based on the background of the student and the area of specialization to be undertaken. Normally, a minimum of ★15 in graduate courses is required.

A PhD candidate must prepare a thesis describing the results of the candidate's research project and be examined orally by a committee formed according to Faculty of Graduate Studies and Research regulations.

No language other than English is required for the degree.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

In general, the PhD program will take a minimum of three to five years to complete, depending on the research undertaken. A candidacy examination is required (see §174.2).

175.38 Medicine

Department of Medicine
2F1 Walter C Mackenzie Health Sciences Centre
University of Alberta
Edmonton, Alberta T6G 2R7
E-mail: sharon.campbell@ualberta.ca

175.38.1 General Information

The Department of Medicine offers the degree of MSc in Experimental Medicine either as part of a coordinated pattern of training leading to the fulfilment of requirements for postgraduate training in the medical specialties, or as a separate program for those proceeding from a BSc or equivalent degree. A PhD program is also offered to highly qualified candidates, as part of the Medical Sciences interdisciplinary program (see §175.37).

Research may be carried out in either basic or clinical sciences and may be either theoretical or applied in nature.

The Department of Medicine maintains a compilation of applicable guidelines and regulations within its graduate program manual *The Blue Book*.

Inquiries should be directed to the Director of Graduate Education of the Department of Medicine.

Entrance Requirements

The Department's normal requirements for admission of graduate students are those of the Faculty of Graduate Studies and Research but stipulating a minimum of 7.0 or equivalent GPA during each of the previous ★60 and a TOEFL score of 580, where applicable (see §173.2.3).

Financial Assistance

Limited financial assistance is available to support these programs, but applications should be made at least 12 months in advance. Applicants are encouraged to apply to outside agencies such as the Medical Research Council of Canada (via the prospective supervisor) and the Alberta Heritage Foundation for Medical Research for studentships.

175.38.2 The Degree of MSc

Program Requirements

Such coursework is required as may be necessary for the proper understanding and carrying out of research and preparation of the thesis. Normally a minimum of ★9 of coursework is required. Students must also

complete and successfully defend a thesis. Refer to §173.3.2 for minimum registration requirements for the master's degree.

There is no second language requirement for the MSc.

The usual residence requirement is that stipulated by the Faculty of Graduate Studies and Research (see §173.6). Candidates holding an MD should expect the program's minimum residence requirement to be one calendar year of full-time attendance at the University of Alberta. For some candidates, an additional (qualifying or probationary) year may be required, depending on the applicant's preparation and training.

Length of Program

The time required to complete the program will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of 18 months is normally required.

175.38.3 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading Medicine (MED). Most graduate students of the Department of Medicine also take graduate courses offered by other Departments.

175.39 Mining and Petroleum Engineering

School of Mining and Petroleum Engineering
Department of Civil and Environmental Engineering
220 Civil/Electrical Engineering Building
University of Alberta
Edmonton, Alberta T6G 2G7

For complete details of Graduate Studies in Mining and Petroleum Engineering, see §175.12 (Civil and Environmental Engineering).

175.40 Modern Languages and Cultural Studies: Germanic, Romance, Slavic

Department of Modern Languages and Cultural Studies: Germanic, Romance, Slavic
200 Arts Building
University of Alberta
Edmonton, Alberta T6G 2E6
E-mail: mlcs@gpu.srv.ualberta.ca

175.40.1 General Information

The Department of Modern Languages and Cultural Studies was established on April 1, 1998 and incorporates the former Departments of Germanic Languages; Romance Languages; and Slavic and East European Studies. The Department offers programs leading to the degrees of Master of Arts and Doctor of Philosophy.

Entrance Requirements

The Department's minimum admission requirements are an undergraduate degree with an average of at least 7.0 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution, and a TOEFL score of 550 where applicable (see §173.2.3).

Financial Assistance

Financial assistance in the form of fellowships and graduate assistantships may be available to qualified students. For further information contact the Graduate Coordinator of the Department and consult the Graduate Financial Aid section of the Calendar.

175.40.2 Programs in Germanic Languages

175.40.2.1 General Information—Germanic Languages

The Division of Germanic Languages, Literatures, and Linguistics offers graduate work leading to the MA and PhD degrees with a concentration in either German literature or Germanic linguistics, philology, and applied linguistics.

Among the areas for which the Division is especially qualified, through staff and library resources, to direct work leading to graduate degrees, are Germanic philology and linguistics, medieval literature, eighteenth-century literature, the age of Goethe, romanticism, and nineteenth- and twentieth-century literature. The University Library is especially rich in primary and secondary sources, including periodicals, of the post-naturalistic period; it is fortunate in having the Georg Kaiser Collection which offers a rare opportunity

for research into the life and work of this author, using photocopies of original material, much of which is still unpublished.

175.40.2.2 The Degree of MA in Germanic Languages

Program Requirements

There are two routes leading to the MA degree: thesis-based and course-based.

The minimum period of residence for the thesis-based MA degree is one year of full-time attendance at the University of Alberta. There is no residence requirement for the course-based MA.

(1) Thesis-based MA

- a. The completion of at least ★24, consisting of ★18 of graduate-level courses to be selected in consultation with the Divisional Graduate Committee and the equivalent of ★6 for the MA thesis.
- b. All candidates for the thesis-based MA must normally take GERM 531, 555 and 593, unless fulfilment of equivalent requirements can be demonstrated. Each program will be decided upon in consultation with the Division.
- c. All candidates for the thesis-based MA are required to take a final oral examination, which is a defense of their thesis.

(2) Course-based MA

- a. The completion of at least ★30, consisting of ★24 of graduate-level courses to be selected in consultation with the Divisional Graduate Committee and ★6 for an extended paper or research project.
- b. All candidates for the course-based MA must normally take GERM 531, 555 and 593, unless fulfilment of equivalent requirements can be demonstrated. Each program will be decided upon in consultation with the Division.
- c. In addition, all candidates for the course-based MA are required to submit a directed research project (equivalent to ★6) which will be evaluated by two readers on a pass/fail basis.

Length of Program

Candidates will normally spend one year in a one-year MA program and two years in a two-year MA program in full-time study to complete the requirements for the degree.

175.40.2.3 The Degree of PhD in Germanic Languages

Entrance Requirements

For admission as a provisional candidate for the PhD degree, in general, the University of Alberta MA in German or its equivalent (including Staatsexamen) will be required. In exceptional cases a student with a BA Honors degree may be admitted directly to the PhD program. Students with a course-based MA (non-thesis) degree will be required to write an extended term paper in one of their graduate courses during the first term of their first year of doctoral studies. Students must also demonstrate their proficiency in oral and written German. A minimum TOEFL score of 550 is required where applicable (see §173.2.3).

Program Requirements

The requirements for the PhD degree are as follows:

- (1) In addition to the requirements for the MA, candidates must complete the equivalent of ★36. In each case, the student's program will be decided upon in consultation with the Division.
- (2) Candidates must demonstrate reading proficiency in an approved language other than German or English.
- (3) All candidates for the PhD must pass a candidacy examination, consisting of a written Departmental examination and a Faculty oral examination.
- (4) A dissertation of publishable quality on an approved topic must be submitted by all candidates.
- (5) Candidates must pass a final oral examination, which is a defense of the dissertation.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the PhD will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of three years is normally required.

175.40.3 Programs in Romance Languages

175.39.3.1 General Information – Romance Languages

The Division of Romance Languages, Literatures and Linguistics offers graduate work leading to the degrees of Master of Arts and Doctor of Philosophy. MA programs are offered in the areas of French Literatures and Cultures, French Canadian Literature and Culture, Translation, Second Language Acquisition, and Hispanic Literatures. PhD programs are offered in French Literatures, Hispanic Literatures, and Romance Languages.

The Division is supported by fine holdings in the University library. Students are asked to consult the Graduate Coordinator concerning course requirements and acceptable fields of research in the various areas of specialization.

175.40.3.2 The Degree of MA in Romance Languages

Program Requirements

For students entering from a four-year undergraduate program, the master's degree in all areas normally requires a minimum of ★24 in graduate courses; for students who have done less undergraduate work, course requirements may vary. In addition, all French and Hispanic programs require some practical training in bibliography. For students in a qualifying year, the grade point average for the year's work must normally be at least 7.0. The Division recognizes five areas of research, four in French and one in Spanish, for the MA in Romance Languages:

French

- (1) French Literatures and Cultures
- (2) French Canadian Literature and Culture
- (3) Translation
- (4) Second Language Acquisition

Spanish

- (1) Hispanic Literatures

MA in French

Programs in any one of the four areas of research offered within the MA in French must include a minimum of ★15 in the area of research. At least ★3 must be chosen from an area other than the area of research (see (3) and (4) below). All programs are to be approved by the division. All students who obtain a Graduate Teaching Assistantship (GTA) are required to include FREN 555 (★3) as part of their program. Students with a GTA may be exempted from this course only with divisional approval.

- (1) A thesis-based MA in the areas of French Literatures and Cultures, French Canadian Literature and Culture, Translation, or Second Language Acquisition normally requires ★24 in graduate courses. The thesis comprises the equivalent of ★12 of the program for a total of ★36. In the first year of the program students will normally complete FREN 690 (★6) Theory and Methodology and FREN 585 (★3) Studies in Twentieth Century French Thought. GTAs will complete FREN 555 (★3) Teaching Strategies for the Instruction of French.
- (2) A course-based MA in the areas of French Literatures and Cultures, French Canadian Literature and Culture, Translation, or Second Language Acquisition normally requires ★33 in graduate courses. In the first year of the program students will normally complete FREN 690 (★6) Theory and Methodology and FREN 585 (★3) Studies in Twentieth Century French Thought. GTAs will complete FREN 555 (★3) Teaching Strategies for the Instruction of French. In the second year students will normally complete FREN 900 Directed Research Project.
- (3) With divisional approval, students may substitute up to ★6 in relevant courses from other divisions of MLCS or from another department.
- (4) With divisional approval, students working in the area of Second Language Acquisition may substitute other courses from MLCS or from another department for FREN 690.

MA in Hispanic Literatures

All students who obtain a Graduate Teaching Assistantship (GTA) are required to include SPAN 555 (★3) as part of their program. Students with a GTA may be exempted from this course only with divisional approval.

- (1) A thesis-based MA requires graduate level course work and a thesis to a total of ★36. Course work is determined by the Department according to the needs of the individual student.

- (2) A course-based MA consists of ★30 at the graduate level in Hispanic Literatures, including SPAN 525. In addition, students are also required to complete SPAN 696 Master's Comprehensive Examinations and SPAN 900 Directed Research Project to a total of ★36.

Length of Program

The time required to complete the MA program will vary according to the previous training of the applicant and the nature of the research undertaken. However, a minimum of 12 months is normally required.

The minimum period of residence for the thesis-based MA is two, four-month terms of full-time attendance at the University of Alberta. There is no residence requirement for the course-based MA.

175.40.3.3 The Degree of PhD in Romance Languages

Entrance Requirements

The MA or an equivalent degree from a recognized university is normally required for admission to the PhD program.

Program Requirements

For a student with an MA in the same area of specialization, the PhD program requires from ★18 to ★24 in graduate courses (the PhD in Romance Languages requires ★36). There are in addition, prescribed departmental exams, the faculty candidacy oral examination, and a dissertation. Each area has additional major requirements. For students in a qualifying year, the grade point average for the year's work must normally be at least 7.0. Students enrolled in the PhD program in French will normally take FREN 690 (★6) and FREN 585 (★3) in their first year, if they have not already done so. GTA's will complete FREN 555 (★3) if they have not already done so, or have not been exempted by the division.

For the PhD in French literature, program requirements include two written and one oral departmental exam, and a critical essay which forms part of the material examined at the Faculty candidacy examination.

Students working toward the PhD in Hispanic literatures are required to take three departmental exams in either written or oral formats before proceeding to the Faculty candidacy exams, which will be based upon a formal research project proposal.

The PhD program in Romance languages allows comparative study of two or more Romance literatures. After demonstrating their linguistic competence, students are required to take a minimum of ★36 and, if required, further language examinations prior to the faculty candidacy examination. Students interested in this doctoral program must submit a detailed thesis proposal to the Division prior to seeking admission.

PhD students changing research fields will be required to obtain departmental approval and may be required to take a new candidacy examination meant to test their understanding of their newly selected research area.

The minimum period of residence is two eight-month terms of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the PhD will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of two years is normally required.

175.40.4 Programs in Slavic and East European Studies

175.40.4.1 General Information – Slavic and East European Studies

The Division of Slavic and East European Studies offers programs leading to the degrees of Master of Arts and Doctor of Philosophy.

MA programs are offered in Russian Literature, Slavic Linguistics, Ukrainian Literature and Ukrainian Folklore. PhD programs are offered in Slavic Languages and Literatures, Slavic Linguistics and Ukrainian Folklore. The Division will approve only fields of study in which adequate library resources and supervision are available.

Students are asked to consult the Division concerning acceptable areas of research and course requirements in the various areas of specialization.

The holdings of the University of Alberta Library in Slavic Languages and Literatures comprise some 39,000 works; of these, approximately 18,500 are in Russian, 5,200 are in Ukrainian and 4,200 in Polish. The majority of the holdings are computerized for quick retrieval.

Research interests in the Division include the following. In literature: Russian and Ukrainian 19th and 20th century literatures, especially Romanticism, Modernism and the avant-garde; Ukrainian literature of the 17th

and 18th centuries; also Polish literature. In linguistics: synchronic and diachronic phonology, especially Russian and Ukrainian; Russian syntax; and Slavic sociolinguistics. In folklore: the history of Ukrainian folklore studies and Ukrainian-Canadian topics.

175.40.4.2 The Degree of MA in Slavic and East European Studies

Program Requirements

Requirements for the MA degree include:

- (1) completion of a combination of coursework and thesis research comprising the equivalent of a minimum of ★24;
- (2) a thorough knowledge of the language of specialization; competent reading knowledge of a second Slavic language and/or French or German. Specialists in Russian/Ukrainian must normally pass RUSS 501/UKR 591 and RUSS 502/UKR 592 during the first year of their program (these courses do not count toward the MA degree requirement); and
- (3) submission and oral defence of a thesis.

Length of Program

The time required to complete the program will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of 12 months is normally required.

175.39.4.3 The Degree of PhD in Slavic and East European Studies

To be admitted as a provisional candidate for the PhD a student must normally hold the equivalent of the MA in Slavic Languages from the University of Alberta. Students whose MA work was done at other universities may be required to make up program deficiencies by special examination or by coursework. Any make-up examinations are to be taken within one year following admission as a provisional PhD candidate.

Program Requirements

General requirements for the PhD include the completion of a minimum of ★36 beyond the master's degree, including ★6 in a minor subject, and the submission and oral defence of a dissertation. Specific requirements include:

- (1) for students in Slavic Languages and Literatures:
 - a. Russian Language and Literature: comprehensive knowledge of Russian Literature and general knowledge of at least one of the other Slavic literatures and cultures; active knowledge of Russian. The suggested minor in this program is Comparative Literature.
 - b. Ukrainian Language and Literature: comprehensive knowledge of Ukrainian literature and general knowledge of at least one of the other Slavic literatures and cultures; active knowledge of Ukrainian. The suggested minor in this program is Comparative Literature.
 - c. Ukrainian Folklore: comprehensive knowledge of Ukrainian folklore and general knowledge of the folklore of another Slavic group; active knowledge of Ukrainian; and an approved minor.

In all three programs competent reading knowledge of one other Slavic language plus French or German is required.

- (2) For students in Slavic Linguistics: comprehensive knowledge of the history and structure of one Slavic language and general knowledge of the history and structure of each of the three groups of Slavic languages (East, West and South Slavic); active knowledge of one Slavic language; competent reading knowledge of Russian, of French or German, and of one West Slavic and one South Slavic language. The suggested minor in this program is Linguistics.

Candidacy examination: Written examinations covering the candidate's area of specialization. If the student passes the written examination, the student will be examined orally on the student's areas of specialization and dissertation proposal.

The residence requirement for PhD students is a minimum of two years in full-time attendance at the University of Alberta. At the Department's discretion, and with approval of the Faculty of Graduate Studies and Research, a student may be permitted to spend up to one year of the period of residence at another institution (preferably, in a Slavic-speaking country).

Length of Program

The time required to complete the PhD will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of three years is normally required.

175.40.5 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the following subject headings:

French (FREN)
 French-Canadian Literature (FR CA)
 German (GERM)
 Interdisciplinary (INT D)
 Italian (ITAL)
 Russian (RUSS)
 Scandinavian (SCAND)
 Slavics (SLAV)
 Spanish (SPAN)
 Ukrainian (UKR)

175.41 Music

Department of Music
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175.41.1 General Information

The Department of Music offers programs leading to the degrees of Master of Arts in Music, PhD in Music, Master of Music, and Doctor of Music. The MA in Music and PhD in Music include work in the areas of Musicology, Music Theory, Ethnomusicology, and interdisciplinary music studies. Areas of concentration within the MMus program include Applied Music (keyboard instruments, orchestral instruments, Wind Band Conducting, and voice), Choral Conducting, and Composition. The DMus program is offered in Piano and Organ Performance.

Application forms, brochures, and further information can be obtained from the Associate Chair, Department of Music. Applications must be received by February 1. For further information write to the Associate Chair, Department of Music.

Financial Assistance

Graduate students in music are eligible to compete for the general graduate awards listed in the Awards section of this Calendar, and are encouraged to do so, paying special attention to all deadline dates for application. Graduate assistantships are available within the Department; the deadline for application for graduate assistantships is February 1.

175.41.2 The Degrees of MA in Music and MMus

Entrance Requirements

The Department's minimum admission requirements are a BMus degree with an average of 6.5 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution, and a TOEFL score of 550 where applicable (see §173.2.3). In the case of the MA in Music an Honors BA or equivalent is acceptable in place of the BMus. An audition, preferably in person, is required as part of the admission procedure for applicants in Applied Music and Choral Conducting; sample papers must be submitted by applicants to the MA in Music, and a portfolio of compositions (together with tapes if possible) by applicants in Composition. Applicants must also submit a one-page statement of purpose. Diagnostic interviews in music history (all periods) and music theory (tonal and chromatic harmony), and tests in aural skills will be given to entering graduate students.

Program Requirements

The MMus program in Applied Music will include MUSIC 505, 581, 621, and ★9 in music options, ★3 of which must be a seminar in which a major paper is required. All MMus Applied Music students specializing in band or orchestral instruments are required to participate in a large ensemble for one year (MUSIC 641). A juried recital will be considered the equivalent of the final oral examination.

The MMus program in Composition will include MUSIC 505, 581, 651, 652, 660, and ★9 in music options. In addition, students who have not taken at least ★3 in electronic music in their undergraduate training will be required to take MUSIC 445. A portfolio of works written during the student's course of study in the MMus program, as well as a recital of some or all of these

works must be presented to a jury and will be considered the equivalent of a thesis.

The MMus program in Choral Conducting will include MUSIC 505, 630, 640, and ★12 in music options. In addition, an essay on some aspect of choral literature, conducting or pedagogy is required. A juried recital will be considered the equivalent of the final oral examination.

The MA in Music will include MUSIC 505, 610, ★3 in a music history option at the 500- or 600-level, ★3 in a music theory option at the 500- or 600-level, ★3 in an ethnomusicology option at the 500- or 600-level, and ★9 in options. A thesis is required.

All MMus and MA in Music candidates are required to demonstrate a reading knowledge of French, German or another language other than English, appropriate to the area of research. This requirement will normally be completed before the thesis is undertaken. In the case of the MMus Choral Conducting, this requirement will normally be completed before the essay is undertaken.

The minimum period of residence for the MA in Music and the MMus degree is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the program will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of two years is normally required.

175.41.3 The Degree of DMus

Entrance Requirements

The entrance requirement is an MMus degree or equivalent and evidence of outstanding ability and accomplishment in the area of specialization. Diagnostic interviews/tests will be required of graduates from other institutions and of University of Alberta graduates who have held their master's degrees for more than two years prior to admission.

Program Requirements

Courses of studies for DMus students will be formulated by the Department according to individual need; however, ★30 to ★36 are normally required.

DMus students will be required to demonstrate reading proficiency in one approved language other than English before being admitted to candidacy.

The DMus candidacy examination will be in two parts, written and oral, and will cover music history, music theory, and the literature of the major instrument. The examination should normally be taken near the end of the student's second year as a provisional candidate and must be successfully completed before the third required public performance. The oral part of the examination must take place not later than one month after successful completion of the written part of the examination. If the student fails the examination, all or a portion of it may be repeated once within one year of the first attempt, at the discretion of the examining committee.

In lieu of a formal dissertation DMus candidates will write a scholarly essay and present four public performances including a solo recital, a lecture recital, a chamber music recital, and a second solo or chamber music recital or solo performance with orchestra.

The final examination for the DMus degree will include a defence of essay and performances.

In addition to the regulations outlined above, the general regulations for the PhD degree stated in §174.2.1 also apply.

Length of Program

The time required to complete the program will vary with the individual candidate; however, a minimum of three years of study and research is normally required.

175.41.4 The Degree of PhD in Music

Note: This program is subject to final government approval.

Entrance Requirements

The entrance requirement is an MA or MMus degree or equivalent and evidence of outstanding ability and accomplishment in the area of specialization. Applicants who hold a BMus or BA (Hon) in Music must complete the core of courses relevant to the MA in Music. Diagnostic interviews/tests will be required of graduates from other institutions and of University of Alberta graduates who held their master's degrees for more than two years prior to admission.

Program Requirements

Courses of study for PhD students in Music will be formulated by the Department according to individual need; however, at least ★18 will be required, including the following courses: MUSIC 610, 611 and 699. MUSIC 699, Directed Research, involves the preparation of a potentially publishable essay, in an area distinct from that addressed in the dissertation. Students who have completed a master's thesis may be exempt from this requirement if the student's supervisory committee determines that the thesis is acceptable as a substitute. All course work must be completed prior to the qualifying and candidacy examinations.

Students are required to demonstrate proficiency in two approved languages other than English appropriate to the area of research; any language proficiency established in the course of previous graduate work will be credited toward this requirement. Students must satisfy the language requirement prior to the qualifying (written) and candidacy (oral) examinations.

Once the student has successfully completed the candidacy examination, the student may begin the dissertation. The dissertation requirement concludes with an oral examination of the completed document.

In addition to the regulations outlined above, the general regulations for the PhD degree stated in §174.2.1 also apply.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the program will vary with the individual candidate; however, a minimum of three years of study and research is normally required.

175.41.5 Graduate Courses

Graduate courses can be found in 201, Course Listings, under the subject heading Music (MUSIC). In addition, the following undergraduate courses are available for graduate credit: MUSIC 320, 400, 401, 406, 407, 410, 411, 413, 427, 433, 434, 436, 438, 445, 501, 502, 505, 507, 508, 525, 542, 555, 556, 560, 561, 565, 566, 581.

175.42 Neuroscience

Division of Neuroscience
Faculty of Medicine and Dentistry
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175.42.1 General Information

The Division of Neuroscience at the University of Alberta is a group of more than 40 neuroscientists from 15 departments and five faculties. The Division offers a graduate program that is designed for students who desire a broad training in various experimental and theoretical aspects of neuroscience while maintaining a research program that may be more specialized. This can be achieved by drawing on the expertise of specialists (members of the Division) from various departments throughout the University who have research interests in neuroscience. The graduate program in Neuroscience is primarily a PhD program with emphasis on thesis research, although an MSc program with a thesis is also available. Applicants not having the MSc degree will initially be admitted to the MSc program for the first year after which they may transfer to the PhD program, provided they have passed the comprehensive oral examination and appropriate courses. Applicants already possessing an MSc degree, or an exceptionally strong undergraduate record in neuroscience may be accepted directly into the PhD program.

Entrance Requirements

Applicants are expected to have graduated with a four-year degree, which will normally be in a biological science. The minimum grade-point average for students having a degree from the University of Alberta is 7.0, while applicants from other institutions are expected to have equivalent qualifications. Students already possessing a master's degree will be considered for the PhD program, provided they meet the minimum requirements for the MSc degree in Neuroscience. Applicants whose first language is not English must obtain a score of at least 550 on the TOEFL examination.

Applicants wishing to transfer to the program from other graduate programs within the University of Alberta will be considered on receipt of a letter from the student outlining the reasons for the transfer, letters of

reference, transcripts, and a letter of support from the proposed supervisor. Students who have already completed the PhD candidacy examination in another program will not normally be considered.

Financial Assistance

A limited number of graduate research assistantships are available through the Division. In addition, graduate teaching assistantships and research assistantships may be available through one of the departments participating in the graduate program in Neuroscience or from research grants. Other funding is provided by scholarships awarded to students by the Medical Research Council, Natural Sciences and Engineering Research Council, Alberta Heritage Foundation for Medical Research, and the Provincial Government of Alberta. Students will usually be expected to apply for such external funding.

175.42.2 The Degree of MSc

The program normally comprises NEURO 500 (two terms), two graduate core courses, and a thesis. Students are expected to have completed undergraduate courses such as PMCOL 371 and PHYSL 372 or their equivalent. Students deficient in this area will be expected to take these courses soon after admission.

An important feature of both the MSc and PhD programs is the requirement that students participate in a course (NEURO 500) which involves rotations through several laboratories during their first year. This course is intended to provide students with a broad appreciation of research in neuroscience and to enable them to make informed decisions about the research areas which particularly interest them. Students are provisionally assigned a supervisor until the end of their first year.

In addition, students will be expected to attend NEURO 503. Students, in consultation with their supervisory committees, may also select courses in other areas important to their research programs. There is no language requirements for the MSc. The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta. The time required to complete the MSc will vary with the individual candidate, but the normal period is about two years to complete the coursework (1st year) and benefit from the research training (2nd year).

175.42.3 The Degree of PhD

The program normally consists of ★12 (comprising NEURO 500 and two core courses) and a thesis. In addition, students will be expected to attend NEURO 503. Students, in consultation with their supervisory committees, may also select courses in other areas important to their research programs. No language other than English is required for the degree.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta. The time required to complete the PhD will vary according to the previous training of the applicant and the nature of the research undertaken. However, a minimum of three years is normally required. Course work will generally be completed early in the program.

175.42.4 Graduate Courses

The core courses for the neuroscience programs are ANAT 413; NEURO 472, 500, 503, and 603; PMCOL 509 and 512; PSYCI 511; PSYCO 576; and ZOOL 442. Descriptions of these courses can be found in §201, Course Listings, under the relevant subject headings:

Anatomy (ANAT)
Neuroscience (NEURO)
Pharmacology (PMCOL)
Psychiatry (PSYCI)
Psychology (PSYCO)
Zoology (ZOOL)

175.43 Nursing

Faculty of Nursing, Graduate Education Office
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175.43.1 General Information

The Master of Nursing program in Advanced Nursing Practice is designed to prepare nurses for advanced nursing practice roles, including the ability to articulate and use theoretical, experiential, and research bases for practice as well as demonstrate specialized clinical competency in complex situations with a defined population.

Students entering the MN program may select a thesis or course-based program in one of three major streams: Individual/Family Health Nursing, Community/Public Health Nursing, or Management in Health Services. Students in the Individual/Family Health Nursing stream may focus on speciality areas such as adult health, mental health, child/family health or neonatal intensive care. Leadership skills, case management principles, and ethics will be strong threads across all streams. Full-time or part-time study options are available.

The Faculty of Nursing offers a PhD in Nursing program designed to educate for excellence in the development and testing of nursing knowledge. The number and types of courses included in the program will vary according to the individual needs of the student.

The Faculty is committed to the principle of research-based nursing practice. The Faculty research development program includes visits by leading nurse scientists, a Research Office, community-wide nursing research seminars, thesis seminars, computer facilities, and provision for the communication of nursing research.

175.43.2 The Degree of MN

Entrance Requirements

The Faculty's minimum admission requirements are

- (1) A baccalaureate degree in Nursing with an average of at least 6.5 (approx. 70%) in the work of the final two years (or an equivalent qualification from a recognized institution).
- (2) Three letters of reference (criteria described on the application form).
- (3) An undergraduate course in each of statistics, research methods and health assessment, preferably completed within the past six years.
- (4) Normally a minimum of one year of clinical nursing experience in the specialty area to which the student is applying. (Students with insufficient clinical experience in their selected specialty area will be required to undertake an additional practicum either prior to entering or during their program).
- (5) A TOEFL score of at least 580 where applicable (see §173.2.3 of this Calendar).

Upon acceptance into the MN program, the following additional requirements must be met by each student:

- (1) A specified schedule of immunization must be completed prior to commencement of clinical practice in the program.
- (2) Evidence of active registration in the Alberta Association of Registered Nurses (AARN) or possession of a temporary permit from the AARN to practice nursing in Alberta is required.
- (3) Evidence must be provided of certification at the Basic Rescuer's Level in CPR by December 31 of the first year in the MN program, and evidence of recertification provided in each subsequent year of registration in the MN program.

Financial Assistance

Information regarding assistantships and other forms of financial assistance will be supplied on request.

Program Requirements

Student programs are designed on an individual basis within the MN curriculum framework. Programs are planned in light of the student's career goals, clinical interests, and research interests of relevance to nursing practice.

Each student's program will normally consist of NURS 502, 503, one nursing profession course, four courses in the Advanced Nursing Practice (ANP) speciality, one graduate-level statistics course, and one graduate-level speciality course or elective. Students undertaking the thesis-based MN will also complete a thesis, while course-based MN students will complete at least one additional elective course supportive of the ANP speciality, and a capping exercise (NURS 900).

No language other than English is required for the MN.

Length of Program

The time required to complete the program varies according to the candidate's undergraduate preparation and career experience, and the nature

of the research undertaken. All requirements for the degree must be completed by thesis-based MN students within four years, and by course-based MN students within six years.

175.43.3 The Degree of PhD

Entrance Requirements

The program seeks applicants with an excellent scholastic record, sound nursing practice background, and a strong commitment to nursing research. Applicants are selected by an admission committee and potential supervisor(s) on the basis of academic and research potential as evidenced in past grades; letters of reference; synopsis of academic, research, and professional plans/expectations; scholarly work; and current curriculum vitae. Specific assessment criteria are available upon request. The minimum requirements for entrance are (1) a Master's degree in nursing from the University of Alberta (or its equivalent) with a GPA of 7.0 on the 9-point scale; (2) appointment of an appropriate supervisor; (3) satisfactory letters of reference (e.g., rating of good in all letters); (4) academic, research, and professional plans which are acceptably stated, logically developed, and congruent with the PhD program; and (5) where applicable, evidence of proficiency in the English language (e.g., a satisfactory score on an approved English language test such as a minimum TOEFL score of 580).

Program Requirements

Student programs are designed under the direction of a Supervisor/Supervisory Committee in relation to the student's dissertation interests, career goals, and learning needs in the areas of nursing theory, nursing research, nursing practice, and nursing history. The only required course is the Dissertation Seminar (NURS 699) which is compulsory for two terms, although coursework in Nursing and other areas (e.g., moral philosophy, physiology) may be part of the student's program of study.

Students will be required to write a comprehensive examination at the completion of the specified course requirements in addition to the Oral Candidacy Examination. Candidates for the PhD will prepare a dissertation and are examined orally both on the dissertation proposal (at the time of the oral candidacy examination) and completed dissertation.

English is the only language requirement for the degree. The minimum period of residence is two academic years (September-April) of full time study.

Length of Program

The time required to complete the program will vary according to the student's research project. Normally, a minimum of three years is required. All requirements for the degree must be completed within six years of the student's registration as a probationary graduate student or as a provisional candidate for the degree.

175.43.4 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading Nursing (NURS).

175.44 Occupational Therapy

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175.44.1 General Information

The Department of Occupational Therapy offers programs leading to the degree of MSc in several fields of study, described below. Availability of courses and research supervision is dependent on department resources; potential students are encouraged to contact the Department directly before applying. The deadline for receipt of applications is April 1 for September admission and October 15 for January admission.

- (1) Work Evaluation: Emphasis on work performance, physical measurement of work, and evaluation of work capacity.
- (2) Psychosocial Dysfunction: Advanced study in occupational therapy assessment and intervention in psychosocial dysfunction.
- (3) Life Span Development: Advanced study in occupational therapy assessment and programming as it applies to paediatrics through geriatrics.

Entrance Requirements

The Department generally does not accept students with an overall GPA of less than 6.5 in their last two undergraduate years. Applicants must have an undergraduate degree in occupational therapy, or an equivalent qualification from a recognized institution. One year of clinical experience will normally be expected; however where this is lacking, relevant clinical experience (OCCTH 528) will be a required part of the candidate's program. Applicants are required to submit three letters of reference. Where applicable (see §173.2.3) applicants must have a minimum TOEFL score of 580 with a score of at least 50 for each of the three components. Diploma therapists must complete the undergraduate post-diploma degree completion before they can be admitted to the Master's degree program.

Financial Assistance

Financial assistance may be available in the form of teaching or research assistantships. Other sources of funding may be sought as described in the Awards section of the Calendar, from provincial bursaries, professional associations, private foundations, etc.

175.44.2 The Degree of MSc

Program Requirements

Two routes to the MSc degree are available: a research route with thesis and a course-based route with project. Requirements for the research route MSc will normally consist of courses equivalent to ★24 (including OCCTH 505, 521; REHAB 500; EDPY 500) and a research thesis. Remaining courses should include at least two specific to the field of study, plus relevant courses from other departments. The period of residence is one four-month terms of full-time attendance at the University of Alberta. Requirements for the course-based route MSc will normally include graduate level courses equivalent to ★33 (including OCCTH 521, 596, 900; REHAB 500; and EDPY 500). There is no residence requirement.

No language other than English is required for either route in this MSc program.

Length of Program

Normally a minimum of two academic years are required to complete the MSc program with thesis. Normally a minimum of four academic years are required to complete the course-based route with project.

175.44.3 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the following subject headings:

- Occupational Therapy (OCCTH)
- Rehabilitation Medicine (REHAB)

175.45 Oncology

Department of Oncology
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175.45.1 General Information

The Department of Oncology offers the MSc and PhD in Medical Sciences (Oncology) degrees (see §175.36) either as part of a postgraduate training program for post-MD applicants or as an independent degree program for those proceeding from a BSc. Applicants with the MSc degree, or a strong undergraduate record, may be accepted directly into the PhD program.

The Department of Oncology currently has more than 50 staff with primary appointments and a similar number from other departments holding secondary appointments to its six Divisions. The Department is largely located at the Cross Cancer Institute, a comprehensive cancer centre affiliated with the University of Alberta. Staff are involved in medical education at both the undergraduate and postgraduate levels and they lead major research initiatives ranging from clinical studies to basic research into the diagnosis, treatment, and molecular causation of cancer. Inquiries should be directed to the Director of Graduate Education of the Department of Oncology.

Entrance Requirements

The Department's normal requirements for admission of graduate students are those of the Faculty of Graduate Studies and Research but

stipulating a minimum GPA of 7.0 or equivalent during each of the previous two years of university and a TOEFL score of at least 600, where applicable (see §173.2.3).

Financial Assistance

Funding from fellowships and studentships is available from external agencies on a competitive basis. Supervisors may support students from operating grants and limited financial assistance is also available from the Department.

175.45.2 The Degree of MSc

Program Description

The general description for the MSc in Medical Sciences (Oncology) is as presented for all MSc programs in Medical Sciences (see §175.34.2).

175.45.3 The Degree of PhD

Program Description

The general description for the PhD in Medical Sciences (Oncology) is as presented for all PhD programs in Medical Sciences (see §175.34.3).

175.46 Ophthalmology

Department of Ophthalmology
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University of Alberta T6G 2R7
E-mail: macdonal@gpu.srv.ualberta.ca

175.46.1 General Information

The Department of Ophthalmology offers the MSc and PhD in Medical Sciences (Ophthalmology) degrees (see §175.34) either as part of a postgraduate training program for post-MD applicants or as an independent degree program for those proceeding from a BSc. Research may be carried out in a variety of ophthalmology-related disciplines for which staff in the Department have active research programs. Major research initiatives are in the areas of molecular biology of the eye and ocular genetics. Inquiries should be directed to the Director of Graduate Education of the Department of Ophthalmology.

Entrance Requirements

The Department's normal requirements for admission of graduate students are those of the Faculty of Graduate Studies and Research but stipulating a minimum GPA of 7.0 or equivalent during each of the previous two years of university and a TOEFL score of at least 580, where applicable (see §173.2.3).

Financial Assistance

Funding from fellowships and studentships is available from external agencies on a competitive basis. Supervisors may support students from operating grants and limited financial assistance is also available from the Department.

175.46.2 The Degree of MSc

Program Description

The general description for the MSc in Medical Sciences (Ophthalmology) is as presented for all MSc programs in Medical Sciences (see §175.34.2).

175.46.3 The Degree of PhD

Program Description

The general description for the PhD in Medical Sciences (Ophthalmology) is as presented for all PhD programs in Medical Sciences (see §175.34.3).

175.47 Oral Health Sciences

Department of Oral Health Sciences
3096 Dentistry Pharmacy
University of Alberta
Edmonton, Alberta T6G 2N8
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175.47.1 General Information

The Department of Oral Health Sciences offers the MSc and PhD in Medical Sciences (Oral Health Sciences) degrees (see §175.36) for post-DDS applicants or for those proceeding from a BSc or equivalent degree. Research may be carried out in a variety of dentistry-related disciplines for which faculty members in the department have active research programs. Inquiries should be directed to the Graduate Coordinator, Department of Oral Health Sciences.

The Department also has instructional and research facilities to offer a limited number of MSc in Orthodontics degrees. This MSc in Orthodontics program involves completing a program which leads to specialist certification. Inquiries should be directed to the Graduate Orthodontics Program Director.

Entrance Requirements

The Department's normal requirements for admission of graduate students are those of the Faculty of Graduate Studies and Research but stipulating a minimum GPA of 7.0 or equivalent during each of the previous two years of university and a TOEFL score of at least 580, where applicable (see §173.2.3).

Financial Assistance

Funding from fellowships and studentships is available from external agencies on a competitive basis. Supervisors may support students from operating grants and limited financial assistance is also available from the Department.

175.47.2 The Degree of MSc In Medical Sciences—Oral Health Sciences

The general description for the MSc in Medical Sciences (Oral Health Sciences) is as presented for all MSc programs in Medical Sciences (see Medical Sciences).

175.47.3 The Degree of PhD in Medical Sciences—Oral Health Sciences

The general description for the PhD in Medical Sciences (Oral Health Sciences) is as presented for all PhD programs in Medical Sciences (see Medical Sciences).

175.47.4 The Degree of MSc in Orthodontics

General Information:

The Department of Oral Health Sciences offers an MSc degree in Orthodontics. Through a combination of didactic and clinical courses, the program is structured to prepare the dental graduate for an orthodontic practice and/or an educational appointment. Lectures, seminars, and clinical experiences are timetabled to provide an optimal, progressive learning experience. The research component requires a defensible thesis with a nested publishable paper contained within the thesis. The clinical requirements involve successful completion of selected teaching cases.

This accredited program is administered by the Graduate Orthodontics Program Director (1043 Dentistry Pharmacy, University of Alberta, Edmonton, T6G 2N8) who responds to enquiries and requests for application packages. The deadline for completed applications is October 1 for the following September admission.

Entrance Requirements

Applicants must have completed an undergraduate dental degree with a grade point average of at least 7.0 (or an equivalent qualification) in the last two years of their dental program where applicable, applicants must pass the TOEFL (see §173.2.3) with a minimum score of 580. As part of the class selection process, chosen applicants will be invited to an interview prior to the selection of the three-member class.

Financial Assistance

Although funding from fellowships and studentships may be available on a competitive basis, candidates should be prepared financially for the program. There is a research grant provided by the Graduate Orthodontics Program. Other sources of funding may be sought as described in the Graduate Financial Aid and Awards sections of the Calendar, from provincial bursaries, from professional associations, private foundations, etc.

Program Requirements

In the first year of the program, candidates will normally take DENT 532 (★2), DENT 540 (★4), DENT 541 (★2), DENT 542 (★1), DENT 551 (★1) or

DENT 562 (★2), and OBIOL 500 (★3). In the second year, candidates will normally take DENT 640 (★3), DENT 641 (★8), and DENT 551 or 562 (offered in alternate years). In the third year of the program, candidates will register in DENT 741 (★1). In addition, candidates will prepare and defend a thesis on an approved topic.

Length of Program

The time required to complete the MSc will vary with the individual candidate, but normally the program will be completed in two and a half years.

175.47.5 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject headings Dentistry (DENT) and Oral Biology (OBIOL).

175.48 Paediatrics

Department of Paediatrics
2C300 Mackenzie Health Sciences Centre
University of Alberta
Edmonton, Alberta T6G 2R7
E-mail: gary.lopaschuk@ualberta.ca

175.48.1 General Information

Facilities exist within the Department of Paediatrics for students who wish to proceed to the Master of Science degree. Inquiries should be directed to the Graduate Coordinator in the Department of Paediatrics.

In addition, Paediatrics is one of several departments working jointly to offer a PhD in medical sciences. (More information on the interdisciplinary program in medical sciences is found in the Calendar under Medical Sciences.) Highly qualified candidates with an MSc or MD, who wish to proceed to a PhD will be considered. Inquiries about this program should be directed to the Graduate Coordinator in the Department of Paediatrics.

Entrance Requirements

Candidates who wish to apply for either the MSc or PhD program must have a BSc, MSc or MD with an average of at least 7.0 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution. Where applicable (see §173.2.3), applicants must obtain a minimum score of 550 on the TOEFL test.

Financial Assistance

Financial assistance may be available from the Alberta Heritage Foundation for Medical Research, Medical Research Council, and from other sources.

175.48.2 The Degree of MSc

Program Requirements

Required courses depend on the area of specialization and the undergraduate background of the student; however, the MSc program normally consists of ★9 and a thesis. A number of courses will be compulsory (or at the discretion of the supervisor or Department), but the major portion will be dictated by the area of research undertaken by the student.

There is no second language requirement for the degree.

Length of Program

The time required to complete the MSc will vary with the individual candidate; however, a minimum of 12 months is normally required.

175.48.3 The Degree of PhD

Program Requirements

The PhD program normally consists of the preparation and defence of a thesis on an approved topic and appropriate courses as authorized by the supervisor, the student's PhD committee and/or the Department.

No language other than English is required for the degree.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the PhD will vary according to the previous training of the applicant as well as the nature and progress of the research undertaken; however, a minimum of two years is normally required.

175.49 Pharmacology

Department of Pharmacology
9-70 Medical Sciences Building
University of Alberta
Edmonton, Alberta T6G 2H7
E-mail: judy.deuel@ualberta.ca

175.49.1 General Information

The Department of Pharmacology offers graduate programs leading to the degrees of Master of Science and Doctor of Philosophy in pharmacology.

The Department offers a wide range of opportunities to investigate problems in the physiological, biochemical and molecular aspects of pharmacology. Expertise is available in many state-of-the-art *in vivo* and *in vitro* methodologies.

Graduate studies in pharmacology may be of interest to candidates with general degrees in the biological sciences, psychology, physics, chemistry, biochemistry, physiology, pharmacy, neuroscience, medicine, and dentistry.

Graduate and undergraduate courses offered by other departments may be included in a candidate's program by arrangement between the departments concerned.

Inquiries should be directed to the Chair of the Department of Pharmacology.

Entrance Requirements

The Department's minimum admission requirements are an undergraduate degree with an average GPA of 7.0 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution, and a minimum TOEFL score of 600 where applicable (see §173.2.3). Requisite courses will be specified at the time of arrangement of the candidate's program.

Financial Assistance

Financial support is available for a limited number of students in the form of graduate assistantships.

175.49.2 The Degree of MSc

Program Requirements

Individual programs vary depending on the student's background, but are designed to provide students with an appropriate graduate education in pharmacology courses. At least ★6 in graduate pharmacology courses are normally required, in addition to a thesis on an approved research topic.

No language other than English is required for the degree.

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the MSc will vary with the individual candidate; however, a minimum of 12 months is normally required.

175.49.3 The Degree of PhD

Program Requirements

Individual programs vary according to the student's background, but are designed to provide students with an appropriate graduate education in pharmacology. At least ★9 in graduate pharmacology courses are normally required, in addition to the preparation and defence of a thesis on an approved research topic.

No language other than English is required for the degree.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the PhD will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of 30 months is normally required.

175.49.4 Advanced Study in Pharmacology

A special program has been arranged for graduates in medicine wishing to spend an additional year in a basic science department. This program does not lead to a degree, but may satisfy some of the course requirements should the student wish to proceed to a master's degree. The program includes graduate courses, a weekly seminar, participation in a research project and optional attendance at undergraduate lectures. Those wishing to undertake the program should register as special students in the Faculty of Medicine and Dentistry.

175.49.5 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading Pharmacology (PMCOL).

175.50 Pharmacy and Pharmaceutical Sciences

Faculty of Pharmacy and Pharmaceutical Sciences
3118 Dentistry-Pharmacy Centre
University of Alberta
Edmonton, Alberta T6G 2N8
E-mail: joyce.johnson@ualberta.ca

175.50.1 General Information

The Faculty of Pharmacy and Pharmaceutical Sciences offers programs leading to the Master of Pharmacy, Master of Science and Doctor of Philosophy degrees; a limited number of graduate students can be accommodated in modern well-equipped laboratories.

Research may be undertaken in fields such as pharmaceuticals, biopharmaceuticals, physical pharmacy, bionucleonics, radiopharmacy, medicinal chemistry, pharmacoconomics, pharmaceutical chemistry, drug analysis, drug metabolism, microbiology, pharmacology, hospital pharmacy, clinical pharmacy, toxicology, neurochemistry, pharmacy administration, and pharmaceutical biotechnology.

Entrance Requirements

The minimum admission requirements of the Faculty are an undergraduate degree in pharmacy with an average of 6.5 in the last two years of undergraduate (or graduate) work at the University of Alberta or an equivalent qualification from a recognized institution. Individuals with previous degrees in such fields as biology, microbiology, biochemistry, pharmacology or chemistry will be considered. Where applicable (see §173.2.3), applicants must obtain a minimum score of 550 on the TOEFL test.

Financial Assistance

Financial assistance may be available from the Medical Research Council of Canada, the Alberta Heritage Foundation for Medical Research and from other sources.

Prospective candidates should consult with the Dean of Pharmacy regarding the requirements.

175.50.2 The Degree of MPharm

A program combining academic coursework, professional experience and research investigation leading to the degree of Master of Pharmacy in clinical pharmacy is offered to acceptable students holding a BSc degree in pharmacy and a license to practice pharmacy in the province of Alberta. The program integrates a core of required courses with options appropriate to the individual needs and interests of the student. The professional portion of the program consists of research and study in a professional environment.

Program Requirements

Required courses depend on the area of specialization and the undergraduate background of the student; however, the MPharm program normally consists of ★30 at the graduate level, clinical rotations, and a project equivalent to ★6.

There is no language requirement for the degree.

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the program is two years of full-time study and research.

175.50.3 The Degree of MSc

Program Requirements

Required courses depend on the area of specialization and the undergraduate background of the student; however, the MSc program normally consists of a minimum of ★12 and a thesis.

The degree specialization is in Pharmaceutical Sciences or Pharmacy Practice.

There is no language requirement for the degree. The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the MSc will vary with the individual candidate; however, a minimum of two years is normally required.

175.50.4 The Degree of PhD

Program Requirements

The PhD program normally consists of ★12 and the preparation and defence of a thesis on an approved topic.

The degree specialization is in Pharmaceutical Sciences or Pharmacy Practice.

There is no language requirement for the degree.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the PhD will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of two years is required.

175.50.5 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading Pharmacy and Pharmaceutical Sciences (PHARM).

175.51 Philosophy

Department of Philosophy
4-115 Humanities Centre
University of Alberta
Edmonton, Alberta T6G 2E5
E-mail: gsphil.dept@ualberta.ca

175.51.1 General Information

The Department offers programs leading to the Master of Arts and Doctor of Philosophy degrees.

The fields in which advanced study may be pursued include ethics; social and political philosophy; aesthetics; philosophy of literature; history of ancient, medieval and modern philosophy; logic; metaphysics; philosophy of science; epistemology; philosophy of language; philosophy of mind; and contemporary European and Anglo-American philosophy. Inquiries concerning possible subjects for research should be directed to the Graduate Coordinator.

Entrance Requirements

The Department's minimum admission requirements are an undergraduate degree with an average of 6.5 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution, and a TOEFL score of 550 where applicable (see §173.2.3).

Financial Assistance

Graduate students in the Department are eligible to compete for the general graduate awards listed in the Calendar and are encouraged to do so. Graduate assistantships are available within the Department; inquiries should be addressed to the Graduate Coordinator.

175.51.2 The Degree of MA

Program Requirements

Required courses depend on the area of specialization and the undergraduate background of the student; however, the MA program normally consists of ★18 and a thesis.

There is no language requirement for the degree of MA.

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

Candidates who have completed training equivalent to that of graduation with Honors in philosophy from this Department will normally require one year to complete the master's program. Other candidates for the MA degree may take up to two years to complete the requirements for the degree. Students with very little background in philosophy may be required to enrol in a qualifying year, or as a special student before being considered eligible for admission to a graduate degree program.

175.51.3 The Degree of PhD

Program Requirements

The PhD program normally consists of ★18 and the preparation and defence of a thesis on an approved topic.

Before taking the oral candidacy examination a student in the PhD program must have passed comprehensive examinations in three areas of the student's choice and satisfied the logic requirement.

Students whose field of research involves primary-source material in a language other than English shall in addition be required to pass an appropriate language examination.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the program will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of three years is normally required.

175.51.4 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading Philosophy (PHIL).

175.52 Physical Education and Recreation

Faculty of Physical Education and Recreation
421 Universiade Pavilion
University of Alberta
Edmonton, Alberta T6G 2H9
E-mail: ajordan@per.ualberta.ca

175.52.1 General Information

The Faculty of Physical Education and Recreation offers programs leading to the degrees of Master of Arts, Master of Science, and Doctor of Philosophy. In addition the Faculty of Business, in conjunction with the Faculty of Physical Education and Recreation, offers an MBA with specialization in Leisure and Sport Management.

The Faculty offers excellent laboratory facilities including a new computer room, as well as access to a number of research and service centres (e.g., The Alberta Centre for Well-Being, The Glen Sather Sports Medicine Clinic, the Rick Hanson Centre, the PREP Program).

Deadline for receipt of completed applications for the following academic year is normally February 1. Since nominations for University of Alberta scholarships must be submitted before February 1, applicants are encouraged to send their documentation as early as possible. Normally, all students are expected to begin their programs in the September term. For further information contact: Associate Dean, Graduate Studies and Research, Faculty of Physical Education and Recreation.

Entrance Requirements

The Faculty's minimum admission requirements are an undergraduate degree with an average of at least 7.0 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution.

In addition to the above, all non-Canadian students who did not complete an undergraduate degree from an English language institution must pass, with a minimum score of 600, the Test of English as a Foreign Language (TOEFL) or 90 on the Michigan English Language Assessment Battery (MELAB), before formal admission approval can be given. (See §173.2.3 of the Calendar for further information on English language examinations.)

The requirements for entry into the relevant master's program is the BPE or BA Recreation Administration degree from the University of Alberta or its equivalent. All students not meeting this entrance requirement will be considered on an individual basis. The normal requirement for admission to the PhD is the MA, MSc, or MA (Recreation and Leisure Studies) degree with a thesis from the Faculty, or the equivalent.

Financial Assistance

A number of graduate assistantships and scholarships are available each year to graduate students. Graduate assistantship and scholarship funding is not available to course-based degree students.

175.52.2 The Degree of MA

Both a thesis-based and a course-based option are available in the MA degree program. While both are research-oriented programs, the thesis

program requires fewer courses and places more emphasis on the development of research skills.

Students entering the course-based MA route must possess a bachelor of physical education and sport studies degree or equivalent, and are expected to have professional experience in the field.

Program Requirements

The minimum requirements for the thesis-based MA are the completion of ★12 in addition to the thesis. All students must successfully complete either PEDS 580 or PERLS 581.

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Students enrolled in the course-based MA degree program must complete as a minimum, the equivalent of ★24. Students must successfully complete at least one of PEDS 580 or PERLS 581. In addition, students must successfully complete a capping exercise. This will take the form of a completed research project, an internship within the Faculty, or successful completion of a comprehensive examination.

There is no residency requirement for the course-based degree program.

Length of Program

Depending on the candidate's qualifications, the candidate for the MA should anticipate 18 months to two years to complete the program. Students must complete the MA degree requirements within four years.

175.52.3 The Degree of MA in Recreation and Leisure Studies

Both thesis-based and course-based options are available in the MA(RLS) program. While both are research-oriented programs, the thesis program requires fewer courses and places more emphasis on the development of research skills.

Program Requirements

The minimum requirements for the thesis-based MA(RLS) are the completion of ★12 in addition to the thesis. All students must successfully complete RLS 510 and a graduate level research course, PERLS 581 recommended.

Students must complete a residence requirement of two four-month terms of full-time attendance at the University of Alberta.

Students enrolled in the course-based MA(RLS) degree program must complete as a minimum, the equivalent of ★24. All students must successfully complete RLS 510 and a graduate level research course, PERLS 581 recommended. In addition, students must successfully complete a capping exercise. This will take the form of a completed research project or successful completion of a comprehensive examination.

There is no residency requirement for the course-based degree program.

Length of Program

Depending on the candidate's qualifications, the candidate for the degree should anticipate 18 months to two years to complete the program. Students must complete the degree requirements within four years.

175.52.4 The Degree of MSc

Program Requirements

The minimum requirements for the MSc degree are the completion of ★12 in addition to the thesis. As part of the degree requirements, students must successfully complete PEDS 580.

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

Depending on the candidate's qualifications, the candidate for the degree of MSc should anticipate 18 months to two years to complete the program. Students must complete the MSc degree requirements within four years.

175.52.5 The Degree of MBA with Specialization in Leisure and Sport Management

The Faculty of Business in conjunction with the Faculty of Physical Education and Recreation, offers a program leading to an MBA with specialization in Leisure and Sport Management. The purpose of this applied administrative studies Master's program is to prepare graduate students to become practicing managers/leaders in leisure and sport management. For further details please refer to §175.8.9 under Business.

175.52.6 The Degree of PhD

Program Requirements

The PhD degree is a research degree; however, a number of specific courses may be required within the various areas of specialization. Please consult the staff within each specified area for further details. All courses must be approved by the Faculty of Physical Education and Recreation. Emphasis is on research leading to the dissertation rather than on coursework.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The PhD degree will normally require three years beyond the master's level. All requirements must be completed within six years.

175.52.7 Graduate Courses

Graduate courses can be found in §201, Course Listing, under the following headings:

Physical Education and Sport (PEDS)
Physical Education, Recreation and Leisure Studies (PERLS)
Recreation and Leisure Studies (RLS)

175.53 Physical Therapy

Department of Physical Therapy
2-50 Corbett Hall
University of Alberta
Edmonton, Alberta T6G 2G4
E-mail: vicki.ross@ualberta.ca

175.53.1 General Information

The Department of Physical Therapy offers a program of graduate studies leading to the degree of MSc in physical therapy. The purpose of the program is to prepare physical therapists to conduct research.

Entrance Requirements

To meet the minimum entrance requirements of the Department of Physical Therapy, applicants must have a grade point average of 6.5 in the last two years of their physical therapy baccalaureate program at the University of Alberta or an equivalent qualification from another institution. Where applicable (see §173.2.3) applicants must have a minimum TOEFL score of 580. Applicants to the program will be judged not only on their academic record, but also on their research potential as indicated in letters of reference and other supportive material. Clinical experience may be required by some supervisors. The deadline for receipt of applications for the graduate program in Physical Therapy is April 1 for September admission and October 15 for January admission.

Financial Assistance

It is strongly recommended that students undertake one term as a teaching assistant and one term as a research assistant. The student will receive remuneration as a graduate assistant at the prescribed University rate. Fellowships and scholarships may be obtained from a number of external sources (e.g., NHRDP, MRC, AHFMR, Alberta Government, CPA, IODE, Arthritis Society, and others). More detailed information on these and other awards can be obtained in the Graduate Financial Aid section of the Calendar.

175.53.2 The Degree of MSc

Program Requirements

Students are required to complete a minimum of graduate-level ★12. Two of these courses must be from the following: REHAB 500 (Research Seminar); PThER 507 (Instrumentation); PThER 570 (Measurement and Evaluation); an approved statistics course, or approved equivalents of these courses. The remaining two courses can be chosen from the above list, from other graduate courses in Physical Therapy, or from graduate courses in related disciplines. Students must also successfully defend their research proposal and complete and defend a thesis.

No language other than English is required for the MSc.

There is no residence requirement.

Length of Program

The program normally takes two years to complete if the student is registered full-time. Students must complete the program within four years.

175.53.3 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the following subject headings:

Physical Therapy (PTHER)
Rehabilitation Medicine (REHAB)

175.54 Physics

Department of Physics
412A Physics Building
University of Alberta
Edmonton, Alberta T6G 2J1
E-mail: lynn@phys.ualberta.ca

175.54.1 General Information

Programs leading to the degrees of Master of Science and Doctor of Philosophy are open to suitable graduates in physics, engineering physics, geophysics, or equivalent programs.

The Department's focus areas of research, each of which includes experimental, observational, computational and theoretical components, are the following:

- (1) Astrophysical Sciences: astronomy, atomic spectroscopy, cosmology, general relativity and black hole physics, laboratory astrophysics, plasma physics, space physics.
- (2) Condensed Matter Physics and Material Science: acoustics, biophysics, dynamic processes at surfaces, electron and scanning probe microscopy, high Tc superconductivity, magnetism, phase transitions in porous media, picosecond laser spectroscopy.
- (3) Subatomic Physics: fixed-target and high energy particle physics, intermediate energy physics, nuclear, particle and field theory. (Experimental work is conducted at TRIUMF, CERN, Brookhaven and other national and international facilities.)
- (4) Geophysics: fluids in porous media, geodynamics, magneto-stratigraphy and archeomagnetism, rock physics, seismology.

The Department also offers, together with adjunct faculty in the Faculty of Medicine and Dentistry, graduate programs in medical physics: diagnostic imaging, NMR spectroscopy and MRI imaging, nuclear medicine and radiation treatment.

Individual programs will be arranged in consultation with the Associate Chair of the Department of Physics and members of the Department. Information, including more detailed program requirements, may be obtained by contacting the Associate Chair of the Department of Physics.

Entrance Requirements

The Department's admission requirements are an undergraduate degree in physics, engineering physics, geophysics or an equivalent program, normally with an average of 7.0 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution. Where applicable (refer to §173.2.3), candidates must pass the TOEFL test with a score of 550 or better.

Financial Assistance

A number of graduate assistantships are available; these range from \$15,000 to \$18,000 per annum depending upon the degree program and year of study. Applicants are automatically considered for this assistance when they are accepted into the graduate program.

175.54.2 The Degree of MSc

Program Requirements

A minimum of ★12 is generally required of students in the thesis based MSc program. Specific requirements are determined by the focus area in which the student is studying, and in some cases, the student's supervisory committee may make an additional requirement. A research project, the results of which are to be presented in a thesis and an oral examination, is also required.

Students are required to participate in Department colloquia. Details are available from the graduate coordinator.

A supervisory committee of three faculty members is appointed for each graduate student. In May of the first year of the program the committee makes a formal recommendation on the candidate's potential for graduate work. At this time students may in certain cases be permitted to transfer directly to a PhD program if their progress should warrant such a transfer.

There is no language requirement for the degree of MSc.

The minimum period of residence for the thesis MSc is two four-month terms of full-time attendance at the University of Alberta.

For the course-based MSc in Geophysics, a minimum ★30 at the graduate-level is required. These courses must include GEOPH 521, 623 and one or more of GEOPH 612, 615, 616 or 620. In addition a project course (GEOPH 900) is required. Each student's program of study is supervised by an academic advisor. In a final "capping exercise" the results of the project course are presented in oral and written form to an examining committee of two academic staff members. There is no residence requirement for the course-based MSc.

Length of Program

The time required will vary according to the previous training of the candidate and the nature of the research undertaken; however, an average of two years is normally required to complete the MSc program.

For the course-based MSc in Geophysics, the program will normally require 12-18 months of full-time study for its completion. The maximum allowable time for completion is four years.

175.54.3 The Degree of PhD

Program Requirements

Students in the PhD program are required to take a minimum of ★24 after the equivalent of the Honors BSc degree from the University of Alberta. These include the courses required for the MSc program. All students in the PhD program are advised to take at least ★6 in fields of study different from their own research areas. When the course requirements are successfully completed, the student's research is presented orally and in written (thesis) form to an examining committee. No language other than English is required for the degree.

Students are required to participate in Department colloquia and seminars. Details are available from the graduate coordinator.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The minimum time for completion of a PhD degree is three academic years of study and research after the Honors BSc degree or two academic years after the equivalent of the MSc degree at the University of Alberta. Normally the PhD degree is completed within five years of the BSc, or within four years of the MSc.

175.54.4 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the following subject headings:

Geophysics (GEOPH)
Physics (PHYS)

175.55 Physiology

Department of Physiology
7-55 Medical Sciences Building
University of Alberta
Edmonton, Alberta T6G 2H7
E-mail: christina.benishin@ualberta.ca
Web-Site: http://www.ualberta.ca/~ekarpins/physdep.html

175.55.1 General Information

Facilities are available for graduate training leading to the Master of Science and Doctor of Philosophy degrees. The Department is well equipped for most fields of physiological research, including various areas of endocrinology, cellular physiology, neurophysiology, and biophysics.

Information and requests for application forms for admission may be obtained from the Department. Students may also write to the Chair of the Department in regard to their special interests and related matters.

Entrance Requirements

The Department's minimum admission requirements are an undergraduate degree with an average of at least 7.0 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution, and a TOEFL score of 580 for paper-based exams or 237 for computer-based exams where applicable (see §173.2.3).

Financial Assistance

Financial assistance in the form of graduate assistantships is usually available for graduate students.

175.55.2 The Degree of MSc

Program Requirements

Required courses depend on the area of specialization and the undergraduate background of the student; however, the program normally consists of four single-term courses and a thesis.

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the MSc will vary with the individual candidate; however, a minimum of 18 months is normally required.

175.55.3 The Degree of PhD

Program Requirements

The PhD program normally consists of ★12 (four single-term courses) and the preparation and defence of a thesis on an approved topic. An oral candidacy examination in the student's area of research must also be passed, at least six months prior to the final defence.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the PhD will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of three years is normally required.

175.55.4 Graduate Courses

Graduate Courses can be found in §201, Course Listings, under the subject heading Physiology (PHYSL).

175.56 Political Science

Department of Political Science
10-16 Tory Building
University of Alberta
Edmonton, Alberta T6G 2H4
E-mail: marilyn.calvert@ualberta.ca

175.56.1 General Information

The Department of Political Science offers programs leading to the Master of Arts and Doctor of Philosophy degrees.

The following fields of specialization are offered in the doctoral program: Canadian politics, political philosophy, international relations, and comparative politics. The master's program in Political Science offers specializations in Canadian politics, political philosophy, international relations, comparative politics, urban politics, and political behavior and psychology. It may be possible to do an individual program in Canadian Studies.

Students contemplating graduate work in political science or Canadian Studies should direct their inquiries to the Graduate Chair, Department of Political Science.

Entrance Requirements

The Department's minimum admission requirements are an undergraduate degree with an average of 7.0 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution, and a TOEFL score of 600 where applicable (see §173.2.3).

Financial Assistance

A number of graduate assistantships are available for qualified students.

175.56.2 The Degree of MA

Program Requirements

Two MA routes are available: a) a thesis-based MA and b) a course-based MA for both full- and part-time students.

For the thesis-based MA, required courses depend on the area of specialization and the undergraduate background of the student; however,

the program normally consists of ★18 graduate-level and a thesis. For the course-based MA, ★24 graduate-level and a project (POL S 900) are required.

There is no language requirement for the MA degree.

The minimum period of residence for full-time programs is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the MA will vary with the program and candidate. Full-time students in the MA program will normally complete the program within 12-18 months. A part-time MA student must maintain continuous registration and complete the program in four years.

175.56.3 The Degree of PhD

Program Requirements

A PhD student with an MA or equivalent in political science is normally required to complete a minimum of ★18 at the graduate level. Students will normally be required to complete the core courses in each of their two chosen fields of concentration. Students must take and pass written comprehensive examinations in any two of the following five fields: Canadian Politics; International Politics; Political Philosophy; Comparative Politics (with specialization in either industrialized or developing countries); Gender and Politics. The student's supervisor or supervisory committee may also determine that a special skill or area is essential to the student's program and may require additional coursework. It is normally expected that all coursework will be complete within three terms and that usually students would take comprehensive exams in the fall of their second year in the program.

Students will also be expected to prepare a thesis proposal for oral candidacy examination. This normally occurs within three months of passing the comprehensive exams, i.e. within the second year of the program. The thesis proposal must be approved and the oral candidacy examination passed before students become full doctoral candidates.

Before defending the thesis each student must demonstrate proficiency in a language other than English. Students taking Canadian politics as a field will be required to take French.

All candidates for the PhD must prepare an acceptable thesis embodying the results of their research. Candidates will be examined orally on their thesis results.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the PhD will vary according to the previous training of the student and the nature of the research undertaken; however, a minimum of three years is normally required.

175.56.4 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading Political Science (POL S).

175.57 Psychiatry

Department of Psychiatry
1E1.01 Mackenzie Health Sciences Centre
University of Alberta
Edmonton, Alberta T6G 2B7
E-mail: gradstudies.psychiatry@ualberta.ca
http://www.med.ualberta.ca/psychiatry/

175.57.1 General Information

The Department of Psychiatry offers programs leading to the degrees of MSc and PhD. The PhD program is offered as part of the PhD in Medical Sciences interdisciplinary program (see §175.36).

For further information contact the Graduate Coordinator in the Department of Psychiatry.

Entrance Requirements

The Department's minimum admission requirements are an undergraduate degree with an average of 7.0 in the last two years of undergraduate (or graduate) work at the University of Alberta or an equivalent qualification from a recognized institution, and a TOEFL score of at least 550 where applicable (see §173.2.3).

Financial Assistance

Financial assistance may be available from the Medical Research Council of Canada, the Alberta Heritage Foundation for Medical Research, grants to faculty members, and from other sources.

175.57.2 The Degree of MSc

Program Requirements

Requirements include the preparation and defense of a thesis based on research conducted by the candidate.

All candidates must include some coursework, as specified by their Supervisory Committee. Normally ★6 to ★9 are required.

There is no second language requirement for the MSc.

Length of Program

The time required to complete the program will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of 12 months is normally required.

175.58 Psychology

Department of Psychology
P220 Biological Sciences Building
University of Alberta
Edmonton, Alberta T6G 2E9
E-mail: gbisanz@psych.ualberta.ca

175.58.1 General Information

The Department of Psychology offers graduate work leading to the degree of PhD.

Research facilities consist of numerous laboratories:

- (1) for work with animals: surgeries, physiological recording rooms, behavioral testing rooms, various kinds of programming equipment, and a histological laboratory;
- (2) for work with humans: rooms for interviews and personality testing; observation rooms and experimental areas for social and developmental psychology; laboratories for sensory and perceptual studies in vision, audition, tactile, and chemical senses; and laboratories for the study of cognitive processes.

Entrance Requirements

The Department's minimum admission requirements are a four-year undergraduate degree with a 7.0 or better grade point average in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution (see §173.2.1) and a TOEFL score of 550 where applicable (see §173.2.3).

The Department also requires that applicants submit a statement of their research interests, three letters of recommendation, and the results of the Graduate Records Examination (GRE), including the test in Psychology. No minimum cut-off is used to evaluate GRE scores, but successful applicants generally score above the 70th percentile in most categories.

Financial Assistance

Graduate assistantships for research and teaching are normally available for students who maintain satisfactory performance in their assistantship duties and make satisfactory progress toward a degree. In addition, a certain number of assistantships are available during the summer. Supplementary funding for students holding assistantships is available.

175.58.2 The Degrees of MA and MSc

Program Requirements

Normally students are admitted into the PhD program with a bachelor's degree. When students are unable to complete the PhD program in psychology, an MA or MSc may be granted. Students are required to (a) conduct empirical research during their first year and to provide a written report that is approved by the supervisor, (b) complete and defend a master's thesis, and (c) present their research at least once every two years at a conference. Students also must successfully complete at least ★18 of graduate-level courses, including at least ★6 of statistics and experimental design and at least ★12 in the Department of Psychology.

In addition to the requirements above, all students are required to take PSYCO 502 (Professional and Ethical Issues).

No language other than English is required for the master's degree.

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the program will vary with the individual candidate; however, a minimum of two years is normally required.

175.58.3 The Degree of PhD

Program Requirements

Students may enter the PhD program after completing a bachelor's or a master's degree program. Requirements for the PhD include (a) a written review of the literature appropriate to the student's area of research, (b) an oral candidacy examination, and (c) dissertation research. All students must present their research at least once every two years at a conference.

Students entering the program with a bachelor's degree are required to conduct an empirical research project during their first year and to provide a written report that is approved by the supervisor. They also must conduct another research project during their second year. Evaluation of this second-year project is based on a written report and an oral examination held in a forum acceptable to the student and supervisory committee. Each student is required to complete a minimum of ★24 of graduate-level courses, including at least ★6 in statistics and experimental design and a maximum of ★12 in independent study and/or courses offered in other departments. These courses must be approved by the student's supervisory committee. Particular courses, possibly in addition to the minimum, may be required by the supervisory committee in consultation with the Graduate Coordinator to ensure that a student is adequately prepared for research in his or her areas of concentration.

Students who enter the PhD program with a master's degree are required to complete a minimum of ★12 of graduate-level courses. These courses must be approved by the student's supervisor and supervisory committee. The supervisory committee is responsible for ensuring that, by completion of the program, the student's course-related and research-related experience is comparable to that of students who entered the PhD program with a bachelor's degree.

In addition to the requirements above, all students are required to take PSYCO 502 (Professional and Ethical Issues).

No language other than English is required for the degree.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the PhD varies depending on the previous experience of the applicant and the nature of the research undertaken. Students normally take at least four years beyond the bachelor's and two years beyond the master's degree. Students are evaluated annually with respect to progress in the program.

175.58.4 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading Psychology (PSYCO).

175.59 Public Health Sciences

Public Health Sciences
13-103 Clinical Sciences Building
University of Alberta
Edmonton, Alberta T6G 2G3
E-mail: grad.prog@phs.med.ualberta.ca

175.59.1 General Information

The Department of Public Health Sciences currently offers a two-year program leading to the degree of Master of Public Health with specializations in Health Policy Research (thesis-based) and Health Policy and Management (course-based). The Department also offers a one-year program leading to the Postgraduate Diploma in Health Services Administration. A two-year program leading to the degree of Master of Science (thesis-based) in Medical Sciences—Public Health Sciences with specializations in Environmental Health Sciences, Epidemiology, Occupational Health or Population Health is offered under the interdisciplinary Medical Sciences Program. A PhD in Medical Sciences—Public Health Sciences is also offered with specialization in Environmental Health Sciences, Epidemiology or Population Health. See the Medical Sciences section for more information on these programs.

Entrance Requirements

The Department's minimum admission requirements are those set out as minimum acceptable standards by the Faculty of Graduate Studies and Research. These include a baccalaureate degree with a grade point average of at least 6.5 on the 9-point grading system in the work of the last two years of university education at the University of Alberta, or an equivalent qualification from another institution, and a minimum TOEFL score of 550 where applicable (see §173.2.3).

The Department also requires the following:

- (1) A current curriculum vitae.
- (2) Three letters of reference. Letters of reference should not be sought from full-time faculty members of the Department of Public Health Sciences.
- (3) A signed letter from the applicant providing a synthesis of the applicant's background (scholastic/academic training and work experience); career goals; and ideas about a possible thesis topic.
- (4) Educational Test Scores, the GRE and/or GMAT and/or MCAT. No minimum cut-off is used to evaluate test scores, but successful applicants generally score above the 70th percentile in most categories.

Financial Assistance

The Department has a limited amount of student aid in the form of graduate assistantships which are awarded in September of each year on a competitive basis.

Students in public health sciences are eligible to compete for the general graduate awards listed in the Graduate Financial Aid section of this Calendar, and are encouraged to do so.

Students in thesis-based programs may also apply for a National Health Student Fellowship offered by the National Health Research and Development Program of Health Canada and for Province of Alberta Graduate Scholarships. Students also may be eligible for professional training grants or bursaries that are administered by various provincial departments of health or social services or both.

175.59.2 The Degree of MPH with Specialization in Health Policy Research (thesis-based)

Program Requirements

- (1) **Required Courses:** Consideration is given to the student's prior coursework and experience as well as the student's career plans. The first year course requirements are: PHS 500, 505, 550, 560, 570, 590, and one ★3 statistics course.
- (2) **Electives:** Three approved electives from the following PHS courses: PHS 600, 630, 631, 650, 660, 670, 671
- (3) **Thesis**

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

All degree requirements must be completed within four years. This degree program is designed to have the course requirements completed in one year of full-time study.

175.59.3 The Degree MPH with Specialization in Health Policy and Management (course-based)

Program Requirements

- (1) **Required courses:**
 - a. PHS 500, 505, 509, 550, 560, 570, 590, 600, 601
 - b. an approved ★3 statistics course
 - c. six ★1.5 core courses from the Faculty of Business (ACCTG 501, 511, FIN 521, 531, and ORG A 503, 504)
- (2) **Administrative Residency:** PHS 509
- (3) **Elective Courses:** at least ★15 of electives (approved by the Department). There are a number of course electives available from a variety of departments on campus including PHS courses, Educational Psychology, Ethics, Human Ecology, Law, Nursing, and Sociology, as well as Management courses from the Faculty of Business.

The minimum period of residence is two, four-month terms of full-time attendance at the University of Alberta.

Length of Program

All degree requirements must be completed within six years.

175.59.4 Postgraduate Diploma in Health Services Administration

Diploma students and graduates of the diploma program may apply for admission to the Master of Public Health programs, and if accepted, PHS courses which have been completed with a grade of 6.0 or better may be credited towards the first year of the master's degree. Diploma graduates can normally complete the master's program in one year. Any diploma student or graduate intending to apply for admission to the MPH program must do so by December 1 of the preceding year in order that a placement for the Field Practicum (PHS 509) in the following summer can be arranged.

Entrance Requirements

To be admissible to the diploma program, the applicant must have had three years' experience in an administrative, clinical, or research position in the health or welfare field and must meet all other departmental admission standards as set out §175.58.1 above. In addition, applicants are required to submit a statement regarding why they wish to take the Diploma program and the relevance of the proposed coursework to their career.

Program Requirements

- (1) **Required Courses:**
 - a. PHS 500, 550, 560, 570, 590, 600
 - b. one approved ★3 statistics course
 - c. PHS 509 (required for students with less than three years experience in the health care field)
- (2) **Elective:** One ★3 elective (approved by the Department).

Length of Program

The diploma must be finished within four years of initial registration. It can be completed in one academic year of full-time attendance.

175.59.5 The Degree of MSc in Medical Sciences—Public Health Sciences in the Research Area of Environmental Health Sciences

Program Requirements

Students admitted to this program will be expected to have an advanced-level course in environmental chemistry or will be required to take PHS 510 as a corequisite.

- (1) **Required Courses:** PHS 505, 511, 512, 590 and PMCOL 403 or PHS 522
- (2) **Elective Courses:** at least one ★3 elective (approved by the Department). Possible electives include:
 - a. PHS 520, 521, 693
 - b. CIV E 622, 623, 624, 625, or 628
- (3) **Thesis**

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the program will vary according to the previous training of the applicant and the nature of the research undertaken; a minimum of two years is normally required. The maximum time permitted for completion of the program is four years from the date of first registration.

175.59.6 The Degree of MSc in Medical Sciences—Public Health Sciences in the Research Area of Epidemiology

Program Requirements

Students admitted will be expected to have an intermediate-level course in statistics and an introductory course in computers or will be required to take such courses as corequisites.

- (1) **Required Courses:** PHS 505, 590, 591, 690, 693
- (2) **Elective Courses:** at least one ★3 elective (approved by the Department). Possible electives include:
 - a. Computer courses

- b. Independent reading courses related to specific topics, diseases or groups of diseases (e.g., Epidemiology of: AIDS, cardiovascular disease, cancer, occupational diseases, chronic diseases, infectious diseases)
- c. Demography and other courses offered in the Department of Sociology (SOC 558, 552, 518)
- d. Other courses (e.g., in the areas of anatomy, physiology, pathology, oncology)

(3) Thesis

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the program will vary according to the previous training of the applicant and the nature of the research undertaken; a minimum of two years is normally required. The maximum time permitted for completion of the program is four years from the date of first registration.

175.59.7 The Degree of MSc in Medical Sciences—Public Health Sciences in the Research Area of Occupational Health

Program Requirements

- (1) **Required Courses:** PHS 500, 505, 520, 521, 522, 590, 591
- (2) **Elective Courses:** at least two ★3 electives (approved by the department). Possible electives include:
 - a. PHS 530, 593, 691, 791
 - b. ENGG 404, 408
 - c. Courses from elsewhere in the University of Alberta

Students are expected to participate in the Journal Club in Occupational Health under the Department's auspices.

(3) Thesis

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the program will vary according to the previous training of the applicant and the nature of the research undertaken; a minimum of two years is normally required. The maximum time permitted for completion of the program is four years from the date of first registration.

175.59.8 The Degree of MSc in Medical Sciences—Public Health Sciences in the Research Area of Population Health

Program Requirements

- (1) **Required Courses:** PHS 500, 505, 540, 541, 544 and PHS 530/SOC 558
- (2) **Elective Courses:** At least one ★3 elective (approved by the department). Possible electives include courses from other programs in the Department or elsewhere in the University. Students are expected to participate in the non-credit Graduate/Departmental seminar series.
- (3) **Thesis**

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the program will vary according to the previous training of the applicant and the nature of the research undertaken; a minimum of two years is normally required. The maximum time permitted for completion of the program is four years from the date of first registration.

175.59.9 The Degree of PhD in Medical Sciences—Public Health Sciences

Program Requirements

- (1) **Course Requirements:** The course options are those outlined under the MSc sections (§§175.58.5, 175.58.6, 175.58.8). Participation in the Graduate/Departmental seminar series is a requirement.

- (2) **Dissertation:** Students in the program will successfully complete and defend a dissertation on a research topic in the program area defined in consultation with the student's supervisory committee. The scope and quality of the dissertation should be appropriate to form the basis for at least one refereed journal publication describing the methodology and results of the research.

The minimum period of residence is four four-month terms of full-time attendance at the University of Alberta.

Length of Program

The doctoral program has an expected four-year minimum duration for full-time students from the bachelor's level. The time required to complete the PhD will vary according to the previous training of the applicant and the nature of the research undertaken. The maximum time permitted for completion of the program is six years from the date of first registration.

175.59.10 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading Health Services Administration and Community Medicine (H S A) and Public Health Sciences (PHS).

175.60 Radiology and Diagnostic Imaging

Department of Radiology and Diagnostic Imaging
2A2 42 Mackenzie Health Sciences Centre
Edmonton, Alberta T6G 2B7
E-mail: janet.dawson@ualberta.ca

175.60.1 General Information

Facilities exist within the Department of Radiology and Diagnostic Imaging, University of Alberta, for students who wish to proceed to the Master of Science degree.

Research may be carried out in medical imaging, radiological and health physics, or radiation biology and biophysics.

The Department of Radiology and Diagnostic Imaging also participates with other departments of the medical school in offering an interdisciplinary PhD program in medical sciences. Details of the entrance requirements and term of the PhD program are defined in §175.57 of this Calendar.

Inquiries regarding graduate work in the Department of Radiology and Diagnostic Imaging should be directed to the Department Chair or to the Graduate Coordinator, Department of Radiology and Diagnostic Imaging, 2A242 Mackenzie Health Sciences Centre.

Entrance Requirements

The Department's minimum entrance requirements are graduation in medicine for the clinical research areas, and in the appropriate scientific disciplines for the other research studies, with an average of 7.0 (or equivalent) in the last two years of undergraduate (or graduate) work at the University of Alberta. Applicants with an equivalent qualification from a recognized institution will be considered for graduate studies. Where applicable (see calendar §173.2.3), applicants must obtain a minimum score of 550 on the TOEFL test.

Financial Assistance

Support may be obtained from several grant-awarding agencies for work in these areas.

175.60.2 The Degree of MSc

Program Requirements

Appropriate coursework will be decided upon in conjunction with the Chair of the Department or the Graduate Coordinator. Under normal circumstances candidates for the master's degree would be expected to complete ★9 at the graduate-level and to prepare and defend a thesis on an approved topic. Additional courses may be required depending on the student's background.

The minimum period of residence is three four-month terms of full-time attendance at the University of Alberta.

Note: This program does not lead to speciality (fellowship) qualifications in Diagnostic Radiology, Radiation Oncology or Nuclear Medicine.

Length of Program

The length of the program is two to three years.

175.60.3 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading Radiology and Diagnostic Imaging (RADDI).

175.61 Rehabilitation Medicine

Faculty of Rehabilitation Medicine
3-48 Corbett Hall
University of Alberta
Edmonton, Alberta T6G 2G4
E-mail: vicki.ross@ualberta.ca

175.61.1 General Information

The Faculty of Rehabilitation Medicine offers an interdisciplinary program leading to the degree of Doctor of Philosophy in Rehabilitation Science. The program is designed to prepare students for research in Rehabilitation Science, the systematic study of psychosocial, communication, neurological, and musculoskeletal disorders in humans of all ages. Students will specialize in one of those four general content areas which represent broad interdisciplinary bodies of knowledge. Normally, a doctoral student's plan of study will be interdisciplinary in focus (i.e., not department-based). However, there may be instances where the plan of study is focused primarily within one of the departments in the Faculty (Occupational Therapy, Physical Therapy, or Speech-Language Pathology and Audiology). Admission to this program is dependent on the recommendation of the PhD Program Committee which is composed of the graduate program coordinators of each department in the Faculty and the Director of the Rehabilitation Research Centre and chaired by the Faculty's Associate Dean for Graduate Studies.

Inquiries concerning the PhD program in Rehabilitation Science should be directed to:

Associate Dean for Graduate Studies
Faculty of Rehabilitation Medicine
3-50 Corbett Hall
University of Alberta
Edmonton, Alberta
Canada T6G 2G4

Entrance Requirements

The minimum requirements for admission into the program are:

- (1) A master's degree in rehabilitation or in a related field from a recognized academic institution; or an Honor's BSc degree (or equivalent) in rehabilitation or a related field from a recognized academic institution;
- (2) A minimum grade point average of 7.0 on a nine point scale (or equivalent) in the most recent two years of study;
- (3) Evidence of research potential as demonstrated by scholarly work;
- (4) Proof of English language proficiency, where applicable (see §173.2.3)
- (5) References from members of an academic community who are knowledgeable about the applicant's academic and research capabilities.
- (6) The Graduate Records Examination (verbal, quantitative, and analytical subsections are required). No minimum cut-off score will be used; rather, the GRE scores will be used in collaboration with other indicators of potential.

Financial Assistance

Students who are accepted into the PhD program in Rehabilitation Science are encouraged to apply for funding through their prospective supervisors for studentships or fellowships from the Medical Research Council of Canada, the National Health Research Development Program, the National Sciences and Engineering Research Council, the Social Sciences and Humanities Research Council, the Alberta Heritage Foundation for Medical Research, and the Government of Alberta. In addition, University of Alberta PhD scholarships and some special scholarships may be applied for. Information about these awards is available in the University of Alberta Calendar or through the Faculty of Graduate Studies and Research. Finally, a limited amount of funding for which doctoral students may apply is available from the Associate Dean for Graduate Studies in the Faculty of Rehabilitation Medicine.

175.61.2 The Degree of PhD

Program Requirements

The PhD program consists of ★9 required (REHAB 600, 601, and 602), ★3 of graduate-level in statistics (this may be satisfied by course(s) taken as part of the master's degree), and normally, ★6 to ★12 of elective graduate

level course weight that pertain to the area of specialization as determined by the candidate's needs and interests and in consultation with the supervisory committee. In cases where a student has not written a master's thesis before entering the PhD program, REHAB 899 (★3) may be required, as an in-lieu-of-thesis project. Candidates will also need to successfully complete a written comprehensive examination, an oral candidacy examination, and complete and defend a thesis.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta. No language other than English is required for the degree.

Length of Program

The time required to complete the PhD program will vary according to the previous training of the applicant and the nature of the research undertaken. In general, the PhD program will take a minimum of three years to complete, with the first one and one-half years largely devoted to coursework, preliminary research endeavors, and preparation for the candidacy examination which normally will be held within two years of a student's entry into the doctoral program.

175.62 Renewable Resources

Department of Renewable Resources
751 General Services Building
University of Alberta
Edmonton, Alberta T6G 2H1
E-mail: judy.jacobs.ualberta.ca
Web site: http://www.rr.ualberta.ca

175.62.1 General Information

The Department of Renewable Resources offers programs leading to the degrees of Master of Agriculture, Master of Forestry, Master of Science, and Doctor of Philosophy.

The Faculty of Agriculture, Forestry, and Home Economics and the Faculty of Business offer two programs of joint study that enable students to earn both the Master of Business Administration and Master of Agriculture degrees or both the Master of Business Administration and Master of Forestry degrees, after two calendar years of full-time study.

Graduate studies in the Department of Renewable Resources encompass the broad spectrum of scientific and management applications regarding natural and managed landscapes. Areas of interest include: agroecosystem modelling, conservation biology, environmental policy, environmental science, forest biology, forest ecology, forest fire management, forest genetics, forest harvesting/operations, forest hydrology, forest measurements/biometrics, forest pathology, forest plant physiology, forest policy, forest resource management, mineralogy, nutrient cycling, protected area management, range management, reclamation, remote sensing, silviculture, social forestry, soil biology, soil chemistry, soil classification, soil fertility, soil genesis, soil physics, water resources, wildland recreation and interpretation, wildlife management, and wood science. Inquiries should be directed to the Chair, Department of Renewable Resources.

Prospective students should note that the renewable resources program is integrated within the Faculty of Agriculture, Forestry, and Home Economics. Opportunities for graduate study are also available in such fields as agroforestry, agronomy, and forest economics in cooperation with the Departments of Rural Economy and Agricultural, Food, and Nutritional Science. Courses and programs of study offered through these departments are listed under their respective headings in this Calendar. General inquiries should be sent to the appropriate department chair or to the Chair, Department of Renewable Resources.

Entrance Requirements

The Department's minimum admission requirements are an appropriate undergraduate degree with an average of 7.0 in the last two years (★60) of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution. All applicants seeking admission to Renewable Resources whose native language is not English must obtain a TOEFL score of 550 or an equivalent score on an approved English Language examination (see §173.2.3).

Note: To remain in a graduate program in the Department of Renewable Resources students are expected to maintain a minimum GPA of 7.0.

Financial Assistance

Financial assistance is available for some students in the form of research and teaching assistantships. Assistance is awarded to applicants on the basis of merit.

175.62.2 The Degree of MSc

Program Requirements

Course requirements for the MSc are based on the student's previous training and the anticipated needs in the student's area of specialization. Minimum requirements are REN R 600 plus ★12 acceptable for graduate credit of which ★6 must be at the 500 level or above. Course work should include at least ★3 in research methods, statistics, and/or experimental design. Courses may be drawn from those listed for the Department of Renewable Resources, and from other departments within the University. Students in the MSc program are also expected to participate in the Renewable Resources seminar series each year.

In addition, candidates for the degree of MSc must prepare an acceptable thesis presenting results of research conducted. Candidates will be examined orally on their thesis results by committees formed according to §174 of this Calendar.

There is no language requirement other than English for the degree of MSc.

The minimum period of residence is two, four-month terms of full-time attendance at the University of Alberta.

Length of Program

Normally, at least two academic years plus one summer of research are required to complete the MSc.

175.62.3 The Degree of MF

Program Requirements

This program is designed for practising foresters. The normal admission requirement is a BSc in Forestry. Applicants are expected to have completed two years of professional forestry-related experience. The program consists of ★30 of graduate-level courses. The student's program will be developed around the concept of integrated resource management and sustainable development. Course work must include REN R 601, 602, and at least ★3 in each of the following four areas: forest resources management, forest biology, statistics/experimental design, forest policy/sociology/human resources. Upon completion of the coursework, students will be required to take, and successfully complete, an oral examination on relevant issues. This examination will be designed to evaluate the student's knowledge and understanding of the broad area of integrated resource management. There is no residence requirement for the MF program.

175.62.4 The Degree of MAg

Program Requirements

Requirements for the Master of Agriculture degree are the equivalent of ★30 of graduate-level courses (see Note in §201.213.2 and 201.225.2), REN R 600, plus SOILS 900 (a project equivalent in weight to at least ★3). Competence in the following four areas must be met if not covered in previous degree programs: soil genesis and classification (SOILS 420), soil physics (SOILS 440), soil chemistry (SOILS 450), and soil biology (SOILS 330 or 430).

There is no language requirement other than English for the degree of MAg.

The minimum residence requirement is two four-month terms of full-time attendance.

The applicant is normally expected to have completed three years of professional experience.

Length of Program

Normally, a minimum of 12 months of study and research is needed to complete the requirements for the degree.

175.62.5 The MBA/MF Joint Program

The Faculty of Agriculture, Forestry, and Home Economics and the Faculty of Business offer a program of joint study that permits students to earn both the MBA and MF degrees in two years of full-time study. Students in the first year of either the regular MBA program or the MF regular program, as well as new entrants, are eligible to apply for the joint program. Refer to §175.8.6 under Business for program details.

175.62.6 The MBA/MAg Joint Program

The Faculty of Agriculture, Forestry, and Home Economics and the Faculty of Business offer a program of joint study that permits students to earn both the MBA and MAg degrees in two years of full-time study. Students in the

first year of either the regular MBA program or the regular MAg program, as well as new entrants, are eligible to apply for the joint program. Refer to §175.8.4 under Business for program details.

175.62.7 The Degree of PhD

Program Requirements

Course requirements for the PhD will be based on the student's previous training and anticipated needs in the student's area of specialization, the total course load being at the discretion of the student's supervisory committee. All students in the PhD program must take REN R 600. Otherwise there is no fixed minimum course requirement for students who hold a master's degree. Students entering the PhD program, who do not have a master's degree, will be expected to complete at least ★12 that are acceptable for graduate credit including at least ★3 in research methods, statistics, and/or experimental design. In addition, all students are expected to participate in the Renewable Resources seminar series each year.

Students in the PhD program must pass an oral pre-candidacy assessment within six months of registration and an oral candidacy exam, supervised by a committee formed according to Faculty of Graduate Studies and Research regulations within two years of initial registration.

All candidates for the PhD must prepare an acceptable thesis presenting the results of their research. Candidates will be examined orally on their thesis results by committees formed according to §174.

There is no language requirement other than English for the PhD.

The minimum residence requirements are three academic years of study and research for a student with a bachelor's degree, and two academic years of study and research for those with a master's degree.

Length of Program

The time required to complete the PhD will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of three years is normally required.

175.62.8 Graduate Courses

Graduate courses can be found in §201, Course Listings. Courses offered by the Department of Renewable Resources include those under the following subject headings:

- Environmental and Conservation Science (ENCS)
- Forest Science (FOR)
- Forest Engineering (FOREN)
- Renewable Resources (REN R)
- Soil Science (SOILS)

175.63 Rural Economy

Department of Rural Economy
515 General Services Building
University of Alberta
Edmonton, Alberta T6G 2H1
E-mail: rural.economy@ualberta.ca

175.63.1 General Information

The Department of Rural Economy offers programs leading to the Master of Agriculture, Master of Science and Doctor of Philosophy degrees. A Master of Business Administration and Master of Agriculture joint program is also offered. Programs at the master's level are offered in the economics of agricultural markets and price behavior; production economics and farm management; economics of agricultural and rural development; economics of policy intervention; environmental and natural resource economics, forest economics, rural sociology, agricultural extension, community development, and agroforestry.

Entrance Requirements

The Department's minimum admission requirements for each master's program are an undergraduate degree with an average of 6.5 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution, and a TOEFL score of 550 where applicable (see §173.2.3). Admission requirements for the doctoral program are an approved master's degree with an average of at least 7.5 or equivalent or an approved bachelor's degree with an average of at least 8.0 or equivalent, and a TOEFL score of 550 where applicable (see §173.2.3).

Financial Assistance

Information about details of program requirements and the availability of financial assistance may be obtained from the Department.

175.63.2 The Degree of MAg

Applicants for this program are normally expected to have completed three years of satisfactory professional experience in agriculture.

Program Requirements

Master of Agriculture programs consist of ★30 at the graduate level plus a project course equivalent in weight to at least ★3. Students are expected to participate in the department seminar series through attendance and presentation of their research project results.

No language other than English is required for the degree.

Candidates must spend a minimum of one single term (four months) in full-time attendance at the University of Alberta to meet the residence requirement.

Length of Program

A candidate with adequate undergraduate prerequisites and appropriate professional experience should complete the program in one academic year (12 months).

175.63.3 The MBA/MAg Joint Program

The Faculty of Business and the Faculty of Agriculture, Forestry, and Home Economics offer a program of joint study which permits students to earn both the MBA and the MAg degrees in two years.

Students in the first year of the regular MBA program and/or eligible students enrolled in graduate programs in the Faculty of Agriculture, Forestry, and Home Economics, as well as new entrants, are eligible to apply for the joint program. Refer to 175.8.4 under Business for details.

175.63.4 The Degree of MSc

Program Requirements

Master of Science programs consist of at least ★18 in graduate courses plus a thesis normally equivalent in weight to ★12 to ★18. Students are expected to participate in the department seminar series through attendance and presentation of their research results.

No language other than English is required for the degree.

Candidates must spend a minimum of two single terms (eight months) in full-time attendance at the University of Alberta to meet the residence requirement.

Length of Program

The time required to complete the MSc will vary with the individual candidate; qualified candidates should be able to complete the program in 12 to 16 months.

175.63.5 The Degree of PhD

Program Requirements

Doctor of Philosophy programs include, in addition to the Master of Science course requirements, preparation for candidacy examinations in economic theory, quantitative techniques, the field of specialization and a supporting field. Fields of specialization are agricultural economics and forest economics and include a joint specialization in environmental and natural resource economics offered collaboratively by the Departments of Rural Economy and Economics. All candidates for the PhD must prepare and defend a thesis on an approved topic. Students are expected to participate in the department seminar series through attendance and presentation of their research results.

Programs depend on academic background and typically consist of ★36 in graduate courses, with at least ★18 from the Department of Rural Economy.

No language other than English is required for the degree.

Length of Program

The time required to complete the PhD will vary according to the academic background of the applicant and the nature of the research undertaken; however, a minimum of 36 months would be normally required.

175.63.6 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the following subject headings:

Agricultural Economics (AG EC)

Forest Economics (FOREC)

Rural Sociology (R SOC)

175.64 Secondary Education

Department of Secondary Education
341 Education South
University of Alberta
Edmonton, Alberta T6G 2G5
E-mail: educ.sec@ualberta.ca

175.64.1 General Information

The Department of Secondary Education offers programs leading to the Master of Education, Doctor of Philosophy and Doctor of Education degrees. Graduate instruction in these programs is designed to develop competencies as master teachers, educators in the specific disciplines, curriculum and instruction specialists, and curriculum and instruction scholars.

Graduate programs in the Department normally include advanced studies in the following areas: subject matter specialization, curriculum theory, teaching, teacher education, and enquiry into curriculum perspectives and educational practices. Programs of an interdisciplinary nature are possible. Programs for each student are designed in consultation with an advisor.

Application forms for admission to a program or further information regarding the programs may be secured by writing to the Chair of the Department of Secondary Education.

Entrance Requirements

The Department's minimum admission requirement for the master's program is an undergraduate degree with an average of 6.5 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution, a teaching certificate, and a TOEFL score of 550 where applicable (see §173.2.3). Admission requirements for the doctoral programs are an approved master's degree with an average of at least 6.5 or equivalent and a TOEFL score of 550 where applicable (see §173.2.3).

Financial Assistance

A number of graduate assistantships are available to qualified candidates for the MEd, EdD or PhD in Secondary Education for services rendered in the Department's research and teaching programs.

175.64.2 The Degree of MEd

Normally, two years of teaching experience and an undergraduate degree of appropriate quality are required for admission to MEd programs.

Both thesis-based and course-based programs are available through the Department.

Program Requirements

Students in the course-based MEd program normally must successfully complete ★27 of graduate-level courses and a final capping exercise (equivalent to ★3). Students in the thesis-based MEd program normally must successfully complete ★21 of graduate-level courses, and prepare and defend a thesis.

There is no formal residence requirement for the course-based MEd. However, a period of residence is recommended for the thesis-based program.

Course requirements may be reduced for those who have completed the Diploma of the Faculty of Education within six years of acceptance into the MEd program.

Length of Program

The time required to complete the program will vary according to the education and experience of the applicant and the nature of the research undertaken. A minimum of two years is usually required.

175.64.3 The Degrees of EdD and PhD

Program Requirements

The EdD and PhD programs normally consist of coursework and the preparation and defence of a dissertation on an approved topic.

The minimum period of residence for the EdD program is 12 months of full-time study at the University of Alberta. The PhD program requires two academic years of full-time attendance to meet the residence requirement; this involves four (four-month) terms of full-time study.

Length of Program

The time required to complete the EdD or PhD program will vary with the individual candidate; however, a minimum of two years of full-time study and research is usually required. The maximum time allowed for completion of the doctoral program is six years.

175.64.4 Courses for Graduate Credit

Graduate courses can be found in §201, Course Listings, under the subject heading Secondary Education (EDSE).

175.65 Sociology

Department of Sociology
5-21 Tory Building
University of Alberta
Edmonton, Alberta T6G 2H4
E-mail: lynn.vanreede@ualberta.ca

175.65.1 General Information

The Department of Sociology offers programs leading to the degrees of Master of Arts and Doctor of Philosophy. Four MA programs are available: (1) a thesis-based MA; (2) a course-based MA; (3) a course-based MA in criminal justice; and (4) a thesis-based MA in demography.

Two PhD programs are available: (1) a PhD in Sociology offering a broad and specialized education in Sociology, development of research and teaching skills, and flexibility; and (2) a PhD in demography.

Application forms for admission and assistantships and further information on the above programs may be obtained by contacting the Graduate Program Coordinator, Department of Sociology.

Entrance Requirements

The Department's minimum admission requirements are a four-year undergraduate degree (or equivalent) with an average of 7.5 in the last two years of undergraduate or graduate work at the University of Alberta, or an equivalent qualification from a recognized institution, and a TOEFL score of 600 where applicable (see §173.2.3).

Financial Assistance

A number of graduate assistantships are available. Stipends vary from \$8,944 to \$10,464 for the eight-month academic year depending upon qualifications. Other scholarships and fellowships are listed in the Awards section of the Calendar.

175.65.2 The Degree of MA

Program Requirements

Required courses depend on the area of specialization and the undergraduate background of the student. Normally, the thesis-based MA program consists of ★18 (including core courses in statistics, methods, and theory) and a thesis. The course-based MA program normally consists of ★24 at the graduate level (including core courses in statistics, methods, and theory) and a project equivalent to ★3. The MA in demography requires ★18 (including core courses in statistics, methods, theory, demographic analysis, and two of fertility, mortality, and migration) and a thesis. The MA in criminal justice is restricted to applicants with a BA (Criminology) (or equivalent) and/or one years' work experience in the criminal justice system, and may be completed on a part-time basis. The program requires ★24 at the graduate level, a project equivalent to ★3, and, depending on the student's background, may require two full-time field placements of four months each.

There is no language requirement for the MA.

The minimum period of residence for thesis-based programs is two, four-month terms of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the program will vary with the individual candidate; however, two years is normally required.

175.65.3 The Degree of PhD

Program Requirements

The PhD program normally consists of ★19. One pass-fail seminar in teaching and professional skills is required. Students must pass one specialization comprehensive examination in a broad area and prepare and defend a thesis in a clearly differentiated area. The PhD program in demography normally consists of ★19 (including 600-level statistics and four demography courses). One pass-fail seminar in teaching and professional skills is required. Students must also pass comprehensive examinations in both technical demography and substantive demography, and prepare and defend a thesis on an approved topic.

No language other than English is required for the degree.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the PhD will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of three years is normally required.

175.65.4 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the subject heading Sociology (SOC).

175.66 Speech Pathology and Audiology

Department of Speech Pathology and Audiology
2-70 Corbett Hall
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Edmonton, Alberta T6G 2G4
E-mail: anita.moore@ualberta.ca

175.66.1 General Information

The Department of Speech Pathology and Audiology offers graduate work leading to the Master of Science degree in Speech-Language Pathology and the Master of Speech-Language Pathology degree category (A) and category (B).

The MSc program is designed to provide speech-language clinicians with the research skills needed to study the etiology, prevention, diagnosis, and management of speech, language, and hearing disorders. Students will undertake thesis research to enhance their abilities to take leadership roles in academic, clinical, and laboratory settings.

The MSLP (B) program is designed to develop competencies in the prevention, evaluation, treatment, and management of articulation, language, fluency, voice, and resonance disorders as well as in the fundamental practices of audiology. Developed for students who hold an undergraduate degree in a variety of fields other than speech-language pathology, this course-based master's program is designed to provide students with the academic and clinical education required for certification by provincial and national professional associations. There is provision for MSLP graduates to complete an MSc program. Refer to §175.65.2.

The Department also offers a course-based MSLP (A) program designed for individuals with undergraduate degrees in speech pathology and audiology from the University of Alberta or equivalent degrees from other institutions. It is offered in Spring/Summer only from 1994 to 1999 and will be on a cost-recovery basis.

The Department maintains laboratory, instrumentation, and clinical facilities for a wide range of research interests (e.g., speech science, motor speech disorders, voice, language development and disorders, craniofacial anomalies, hearing disorders, and clinical supervision).

Entrance Requirements

The minimum entrance requirements include a four-year baccalaureate degree with a grade point average of at least 6.5 in the courses taken during the last 2 years of university work at the University of Alberta or equivalent qualifications from another academic institution. Students who use the TOEFL exam to fulfil the Faculty of Graduate Studies and Research's English language proficiency requirement must present a minimum score of 600. No language other than English is required. The period of residency is two, four-month terms of full-time attendance during the regular session at the University of Alberta. Applicants must also submit a statement of their research interests, three letters of recommendation, and the results of the Graduate Records Examination (verbal, quantitative, and analytical subtests). No minimum cut-off will be used to evaluate GRE scores, since the scores will be used in

conjunction with other indicators of student potential. Personal interviews may be used if deemed necessary in making final selections. Specific program requirements will vary depending upon the academic background of the students. The deadline for submitting applications for Fall/Winter admission is February 15.

Note: Specific information on MSLP (A) entrance requirements must be obtained from the Department.

Financial Assistance

A limited number of teaching and research assistantships may be available within the Department for MSc and MSLP (B) students. Successful candidates selected for the program(s) will be provided applications for limited department assistance. Students should review the Graduate Financial Aid section of the Calendar or contact the Faculty of Graduate Studies and Research for current information on available awards and other possible sources of funding.

175.66.2 The Degree of MSc

Entrance Requirements

Two types of students are eligible to apply. The first type of student will possess an undergraduate degree in speech-language pathology from the University of Alberta or equivalent qualifications from another academic institution. The second will possess the MSLP degree from the University of Alberta.

Program Requirements

For students with an undergraduate degree in speech-language pathology from the University of Alberta, or equivalent qualification from another academic institution, the program requires successful completion of a minimum of ★24, including an advanced course of ★3 in research design and/or statistics, and the completion of a satisfactory thesis. ★15 of the required ★24 must be taken within the Department and will include SPA 500. The other courses may be chosen in consultation with the student's academic advisor.

For students with a MSLP degree from the University of Alberta, the MSc program requires successful completion of a minimum of ★12 to be arranged in consultation with the student's academic advisor, and the completion of a satisfactory thesis.

Length of Program

For students with an undergraduate degree in speech-language pathology from the University of Alberta, the MSc program normally will be completed in 24 months of full-time attendance at the University of Alberta. For students with a MSLP degree from the University of Alberta, the MSc program normally will be completed in approximately 12 months of full-time attendance at the University of Alberta.

175.66.3 The Degree of MSLP (B)

Program Requirements

The minimum entrance requirements include a four year baccalaureate degree with a grade point average of at least 6.5 in the courses taken during the last two years of university work at the University of Alberta or equivalent qualifications from another academic institution. Requirements for the MSLP will normally include successful completion of a minimum of ★48, plus a research project equivalent to ★3, and a minimum of 350 supervised clinical hours (300 direct contact). The prerequisite courses will typically be a portion of a more extensive undergraduate knowledge base which is relevant to graduate study in speech-language pathology. The program requirements will ensure that students meet standards required for membership/certification in provincial and national professional associations. Prerequisite courses and the required program of study may be obtained from the Department of Speech Pathology and Audiology.

Length of Program

A minimum of two calendar years of 24 months will normally be required to complete the program. The time required to complete the program may be varied for individual candidates but cannot exceed the statutory limits of the Faculty of Graduate Studies and Research as set out in §173.13.

175.66.4 The Degree of MSLP (A)

Program Requirements

Requirements for the MSLP (A) degree include an undergraduate degree in speech-language pathology from the University of Alberta or equivalent

qualifications from another academic institution. The program requires successful completion of eight, graduate-level (★3) courses and the completion of a comprehensive examination. Five of the required eight courses must be taken from the MSLP (A) curriculum offered through the Department. The other three courses will be relevant, approved electives and may be chosen from related areas of study.

Length of Program

This course-based master's program will operate during Spring/Summer from 1994 until 1999. The time required to complete the program may be varied for individual candidates but cannot exceed the four year statutory limit of the Faculty of Graduate Studies and Research.

Fees for the speech-language pathology courses are assessed on a cost recovery basis.

175.66.5 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the headings Rehabilitation Medicine (REHAB) and Speech Pathology and Audiology (SPA)

175.67 Surgery

Department of Surgery
2D1.02 Mackenzie Health Sciences Centre
University of Alberta
Edmonton, Alberta T6G 2B7
E-mail: rrajotte@gpu.srv.ualberta.ca

175.67.1 General Information

The Department offers research facilities in the Surgical-Medical Research Institute and the Heritage Medical Research Building for graduate students who wish to register for the degree of MSc or PhD in experimental surgery.

The Surgical-Medical Research Institute is located in the Dentistry/Pharmacy Building and is a facility in which both basic and clinical research is carried out. The Institute has several core facilities including surgical suites, an electron microscopy unit, clinical biochemistry and histology laboratory, and computer graphics and photography with technical staff in these laboratories who are able to assist graduate students who wish to carry out research projects. The Institute is well equipped to meet all the requirements of both the basic and clinical investigators from the Department of Surgery.

Facilities are available for the following projects which are presently being carried out: islet transplantation, the immunology of diabetes, glucose regulation studies, ECMO studies, gastrointestinal motility studies, experiments for extending the application of laparoscopic surgery and including a minimal access laboratory, and metabolic aspects of organ preservation (liver, heart, small bowel).

Inquiries should be directed to the Graduate Student Coordinator prior to admission into the MS or PhD program.

Entrance Requirements

Normally, an MD degree will be considered an entrance requirement for the MSc program; however, consideration will be given to suitable candidates holding an appropriate Bachelor of Science degree. Applicants for the PhD program must be medical graduates or hold a master's degree. The minimum requirements include a grade-point average of 7.0 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution, and a TOEFL score of 550 where applicable (see §173.2.3). Applicants who are graduates of programs, including MD programs, where grades are not assigned will be assessed on an individual basis.

Financial Assistance

Candidates are encouraged and fully supported in applying to major granting agencies for financial assistance. Limited funds are available in the Department of Surgery for the support of additional candidates.

175.67.2 The Degree of MSc

Program Requirements

Requirements for the MSc degree include preparation and defence of a thesis based on research performed by the candidate; in addition, all candidates must include some coursework specified by their supervisory committee in the program. A minimum of ★24 are required for the MSc, of which ★9 will be graduate-level courses.

There is no language requirement for the degree of MSc.
The minimum residence requirement is one full calendar year of research.

Length of Program

The time required to complete the MSc will vary according to the candidate's previous training and the nature of the research undertaken; however, a minimum of 12 months is normally required.

175.67.3 The Degree of PhD**Program Requirements**

Requirements for the PhD degree include preparation and defence of a thesis and successful completion of courses taken for graduate credit, as specified by the supervisory committee.

No language other than English is required for the degree.

The minimum period of residence is two academic years of full-time attendance at the University of Alberta.

Length of Program

The time required to complete the PhD will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of three years of study and research is normally required.

175.67.4 Graduate Courses

Graduate courses can be found in §201, Course Listings, under the heading Surgery (SURG).