2007-2008 Graduate Calendar

The information published in this Graduate Calendar outlines the rules, regulations, curricula, programs and fees for the 2007-2008 academic years, including the Summer Semester 2007, the Fall Semester 2007 and the Winter Semester 2008.

For your convenience the Graduate Calendar is available in PDF format.

If you wish to link to the Graduate Calendar please refer to the Linking Guidelines.

The University is a full member of:

- The Association of Universities and Colleges of Canada

Contact Information:

University of Guelph
Guelph, Ontario, Canada
N1G 2W1

519-824-4120

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Disclaimer

The Office of Graduate Program Services has attempted to ensure the accuracy of this on-line Graduate Calendar. However, the publication of information in this document does not bind the university to the provision of courses, programs, schedules of studies, fees, or facilities as listed herein.

Limitations

The University of Guelph reserves the right to change without notice any information contained in this calendar, including any rule or regulation pertaining to the standards for admission to, the requirements for the continuation of study in, and the requirements for the granting of degrees or diplomas in any or all of its programs.

The university will not be liable for any interruption in, or cancellation of, any academic activities as set forth in this calendar and related information where such interruption is caused by fire, strike, lock-out, inability to procure materials or trades, restrictive laws or governmental regulations, actions taken by the faculty, staff or students of the university or by others, civil unrest or disobedience, or any other cause of any kind beyond the reasonable control of the university.

The University of Guelph reaffirms section 1 of the Ontario Human Rights Code, 1981, which prohibits discrimination on the grounds of race, ancestry, place of origin, colour, ethnic origin, citizenship, creed, sex, sexual orientation, handicap, age, marital status or family status.

The university encourages applications from women, aboriginal peoples, visible minorities, persons with disabilities, and members of other under-represented groups.

Introduction

Collection, Use and Disclosure of Personal Information

Personal information is collected under the authority of the University of Guelph Act (1964), and in accordance with Ontario's Freedom of Information and Protection of Privacy Act (FIPPA) http://www.e-laws.gov.on.ca/DBLaws/Statutes/English/90f31_e.htm. This information is used by University officials in order to carry out their authorized academic and administrative responsibilities and also to establish a relationship for alumni and development purposes. Certain personal information is disclosed to external agencies, including the Ontario Universities Application Centre, the Ministry of Training, Colleges and Universities, and Statistics Canada, for statistical and planning purposes, and is disclosed to other individuals or organizations in accordance with the Office of Registrarial Services Departmental Policy on the Release of Student Information. For details on the use and disclosure of this information call the Office of Registrarial Services at the University at (519) 824-4120 or see http://www.uoguelph.ca/registrar/registrar/index.cfm?index.

Statistics Canada - Notification of Disclosure

For further information, please see Statistics Canada's web site at http://www.statcan.ca and Section XIV Statistics Canada.

Address for University Communication

Depending on the nature and timing of the communication, the University may use one of these addresses to communicate with students. Students are, therefore, responsible for checking all of the following on a regular basis:

Email Address

The University issued email address is considered an official means of communication with the student and will be used for correspondence from the University. Students are responsible for monitoring their University-issued email account regularly.

Home Address

Students are responsible for maintaining a current mailing address with the University. Address changes can be made, in writing, through Graduate Program Services.

Name Changes

The University of Guelph is committed to the integrity of its student records, therefore, each student is required to provide either on application for admission or on personal data forms required for registration, his/her complete, legal name. Any requests to change a name, by means of alteration, deletion, substitution or addition, must be accompanied by appropriate supporting documentation.

Student Confidentiality and Release of Student Information Policy Excerpt

The University undertakes to protect the privacy of each student and the confidentiality of his or her record. To this end the University shall refuse to disclose personal information to any person other than the individual to whom the information relates where disclosure would constitute an unjustified invasion of the personal privacy of that person or of any other individual. All members of the University community must respect the confidential nature of the student information which they acquire in the course of their work.

Complete policy at http://www.uoguelph.ca/policies.

Table of Contents

Biophysics

The organization and administration of the graduate program in biophysics are the responsibility of the Biophysics Interdepartmental Group (BIG). The group consists of those members of the graduate faculty whose research interests lie wholly or partly in biophysics. Biophysics spans all areas of the life sciences from molecular structure to human biology and uses the ideas and techniques of the physical sciences to solve biological problems. The specific sub-disciplines of BIG are molecular, cellular, structural, and computational biophysics.

Administrative Staff

Director and Graduate Co-ordinator
Frances J. Sharom (Molecular and Cellular Biology, Ext. 52247)
fsharom@uoguelph.ca

Graduate Faculty

Madhur Anand
Associate Professor, Environmental Biology

France-Isabelle Auzanneau
Associate Professor, Chemistry

Christopher T. Bauch
Assistant Professor, Mathematics and Statistics

Terry Beveridge
Professor, Molecular and Cellular Biology

Manfred Brauer
Associate Professor, Molecular and Cellular Biology

Leonid Brown
Associate Professor, Physics

David Chiu
Professor, Computing and Information Science

Marc Coppolino
Assistant Professor, Molecular and Cellular Biology

James H. Davis
Professor, Physics

John Dawson
Assistant Professor, Molecular and Cellular Biology

James Dickey
Assistant Professor, Human Health and Nutritional Sciences

John R. Dutcher
Professor, Physics

Hermann Eberl
Associate Professor, Mathematics and Statistics

Douglas Fudge
Assistant Professor, Integrative Biology

Todd Gillis
Assistant Professor, Integrative Biology

Steffen Graether
Assistant Professor, Molecular and Cellular Biology

Christopher G. Gray
Professor Emeritus, Physics

George Harauz
Professor, Molecular and Cellular Biology

Mark Hurtig
Professor, Clinical Studies

Kenneth R. Jeffrey
Professor Emeritus, Physics

Robert A.B. Keates
Associate Professor, Molecular and Cellular Biology

Matthew S. Kimber
Assistant Professor, Molecular and Cellular Biology

Stefan W. Kycia
Assistant Professor, Physics

Vladimir Ladizhansky
Assistant Professor, Physics

Joseph Lam
Professor, Molecular and Cellular Biology

Bill Langford
Professor Emeritus, Mathematics and Statistics

Anna T. Lawniczak
Professor, Mathematics and Statistics

Michael I. Lindinger
Associate Professor, Human Health and Nutritional Sciences

Jacek Lipkowski
Professor, Chemistry

Dev Mangroo
Associate Professor, Molecular and Cellular Biology

A. Rodney Merrill
Professor, Molecular and Cellular Biology

Michele Oliver
Associate Professor, Engineering

K. Peter Pauls
Professor, Plant Agriculture

Peter Purslow
Professor, Food Science

Glen Pyle
Assistant Professor, Biomedical Sciences

Frances J. Sharom
Professor, Molecular and Cellular Biology

E. Donald Stevens
Professor, Integrative Biology

Jeffrey J. Thomason
Professor, Biomedical Sciences

Jack T. Trevors
Professor, Environmental Biology

Christopher Whitfield
Professor, Molecular and Cellular Biology

Alan Willms
Assistant Professor, Mathematics and Statistics

Janet M. Wood
Professor, Molecular and Cellular Biology

Rickey Y. Yada
Professor, Food Science

Simon Yang
Professor, Engineering

Graduate Faculty from Brandon University

Bruno Tomberli
Assistant Professor, Physics and Astronomy

Graduate Faculty from Brock University

Alan Bown
Professor, Biological Sciences

Douglas Bruce
Professor, Biological Sciences

David Gabriel
Associate Professor, Physical Education and Kinesiology

A. Joffre Mercier
Professor, Biological Sciences

Sandra Peters
Assistant Professor, Physical Education and Kinesiology

Edward Sternin
Associate Professor, Physics

Graduate Faculty from the University of Toronto at Mississauga

Scott Prosser
Assistant Professor, Chemical and Physical Sciences

Graduate Faculty from McMaster University

Richard Epand
Professor, Biochemistry and Biomedical Sciences

Graduate Faculty from University of Waterloo

Elizabeth Meiering
Professor, Chemistry

Graduate Faculty from Wilfrid Laurier University

Ross E. Cressman
Professor, Mathematics

Masoud Jelokhani-Niaraki
Associate Professor, Chemistry

Matthew Smith
Assistant Professor, Biology

Additional Members of the Program

John Katsaras
National Research Council of Canada, Chalk River ON

Martine Monette

Bruker Canada, Milton ON

MSc Program

Admission Requirements

Students may be admitted to the MSc program in biophysics from a range of undergraduate programs, including physics, biology, biochemistry, microbiology, chemistry, mathematics, engineering, or computing science. To be considered for admission, applicants should meet the minimum requirements of a four-year honours degree with a 73% (B) average during the final two years of study. Applicants should briefly indicate their research interests and, if possible, their preferred advisors.

Degree Requirements

Students in the MSc program will be under the guidance of an interdepartmental advisory committee. A total of 1.5 credits are required, one of which is usually BIOP*6000. In addition, all students are required to complete the seminar course BIOP*6010. The advisory committee may require additional courses. An average of 70% (B-) or better must be obtained in the prescribed courses. Further information may be obtained from the chair of the group. When the course work is satisfactorily completed, the submission and successful defence of an appropriate thesis on an approved topic completes the requirements for the MSc in Biophysics.

PhD Program

Admission Requirements

Applicants for the PhD program should have a recognized master's degree in an appropriate field, with a 77% (B+) average in their postgraduate studies. Applicants should briefly indicate their area of research interest and preferred advisor(s). It is often beneficial for applicants to talk with potential advisors before submitting an application.

Direct admission to the PhD program may be permitted for applicants holding a bachelor's degree with high academic standing. Students enrolled in the master's degree program who achieve a superior academic record and show a particular aptitude for research may be permitted to transfer to the PhD program. The application to transfer should be made to the chair of the biophysics program between the end of the second semester and the end of the fourth semester of work towards the master's degree.

Degree Requirements

Students in the PhD program will be under the guidance of an interdepartmental advisory committee. For students who completed the MSc degree in a program other than Biophysics at the University of Guelph, a total of 1.0 graduate course credits are required, one of which is usually BIOP*6000. For students who transfer directly into the PhD program from the MSc program in Biophysics, or who complete the MSc program in Biophysics at the University of Guelph, no additional course credits are required. In the case of students who enter the PhD program from the BSc degree, 1.5 graduate course credits are required, one of which is BIOP*6000. In addition, all students are required to complete the non-credit seminar course, BIOP*6010. The advisory committee may require additional courses for any student. An average of 70% (B-) or better must be obtained in the prescribed courses. As early as feasible, but no later than the final semester of the minimum duration, a PhD student is required to complete a qualifying examination to assess her or his knowledge of the subject. This examination should normally be taken within the first five semesters of registration as a PhD student. When the qualifying examination and the course work are satisfactorily completed, the submission and successful defense of an acceptable thesis on an approved topic completes the requirements for the PhD in Biophysics.

Courses

BIOP*6000 Concepts in Biophysics W [0.50]

This course will emphasis basic concepts in molecular, cellular and structural biophysics arising from key journal publications and their impact on present day research trends.

BIOP*6010 Biophysics Seminar U [0.00]

Public research seminar presented by all students in the Biophysics program. MSc students are required to present a seminar within 4 semesters after entering the program. PhD students are required to present a seminar within 4 semesters after entering the program, and at yearly intervals thereafter. Students are required to attend all seminars presented during the semester in which they are registered for the course.

BIOP*6950 Advanced Topics in Biophysics U [0.50]

This course provides opportunities for graduate students to study special topics in contemporary biophysical research under the guidance of graduate faculty members with pertinent expertise. Proposed course descriptions are considered by the Director of the Biophysics program on an ad hoc basis, and the course will be offered according to demand.

PHYS*7510 Cellular Biophysics U [0.50]

The physics of cellular structure and function; membrane theories, diffusion and active transport, bioelectric phenomena; intracellular motion, thermodynamics; selected topics of current interest and seminar.

PHYS*7520 Molecular Biophysics U [0.50]

Physical methods of determining macromolecular structure: energetics, intramolecular and intermolecular forces, with application to lamellar structures, information storage, DNA and RNA, recognition and rejection of foreign molecules.

PHYS*7540 Selected Topics in Experimental Biophysics U [0.50]

Offered on demand

PHYS*7570 Special Topics in Biophysics U [0.50]

Offered on demand

Courses in Related Subjects:

Biomedical Sciences

BIOM*6110	[0.50]	Advanced Microscopy for Biomedical Sciences
BIOM*6160	[0.50]	Cellular Biology
BIOM*6190	[0.50]	Tissue Culture Techniques in Biomedical Sciences

Chemistry

CHEM*7360	[0.50]	Regulation in Biological Systems
CHEM*7370	[0.50]	Enzymes
CHEM*7380	[0.50]	Cell Membranes and Cell Surfaces
CHEM*7310	[0.50]	Selected Topics in Biochemistry I
to		
CHEM*7330	[0.50]	Selected Topics in Biochemistry III

Computing and Information Science

CIS*6040	[0.50]	Advanced Image Analysis
CIS*6050	[0.50]	Advanced Neural Networks: Dynamical Recurrent Networks
CIS*6060	[0.50]	Bioinformatics
CIS*6080	[0.50]	Genetic Algorithms
CIS*6420	[0.50]	Soft Computing

Engineering

ENGG*6070	[0.50]	Medical Imaging
ENGG*6130	[0.50]	Physical Properties of Biomaterials
ENGG*6150	[0.50]	Bio-Instrumentation
ENGG*6560	[0.50]	Advanced Digital Signal Processing

Human Biology and Nutritional Sciences

HBNS*6020	0.5	Biodynamics
HBNS*6030	0.5	Applied Ergonomics
HBNS*6440	[0.50]	Nutrition, Gene Expression and Cell Signalling (offered odd-numbered years)

Mathematics and Statistics

MATH*6051	[0.50]	Mathematical Modelling
MATH*6071	[0.50]	Biomathematics
STAT*6761	[0.50]	Survival Analysis
STAT*6850	[0.50]	Advanced Biometry
STAT*6950	[0.50]	Statistical Methods for the Life Sciences*
STAT*6960	[0.50]	Design of Experiments and Data Analysis for the Life Sciences *

Microbiology

MICR*6040	[0.50]	Advanced Microbial Physiology
MICR*6070	[0.50]	Bacterial Structures and Virulence
MICR*6423	[0.50]	Advances in Immunology and Immunochemical Techniques
MICR*6500	[0.50]	Microbial Genetics

Molecular and Cellular Biology

MBG*6060	[0.50]	Topics in Cell Biology and Genetics
MBG*6100	[0.50]	High Resolution Microscopy for Molecular Biologists
MCB*6110	[0.50]	Protein Structural Biology and Bioinformatics
MCB*6210	[0.50]	Structure and Function of Biological Membranes

Physics

PHYS*7010	[0.50]	Quantum Mechanics I *
PHYS*7020	[0.50]	Quantum Mechanics II
PHYS*7040	[0.50]	Statistical Physics I*
PHYS*7050	[0.50]	Statistical Physics II