2017-2018 Graduate Calendar

The information published in this Graduate Calendar outlines the rules, regulations, curricula, programs and fees for the 2017-2018 academic years, including the Summer Semester 2017, Fall Semester 2017 and the Winter Semester 2018.

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

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Revision Information:

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
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<tbody>
<tr>
<td>May 5, 2017</td>
<td>Initial Publication</td>
</tr>
<tr>
<td>June 19, 2017</td>
<td>Revision 1</td>
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Disclaimer
The Office of Graduate Studies 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, Public Health Emergencies, 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/DLB/Laws/Statutes/English/90f31_e.htm](http://www.e-laws.gov.on.ca/DLB/Laws/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 [https://www.uoguelph.ca/registrar/](https://www.uoguelph.ca/registrar/).

**Statistics Canada - Notification of Disclosure**

For further information, please see Statistics Canada's web site at [http://www.statcan.gc.ca](http://www.statcan.gc.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 the Office of Graduate Studies.

**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](http://www.uoguelph.ca/policies).
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Biotechnology

The interdepartmental program focuses on molecular approaches and provides both scientific and business discipline-specific training. The Master of Biotechnology program provides graduates with advanced education, knowledge, technical and business expertise in the broad field of biotechnology. Courses promote effective communication of knowledge of the scientific discipline, as well as place it in a business context. It fosters academic and intellectual growth, as well as interactions between graduate students, faculty, the university, and the wider research community and the private sector. Students will be trained as highly competent, independent, and creative researchers/managers who are familiar with and are able to integrate both the science and business environments. Furthermore, the program encourages the development of entrepreneurial activities in this area, which is crucial for the formation of new private sector companies. The ultimate goal of the program is to advance and encourage biotechnology research on campus, both amongst the graduate students enrolled in the program, as well as amongst and between faculty.

Administrative Staff

Director
Steven Rothstein (4469 Summerlee Science Complex, Ext. 58524)
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Graduate Program Coordinator
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Graduate Program Assistant
Carol Hannam (4451 Summerlee Science Complex, Ext. 56474)
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Graduate Faculty

From the Department of Food, Agriculture and Resource Economics
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From the Department of Integrative Biology
Robert Hanner
BSc Eastern Michigan, PhD Oregon - Associate Professor

Steven G. Newmaster
BSc Guelph, PhD Alberta - Associate Professor

From the Department of Molecular and Cellular Biology
Tariq Akhtar
BSc, MSc Waterlo, PhD Florida - Assistant Professor

Emma Allen-Vercoe
BSc London UK, PhD Open UK - Professor

Anthony J. Clarke
BSc, MSc, PhD Waterloo - Professor

Joseph L. Colasanti
BSc, PhD Western Ontario - Associate Professor

Marc Coppolino
BSc Waterlo, MSc, PhD Toronto - Associate Professor

John Dawson
BSc Wilfrid Laurier, PhD Alberta - Associate Professor

Michael J. Emes
BSc, PhD Sheffield - Professor

Stefen P. Graether
BSc, MSc, PhD Queen's - Associate Professor

George Harauz
BASc, MSc, PhD Toronto - Professor

Nina Jones
BSc Guelph, PhD Toronto - Associate Professor

David Josephy
BSc Toronto, PhD British Columbia - Professor

Azad Kaushik
BVSc, MVSc Haryana, DSc Inst. Pasteur - Associate Professor

Cezar Khursigara
BSc Ryerson, PhD McGill - Assistant Professor

Matthew S. Kimber
BSc, PhD Toronto - Associate Professor

Peter J. Krell
BSc, MSc Carleton, PhD Dalhousie - Professor

Joseph S.L. Lam
BSc, PhD Calgary - Professor

Ray Lu
BSc Wuhan (China), MSc Beijing Medical, PhD Saskatchewan - Associate Professor

From the Department of Management
Elliott Currie
BA, MBA McMaster, CMA - Associate Professor

Fred Pries
BMath Waterlo, MASc, PhD Waterlo, CA - Associate Professor

Davar Rezania
MSc Utrecht, MBA Derby, PhD Ramon LLULL, CMA - Associate Professor and Chair

Trent Tucker
BSc Alberta, MBA Toronto, PhD Waterlo - Assistant Professor

From the Department of Physics
John R. Dutcher
BSc Dalhousie, MSc British Columbia, PhD Simon Fraser - Professor

MBOIOT Program

Admission Requirements

Students entering the program will normally have completed an Honours Bachelor's degree with a minimum admission average of B (75% and higher) in one of the following fields: biology, molecular biology and genetics, biotechnology, microbiology, biochemistry, biophysics, food science, agriculture, food production systems, commerce with a strong science background. Anyone lacking the required background will be encouraged to complete them prior to commencing their studies in the new program (typically in the immediately preceding summer semester) or, if approved by the program counsellor, during their studies. Students also require a minimum TOEFL score of 250/300 (computer based), 600/677 (paper based) or 89 (internet based) and are strongly encouraged to take the Graduate Record Examination (general) as well. Subject specific GRE tests will also be considered for admission.

All components of the application, including transcript(s), graduate certificate(s), grading scale(s), language test results, assessment forms, and a statement of interest, must be uploaded no later than two months after an application is submitted through the OUAC portal. Applications that are incomplete after this time period will be closed.

Admissions Process

Graduate student applications to programs in the College of Biological Science are handled by the Office of the Associate Dean, Research (ADR). Before submitting an application, applicants are strongly encouraged to view the "Before you Apply" and "Admission Process" webpages on the ADR Future Student's site.
Space in this program will be limited and students are advised to apply as early as possible to be accepted for the following Fall. Application details are posted on the program web-site.

Degree Requirements
A total of 4.0 course credits are required to graduate, which must include BIOT*6500, BIOT*6600 and BIOT*6700 (each 0.50). In addition, the research project course BIOT*6800 (1.00) must be taken in Semester 3. Additional courses can be selected from electives.

An optional Semester 4 may be added, as a research project extension.

Duration of the Program
Students will normally take three courses per semester for two semesters (3.0 credits) and complete the Biotechnology Masters project (1.0) credit in semester 3. Therefore, the program normally takes 12 months of full-time study. There is, however, the option to continue the Biotechnology Masters project into a second fall semester, in which case the program will take 16 months of full-time study.

Courses

Core Courses

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<thead>
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<tbody>
<tr>
<td>BIOT*6500</td>
<td>Molecular Biotechnology F [0.50]</td>
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<tr>
<td>BIOT*6600</td>
<td>Innovation Management F [0.50]</td>
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<tr>
<td>BIOT*6700</td>
<td>Communication in Science and Business W [0.50]</td>
<td></td>
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<tr>
<td>BIOT*6800</td>
<td>Research Project S [1.00]</td>
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Department(s): Department of Molecular and Cellular Biology

Electives

College of Biological Sciences

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>MCB*6310</td>
<td>Advanced Topics in Molecular and Cellular Biology</td>
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</tr>
<tr>
<td>MCB*6370</td>
<td>Protein Structural Biology and Bioinformatics</td>
<td>0.50</td>
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<tr>
<td>HHNS*6440</td>
<td>Nutrition, Gene Expression and Cell Signalling</td>
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Bioinformatics

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<tr>
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<tr>
<td>BINF*6110</td>
<td>Genomic Methods for Bioinformatics</td>
<td>0.50</td>
</tr>
<tr>
<td>BINF*6210</td>
<td>Software Tools for Biological Data Analysis and Organization</td>
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College of Business and Economics

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<tr>
<td>UNIV*6050</td>
<td>The Integration of Science and Business in Agrifood Systems</td>
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<tr>
<td>MGMT*6100</td>
<td>Evidence Based Management Research</td>
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<tr>
<td>MGMT*6200</td>
<td>Leadership Assessment and Development</td>
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<tr>
<td>MGMT*6300</td>
<td>Business Consulting</td>
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<tr>
<td>MGMT*6400</td>
<td>Project Management</td>
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Ontario Agricultural College

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<tr>
<td>ANSC*6450</td>
<td>Topics in Animal Biotechnology</td>
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</tr>
<tr>
<td>ENV*6040</td>
<td>Molecular Basis of Plant-Microbe Interactions</td>
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<tr>
<td>PLNT*6500</td>
<td>Applied Bioinformatics</td>
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