The information published in this Graduate Calendar outlines the rules, regulations, curricula, programs and fees for the 2018-2019 academic year, including the Summer Semester 2018, Fall Semester 2018 and the Winter Semester 2019.

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:

• Universities of Canada

Contact Information:

University of Guelph
Guelph, Ontario, Canada
N1G 2W1
519-824-4120

Revision Information:

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<td>Initial Publication</td>
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<td>August 10, 2018</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.
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 Advanced Education and Skills Development, 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/.

Statistics Canada - Notification of Disclosure

For further information, please see Statistics Canada's web site at 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 Registrarial 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 https://www.uoguelph.ca/secretariat/office-services/university-secretariat/university-policies.
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The Department of Integrative Biology is comprised of faculty members in three overlapping fields and offers MSc and PhD degrees in:

- Ecology
- Evolutionary Biology
- Comparative Physiology

Research is focused on a wide variety of organisms (from microbes to plants to animals) at multiple levels of organization (from molecules and cells through to entire ecosystems). Basic research is being used as a foundation to address some of the most important regional and global issues.

See the department website for additional information.

Administrative Staff
Chair
Ryan Gregory (2480 Science Complex, Ext. 53598)
ibcchair@uoguelph.ca

Graduate Program Coordinator
Karl Cottenie (2470 Science Complex, Ext. 52554)
cottenie@uoguelph.ca

Graduate Program Coordinator
Cortland Griswold (1474 Science Complex, Ext. 56240)
cgriswo@uoguelph.ca

Graduate Program Assistant
Lori Ferguson (2463 Science Complex, Ext. 56907)
CBSgrad@uoguelph.ca

CBS Graduate Admissions Secretary
Karen White (3479 Science Complex, Ext. 52730)
cbsgrad@uoguelph.ca

Graduate Faculty
Josef D. Ackerman
BSc, MSc, PhD - Professor

Sarah J. Adamowicz
BSc, MSc, PhD - Associate Professor

James S. Ballantyne
BSc, MSc - Professor

Nicholas J. Bernier
BSc, MSc, PhD - Professor

Elizabeth G. Boulding
BSc, MSc, PhD - Professor

Christina M. Caruso
BA Oberlin College, MSc, PhD - Associate Professor

Karl A. Cottenie
MSc, MS, PhD - Associate Professor and Graduate Program Coordinator

Stephen S. Crawford
BSc, MSc - Associate Professor

Teresa J.D. Crease
BSc, MSc - Associate Professor

Roy G. Danzmann
BSc, MSc, PhD - Professor

Moira M. Ferguson
BSc, MSc, PhD - Professor

John M. Fryxell
BSc, MSc, PhD - Professor

Jinzhong Fu
BSc, MSc - Associate Professor

Todd E. Gillis
BSc, MSc - Associate Professor

Ryan Gregory
BSc, MSc, PhD - Associate Professor

Cortland K. Griswold
BSc, MSc, PhD - Associate Professor

Mehrdad Hajibabaei
BSc, MSc, PhD - Associate Professor

Robert Hanner
BSc - Associate Professor

Paul D.N. Hebert
BSc, MSc, PhD - Associate Professor

Andreas Heyland
BSc, MSc, PhD - Associate Professor

Brian C. Husband
BSc, MSc, PhD - Professor and Chair Academic

Frederic Laberge
BSc, MSc, PhD - Associate Professor

Andrew MacDougall
BA Dalhousie, MSc, PhD - Associate Professor

Hafiz Maherali
BSc, MSc, PhD - Associate Professor

Andrew G. McAdam
BSc, MSc - Associate Professor

Kevin S. McCann
BSc, MSc, PhD - Associate Professor

Robert L. McLaughlin
BSc, MSc, PhD - Associate Professor

Amy Newman
BSc, MSc - Associate Professor

Jonathan A. Newman
BSc, MSc, PhD - Associate Professor

Steven G. Newmaster
BSc, MSc, PhD - Associate Professor

Ryan Norris
BSc, MSc, PhD - Associate Professor

Beren W. Robinson
BSc, MSc, PhD - Associate Professor

M. Alexander Smith
BSc, MSc, PhD - Associate Professor

Merritt R. Turetsky
BSc, MSc, PhD - Associate Professor

Glen J. Van Der Kraak
BSc, MSc, PhD - Associate Professor

Elizabeth G. Boulding
BSc, MSc, PhD - Professor

James Bogart
BSc, MSc - Professor Emeritus

Eldon Evelyne
BSc, MSc - Professor Emeritus

Douglas S. Fudge
BSc, MSc, PhD - Professor Emeritus

Shoshannah Jacobs
BSc, MSc - Associate Professor

Tom Nudds
BSc, MSc - Associate Professor

Astrid Schwarb
BSc, MSc, PhD - Associate Professor

Dirk Steinke
BSc, MSc, PhD - Associate Professor

MSc Program
The Integrative Biology Graduate Program offers MSc degrees in each of three major fields of emphasis: 1) ecology; 2) evolutionary biology; and 3) comparative physiology. The three areas of interest focus on (but are not restricted to) experimental approaches in field and laboratory settings and a strong linkage between theoretical and applied investigations. The department encourages students to pursue interdisciplinary research and, where appropriate, utilize faculty expertise from across campus on their advisory committees.

Admissions Requirements
To be considered, applicants must meet the requirements of a four-year honours science degree with a minimum B’ (75%) average during the final two years (4 semesters) of undergraduate study. Each applicant must obtain the support of a faculty member willing to serve as his/her thesis advisor. Admission may be granted in September, January or May. Completed applications should be uploaded at least one full semester (four months) before the expected date of admission. Applications from international students should be uploaded at least eight months prior to the expected date of admission.
Degree Requirements

The Integrative Biology program expects that the major part of the student's time will be devoted to research in fulfillment of the thesis requirement. For that reason, the Department does not require that PhD students with an MSc degree take any courses. Students entering directly into the PhD program are required to take 1.0 course credits, which must include IBIO*6630, Scientific Communication (0.50 credit) in their first or second semester. Furthermore, advisory committees may, from time to time, require that a student take some prescribed or additional courses. Regardless, PhD students are expected to contribute and participate actively in the full academic life of the department, including regular attendance at departmental and inter-departmental seminars, and to provide leadership and counseling to undergraduate and MSc students.

PhD students will become candidates for the PhD degree upon successful completion of a qualifying examination with oral and written components, which should be conducted not later than the third semester of the PhD program. The exam evaluates students' knowledge in the general area of the intended research.

Submission and defence of an acceptable thesis complete the requirements for a PhD. An acceptable thesis comprises a report of the candidate's research on a particular and well-defined research problem or hypothesis. It should represent a significant contribution to knowledge in that field. Emphasis is placed on the quality of the work as judged by the expression of mature scholarship, critical judgment, and satisfactory literary style in the thesis. Thesis approval implies that the research is judged sufficiently meritorious to warrant publication in reputable, refereed journals in its field.

Interdepartmental Programs

Faculty in Integrative Biology also participate in the interdepartmental programs in Bioinformatics or Biophysics.

Collaborative Specializations

Faculty in Integrative Biology also participate in the collaborative specializations in Neuroscience or Toxicology.

Courses

Ecology

IBIO*6000 Special Topics in Ecology and Behaviour U [0.50]

This is a course in which several faculty lecture and/or lead discussion groups in tutorials about advances in their broad areas, or related areas, of ecology and behaviour. Topics may include animal communication, optimal foraging, life-history evolution, mating systems, population dynamics, niche theory and food-web dynamics, and will depend on who is co-ordinating the course for that particular offering. The course includes lectures and seminars in which the students actively participate.

Department(s): Department of Integrative Biology

Evolutionary Biology

IBIO*6020 Special Topics in Evolutionary Biology U [0.50]

This modular course reviews books and/or other publications in the field of evolutionary biology, providing knowledge of progress in this area of biology. Topics may include epigenetics, phylogenetics, developmental basis of evolutionary change, and molecular evolution. The course includes lectures and seminars in which the students participate. Offered annually.

Department(s): Department of Integrative Biology

Comparative Physiology

IBIO*6101 Special Topics in Physiology U [0.50]

This is a course in which several faculty lecture and/or lead discussion groups in tutorials about advances in their broad areas, or related areas, of physiology. Topics may include metabolic adaptation to extreme environments, behavioural and molecular endocrinology, and exercise and muscle physiology, and will depend on who is co-ordinating the course for that particular offering. The course includes lectures and seminars in which the students actively participate.

Department(s): Department of Integrative Biology

General

IBIO*6070 Advances in Integrative Biology 1 U [0.50]

This course provides graduate students, either individually or in groups, with the opportunity to pursue topics in specialized fields of integrative biology under the guidance of graduate faculty. Courses may be offered in any of lecture, reading/seminar, or individual project formats. A minimum enrolment may be required for some course offerings.

Restriction(s): Instructor consent required.

Department(s): Department of Integrative Biology
**IBIO*6080 Advances in Integrative Biology II U [0.50]**

This course provides graduate students, either individually or in groups, with the opportunity to pursue topics in specialized fields of integrative biology under the guidance of graduate faculty. Courses may be offered in any of lecture, reading/seminar, or individual project formats. A minimum enrolment may be required for some course offerings.

*Restriction(s):* Instructor consent required.

*Department(s):* Department of Integrative Biology

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**IBIO*6630 Scientific Communication U [0.50]**

This course involves development and refinement of the skills of scientific communication, with emphasis on writing skills, in the context of developing a thesis proposal. This course is mandatory for MSc AND DIRECT ENTRY PhD students in the Department of Integrative Biology.

*Department(s):* Department of Integrative Biology