The information published in this Graduate Calendar outlines the rules, regulations, curricula, programs and fees for the 2019-2020 academic year, including the Summer Semester 2019, Fall Semester 2019 and the Winter Semester 2020. 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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<th>Description</th>
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<tr>
<td>May 1, 2019</td>
<td>Initial Publication</td>
</tr>
<tr>
<td>June 28, 2019</td>
<td>Revision 1</td>
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<td>September 2, 2019</td>
<td>Revision 2</td>
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Disclaimer
The Office of Graduate and Postdoctoral 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/DBL/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 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, their 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 their 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.
On May 27, 2013, the University of Guelph Senate approved the following five University-wide Learning Outcomes as the basis from which to guide the development of graduate degree programs, specializations and courses:

1. Critical and Creative Thinking
2. Literacy
3. Global Understanding
4. Communication
5. Professional and Ethical Behaviour

These learning outcomes are also intended to serve as a framework through which our educational expectations are clear to students and the broader public; and to inform the process of outcomes assessment through the quality assurance process (regular reviews) of programs and departments.

An on-line guide to the learning outcomes, links to the associated skills, and detailed rubrics designed to support the development and assessment of additional program and discipline-specific outcomes, are available for reference on the Learning Outcomes website.

Critical and Creative Thinking
Critical and creative thinking is a concept in which one applies logical principles, after much inquiry and analysis, to solve problems with a high degree of innovation, divergent thinking and risk taking. Those mastering this outcome show evidence of integrating knowledge and applying this knowledge across disciplinary boundaries. Depth and breadth of understanding of disciplines is essential to this outcome. At the graduate level, originality in the application of knowledge (master’s) and undertaking of research (doctoral) is expected.

In addition, Critical and Creative Thinking includes, but is not limited to, the following outcomes: Independent Inquiry and Analysis; Problem Solving; Creativity; and Depth and Breadth of Understanding.

Literacy
Literacy is the ability to extract information from a variety of resources, assess the quality and validity of the material, and use it to discover new knowledge. The comfort in using quantitative literacy also exists in this definition, as does using technology effectively and developing visual literacy.

In addition, Literacy includes, but is not limited to, the following outcomes: Information Literacy, Quantitative Literacy, Technological Literacy, and Visual Literacy.

Global Understanding
Global understanding encompasses the knowledge of cultural similarities and differences, the context (historical, geographical, political and environmental) from which these arise, and how they are manifest in modern society. Global understanding is exercised as civic engagement, intercultural competence and the ability to understand an academic discipline outside of the domestic context.

In addition, Global Understanding includes, but is not limited to, the following outcomes: Global Understanding, Sense of Historical Development, Civic Knowledge and Engagement, and Intercultural Competence.

Communication
Communication is the ability to interact effectively with a variety of individuals and groups, and convey information successfully in a variety of formats including oral and written communication. Communication also comprises attentiveness and listening, as well as reading comprehension. It includes the ability to communicate and synthesize information, arguments, and analyses accurately and reliably.

In addition, Communication includes, but is not limited to, the following outcomes: Oral Communication, Written Communication, Reading Comprehension, and Integrative Communication.

Professional and Ethical Behaviour
Professional and ethical behaviour requires the ability to accomplish the tasks at hand with proficient skills in teamwork and leadership, while remembering ethical reasoning behind all decisions. The ability for organizational and time management skills is essential in bringing together all aspects of managing self and others. Academic integrity is central to mastery in this outcome. At the graduate level, intellectual independence is needed for professional and academic development and engagement.

In addition, Professional and Ethical Behaviour includes, but is not limited to, the following outcomes: Teamwork, Ethical Reasoning, Leadership, Personal Organization and Time Management, and Intellectual Independence.
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Neuroscience

The Neuroscience collaborative specialization provides an opportunity for MSc/MBS/PhD students engaged in research in the rapidly expanding field of neuroscience, to combine their departmental degree program with multidisciplinary exposure to the field of neuroscience. This unique combination of multidisciplinary studies provides students with the best possible foundation for academic careers in neuroscience and related areas. The collaborative specialization includes participation from core faculty in the following departments: Animal Biosciences, Biomedical Sciences, Clinical Studies, Human Health and Nutritional Sciences, Integrative Biology, Molecular and Cellular Biology, Pathobiology, Population Medicine and Psychology. Students wishing to pursue a Master's or PhD degree with the designation Neuroscience must enter the collaborative specialization in Neuroscience through a participating department.

Administrative Staff

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Robin Sorbara
Graduate Program Assistant (4014 MacKinnon, Ext. 53508)
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Graduate Faculty

Naseem Al-Aidroos
Associate Professor, Psychology

Craig D. Bailey
Assistant Professor, Biomedical Sciences

Andrew J. Bendall
Associate Professor, Molecular and Cellular Biology

Leah R. Bent
Associate Professor, Human Health and Nutritional Sciences

Nicholas J. Bernier
Professor, Integrative Biology

Elena Choleris
Professor, Psychology

Donald Dedrick
Associate Professor, Philosophy/Psychology

Mark J. Fenske
Associate Professor, Psychology

Christopher Fiacconi
Assistant Professor, Psychology

George Harauz
Professor and Canada Research Chair, Molecular and Cellular Biology

Andreas Heyland
Assistant Professor, Integrative Biology

Fiona James
Assistant Professor, Clinical Studies

Nina Jones
Associate Professor and Canada Research Chair, Molecular and Cellular Biology

Bettina E. Kalisch
Associate Professor, Biomedical Sciences

Jibran Khokhar
Assistant Professor, Biomedical Sciences

Frederic Laberge
Assistant Professor, Integrative Biology

Jasmin Lalonde
Assistant Professor, Molecular and Cellular Biology

Francesco Leri
Professor, Psychology

Ray Lu
Associate Professor, Molecular and Cellular Biology

David W.L. Ma
Associate Professor, Human Health and Nutritional Sciences

Neil J. MacLusky
Professor and Chair, Biomedical Sciences

Georgia Mason
Professor and Canada Research Chair, Animal Biodisces

Robert L. McLaughlin
Associate Professor, Integrative Biology

Daniel V. Meegan

Associate Professor, Psychology

Jennifer Murray
Assistant Professor, Psychology

Lee Niel
Assistant Professor, Population Medicine

Linda A. Parker
Professor and Canada Research Chair, Psychology

John Z. Srbley
Assistant Professor, Human Health and Nutritional Sciences

Lana M. Trick
Professor, Psychology

Lori A. Vallis
Associate Professor, Human Health and Nutritional Sciences

Terry Van Raay
Associate Professor, Molecular and Cellular Biology

Tina Widowski
Professor, Animal Biosciences

Boyer D. Winters
Associate Professor, Psychology

John L. Zettel
Assistant Professor, Human Health and Nutritional Sciences

As a practical matter, any faculty member who is approved by the Board of Graduate Studies for graduate faculty status and is a member of a participating unit within the collaborative specialization will be able to advise a master’s or doctoral student.

Associated Graduate Faculty

Geoffrey Power
Contractually Limited Faculty, Human Health and Nutritional Sciences

MSc/MBS Collaborative Specialization

The MSc/MBS collaborative specialization in Neuroscience enables students engaged in neuroscience research to combine their departmental degree program with a multidisciplinary specialization in the field of neuroscience.

Admission Requirements

MSc/MBS students in the collaborative specialization in Neuroscience must meet the admission requirements of the participating department in which they are enrolled. The application process has two stages: first, application to the primary program of interest, identifying interest in the collaborative specialization as a secondary focus. If the student is admitted to the primary program, the second stage is then admission to the collaborative specialization.

Program Requirements

In addition to coursework in their respective departments, students in the MSc/MBS collaborative specialization must complete NEUR*6000 as well as registering for NEUR*6100 each term that they are in the collaborative specialization. In NEUR*6100, students and faculty will meet once a month to discuss issues/hear talks/present research in neuroscience.

PhD Collaborative Specialization

The PhD collaborative specialization in Neuroscience enables students engaged in neuroscience dissertation research to combine their departmental degree program with a multidisciplinary specialization in the field of neuroscience.

Admission Requirements

PhD students in the collaborative specialization in Neuroscience must meet the PhD admission requirements for the participating department in which they are enrolled.

Program Requirements

If a student enters the PhD collaborative specialization in Neuroscience at the doctoral level, in addition, to coursework in their respective departments, students must complete NEUR*6000, or show evidence of course equivalence in prior training. Students must be engaged in neuroscience dissertation research. During each term of their program of studies, doctoral students must enroll in NEUR*6100. The seminar will meet monthly. Students must take their qualifying exams within five semesters of entering the program, as required by University graduate policies. One member on the qualifying exam committee must be a core member of the collaborative specialization in Neuroscience outside the student’s home department or a faculty member from another university approved by graduate studies. As well one member of the student’s advisory committee must be a core member of the neuroscience collaborative specialization outside the student’s home department or a faculty member from another university approved by graduate studies.
### Courses

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<tr>
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<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>NEUR*6000</td>
<td>Principles of Neuroscience U [0.50]</td>
<td></td>
<td>This course is designed to ensure that graduate students with diverse neuroscience backgrounds registered in the collaborative specialization in Neuroscience are exposed to the fundamentals in all areas of neuroscience.</td>
<td>Department of Biomedical Sciences</td>
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<tr>
<td>NEUR*6100</td>
<td>Seminar in Neuroscience U [0.00]</td>
<td></td>
<td>This course will expose graduate students to some of the major theories, issues and methodologies driving research in neuroscience. Students will learn to critically evaluate presentations by researchers in this field as well as to communicate the results of their own research.</td>
<td>Department of Psychology</td>
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