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

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Guelph, Ontario, Canada
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Revision Information:

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<tr>
<td>May 1, 2019</td>
<td>Initial Publication</td>
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<tr>
<td>June 28, 2019</td>
<td>Revision 1</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.
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, 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.
Graduate Degree Learning Outcomes

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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Food Safety and Quality Assurance

The interdepartmental program is the focal point for graduate teaching and research in food safety and quality assurance. The MSc program in food safety and quality assurance is intended to prepare food scientists, food engineers, veterinarians and others with appropriate scientific backgrounds for participation in food safety monitoring and maintenance in the food industry and in government. Students wishing to undertake graduate studies at the MSc level with emphasis on food safety and quality assurance will enter the program through a participating department. The participating academic units are Biomedical Sciences, Marketing and Consumer Studies, Environmental Biology, Food Science, Pathobiology, Population Medicine, and Engineering.

Administrative Staff

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Yoshinori Mine
Professor, Food Science

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Associate Professor, Population Medicine

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Associate Professor, Food Science

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Professor, Food Science

Keith Warriner
Professor, Food Science

Associated Graduate Faculty

Mansel Griffiths
Food Science

Anne Wilcock
Food Science

MSc Program

Admission Requirements

The program is most suitable for those with an undergraduate science background or for those currently employed in the food area in government regulatory work or in the processing industry who desire upgrading of skills and knowledge. Applicants for admission to this program must meet the university minimum admission requirement of a baccalaureate in an honours program (or the equivalent) or a DVM from a recognized university or college with an average standing of at least a ‘B’ average. Applicants will be expected to have completed undergraduate courses that prepare them for participation in the core graduate courses and electives of the program. Undergraduate upgrading may be necessary to ensure sufficient background in topics such as microbiology, toxicology, statistics, and analytical methods.

Program Requirements

Completion of the MSc FSQA program requires a minimum of eight courses (or 4.5 credits) acceptable for graduate credit. This includes the seminar course which has a value of 0.5 credit. All students must complete:

- FSQA*6000 Food Safety and Quality Assurance Seminar [0.50]
- FSQA*6500 Food Safety and Quality Assurance Research Project [1.00]
- FSQA*6600 Principles of Food Safety and Quality Assurance [0.50]
- FSQA*6150 Food Quality Assurance Management [0.50]

At least four additional courses, in consultation with the student's advisory committee. Suitable courses are listed below. Other courses, not listed here, also may be considered. Up to two senior undergraduate courses can be taken. The courses selected will depend upon the student's background, specialty, interest and area of project research. The normal duration of the program will be three to four full-time semesters.

Graduate Diploma

Admission Requirements

The program is most suitable for those with an undergraduate science background or for those currently employed in the food area in government regulatory work or in the processing industry who desire upgrading of skills and knowledge. Applicants for admission to this program must meet the university minimum admission requirement of a baccalaureate in an honours program (or the equivalent) or a DVM from a recognized university or college with an average standing of at least a ‘B’ average. Applicants will be expected to have completed undergraduate courses that prepare them for participation in the core graduate courses and electives of the program. Undergraduate upgrading may be necessary to ensure sufficient background in topics such as microbiology, toxicology, statistics, and analytical methods.

Program Requirements

All students must complete the following five courses:

- FSQA*6100 Food Law and Policy [0.50]
- FSQA*6150 Food Quality Assurance Management [0.50]
- FSQA*6200 Food Safety Systems Management [0.50]
- FSQA*6600 Principles of Food Safety and Quality Assurance [0.50]
- POPM*6350 Safety of Foods of Animal Origins [0.50]

Collaborative Specializations

Toxicology

The MSc in Food Safety and Quality Assurance participates in the collaborative specialization in toxicology. The faculty members' research and teaching expertise includes aspects of toxicology; they may serve as advisors for MSc.

Please consult the Toxicology listing for a detailed description of the masters collaborative specialization.

Courses

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<td>FSQA*6000</td>
<td>Food Safety and Quality Assurance Seminar</td>
<td>[0.50]</td>
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<tr>
<td>FSQA*6100</td>
<td>Food Law and Policy</td>
<td>[0.50]</td>
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<td>FSQA*6150</td>
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<tr>
<td>FSQA*6200</td>
<td>Food Safety Systems Management</td>
<td>[0.50]</td>
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<tr>
<td>FSQA*6600</td>
<td>Principles of Food Safety and Quality Assurance</td>
<td>[0.50]</td>
</tr>
<tr>
<td>POPM*6350</td>
<td>Safety of Foods of Animal Origins</td>
<td>[0.50]</td>
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FSQA*6150 Food Quality Assurance Management W [0.50]
Examination and review of principles and concept of quality assurance and their application to consumer products and services. Topics include applied aspects of total-quality management principles.
Offering(s): Offered through Distance Education format only.
Department(s): Department of Food Science

FSQA*6200 Food Safety Systems Management W [0.50]
Food safety systems are studied in four modules. (1) A brief review of plant hygiene and HACCP principles. Students with insufficient background will do supplemental study in these areas; (2) HACCP implementation and verification; (3) HACCP-based food safety programs in Canada; and (4) International Food Safety Management Systems.
Offering(s): Offered through Distance Education format only.
Department(s): Department of Food Science

FSQA*6500 Food Safety and Quality Assurance Research Project S,F,W [1.00]
An original research project related to food safety and quality assurance which includes the preparation of a written report suitable for publication and an oral presentation of the findings to the graduate faculty.
Department(s): Department of Food Science

FSQA*6600 Principles of Food Safety and Quality Assurance F [0.50]
An integrated approach to factors affecting food safety and quality including microbial and chemical contamination is provided. Major food-borne disease outbreaks are studied as examples. Modern methods of quality management to minimize contamination of processed foods is discussed.
Offering(s): Offered through Distance Education format only.
Department(s): Department of Food Science

Other Graduate Courses Suitable for Credit in this Program

Food Science
- FOOD*6190 Advances in Food Science [0.50]
- FOOD*6710 Special Topics in Food Chemistry [0.25]
- FOOD*6720 Special Topics in Food Microbiology [0.25]
- FOOD*6730 Special Topics in Food Physics [0.25]
- FOOD*6740 Special Topics in Food Processing [0.25]
- FOOD*6750 Special Topics in Food for Health [0.25]
- FOOD*6760 Special Topics in Food Quality [0.25]

Human Heath and Nutritional Sciences
- HHNS*6400 Functional Foods and Nutraceuticals [0.50]
- HHNS*6410 Applied Functional Foods and Nutraceuticals [1.00]

Pathobiology
- PABI*6000 Bacterial Pathogenesis [0.50]
- PABI*6550 Epidemiology of Zoonoses [0.50]

Population Medicine
- POPM*6200 Epidemiology I [0.50]
- POPM*6210 Epidemiology II [0.50]
- POPM*6350 Safety of Foods of Animal Origins [0.50]

Plant Agriculture
- PLNT*6110 Fruit and Vegetable Technology [0.50]

Undergraduate Courses Suitable for Credit in this Program

Food Science
- FOOD*3030 Food Chemistry I [0.50]
- FOOD*4190 Advanced Food Analysis [0.50]
- FOOD*4090 Functional Foods and Nutraceuticals [0.50]

Human Health and Nutritional Sciences
- NUTR*4510 Toxicological Aspects of Nutrition [0.50]

Population Medicine
- POPM*4040 Epidemiology of Food-Borne Diseases [0.50]