FOOD SAFETY AND QUALITY ASSURANCE

The interdepartmental MSc program is the focal point for graduate teaching and research in food safety and quality assurance. The FSQA program is intended to prepare food scientists, food engineers, microbiologists and others with appropriate scientific backgrounds for participation in food safety monitoring and management in the food industry and in government food regulatory roles. Students wishing to undertake graduate studies at the MSc level with an emphasis on food safety and quality assurance will be working on a project with an approved advisor.

Administrative Staff

Chair
Lisa Duizer (112 Food Science, Ext. 53410)
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Graduate Faculty

This list may include Regular Graduate Faculty, Associated Graduate Faculty and/or Graduate Faculty from other universities.

Shai Barbut
B.Sc. Hebrew (Jerusalem), MS, PhD UW Madison - Professor
Graduate Faculty

Maria Corradini
B.Tech. Argentina, M.Sc., PhD MIT - Associate Professor
Graduate Faculty

Lisa Duizer
B.Sc., M.Sc. Guelph, PhD Massey - Associate Professor and Chair
Graduate Faculty

H. Douglas Goff
B.Sc. (Agr) Guelph, MS, PhD Cornell - Professor
Graduate Faculty

Lawrence Goodridge
B.Sc., M.Sc., PhD Guelph - Professor
Graduate Faculty

Arthur R. Hill
B.Sc., M.Sc., PhD Guelph - Professor
Graduate Faculty

Iris Joye
M.Sc. Leuven, PhD Leuven/Ghent (Belgium) - Associate Professor
Graduate Faculty

Gisele LaPointe
B.Sc.,PEI, M.Sc., PhD Quebec - Professor
Graduate Faculty

Loong-Tak Lim
B.Sc. Acadia, PhD Guelph - Professor
Graduate Faculty

Alejandro G. Marangoni
B.Sc. McGill, PhD Guelph - Professor
Graduate Faculty

Massimo F. Marcone
B.Sc., PhD Guelph - Professor
Graduate Faculty

Scott A. McEwen
DVM, D.V.Sc. Guelph, Dip. ACVP - Professor
Graduate Faculty

Donald Mercer
B.Sc., PhD Waterloo - Associate Professor
Graduate Faculty

Yoshinori Mine
B.Sc., M.Sc. Shinshu, PhD Tokyo - Professor
Graduate Faculty

Andrew Papadopoulos
B.A.Sc. Ryerson, MBA York, PhD Guelph - Associate Professor
Graduate Faculty

Michael Rogers
B.Sc., M.Sc., PhD Guelph - Associate Professor
Graduate Faculty

Paul Spagnuolo
B.Sc., M.Sc. Guelph, PhD Waterloo - Associate Professor
Graduate Faculty

Keith Warriner
B.Sc. Nottingham, PhD Aberystwyth - Professor
Graduate Faculty

MSc Program

Admission Requirements

The program is most suitable for those with an undergraduate degree in food science or microbiology and for those currently employed in the food safety and quality assurance fields in government regulatory work or in the food industry who desire upgrading of skills and knowledge. Applicants for admission to this program must meet the admission requirement of a baccalaureate in an honours program (or the equivalent) in a relevant field of study from a recognized university or college with an average standing of at least a 'B' average.

Prospective students indicate whether they wish to complete the program in “Hybrid Delivery” (on-campus and online learning) or “Distance Delivery” (fully online) mode at the time of application.

“Distance Delivery” applicants are required to submit an additional (third) letter of support from an individual (such as a supervisor and/or manager) in an organization indicating a willingness to oversee the applicant's workplace project, should they be accepted to the program.

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 prior to applying
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 seven courses (or 4.0 credits) acceptable for graduate credit.

Hybrid Delivery
Students must complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>FSQA*6000</td>
<td>Food Safety and Quality Assurance Seminar</td>
<td>0.50</td>
</tr>
<tr>
<td>FSQA*6500</td>
<td>Food Safety and Quality Assurance Research Project</td>
<td>1.00</td>
</tr>
<tr>
<td>FSQA*6600</td>
<td>Principles of Food Safety and Quality Assurance</td>
<td>0.50</td>
</tr>
<tr>
<td>FSQA*6150</td>
<td>Food Quality Assurance Management</td>
<td>0.50</td>
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</tbody>
</table>

At least three additional courses

1 This project, equal to 1.00 credit, is one of the seven courses required to complete the program.

2 Suitable courses are listed in the courses section. 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 is three to four full-time semesters.

Distance Delivery
Students must complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>FSQA*6150</td>
<td>Food Quality Assurance Management</td>
<td>0.50</td>
</tr>
<tr>
<td>FSQA*6400</td>
<td>Workplace Project in Food Safety</td>
<td>1.00</td>
</tr>
<tr>
<td>FSQA*6600</td>
<td>Principles of Food Safety and Quality Assurance</td>
<td>0.50</td>
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</table>

At least four additional courses by distance education

The normal duration of the program is three full-time semesters.

Graduate Diploma

Admission Requirements
The program is most suitable for those with an undergraduate food science or microbiology background and for those currently employed in food safety and quality assurance fields in government food regulatory work or in the food industry who desire upgrading of skills and knowledge. Applicants for admission to this program must meet the admission requirement of a baccalaureate in an honours program (or the equivalent) in a relevant field of study 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:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>FSQA*6100</td>
<td>Food Law and Policy</td>
<td>0.50</td>
</tr>
<tr>
<td>FSQA*6150</td>
<td>Food Quality Assurance Management</td>
<td>0.50</td>
</tr>
<tr>
<td>FSQA*6200</td>
<td>Food Safety Systems Management</td>
<td>0.50</td>
</tr>
<tr>
<td>FSQA*6600</td>
<td>Principles of Food Safety and Quality Assurance</td>
<td>0.50</td>
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<tr>
<td>POPM*6350</td>
<td>Safety of Foods of Animal Origins</td>
<td>0.50</td>
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</tbody>
</table>

Collaborative Specializations

Toxicology
The MSc in Food Safety and Quality Assurance participates in the collaborative specialization in toxicology. Two Toxicology graduate level courses must be completed as part of the course work. Please consult the Toxicology listing for a detailed description of the master’s collaborative specialization.

Courses

FSQA*6000 Food Safety and Quality Assurance Seminar Fall Only [0.50]
Provides experiential training in forms of communication that are likely to be required in professional or academic careers in food science and technology.
Restriction(s): This course is open only to students in the MSc.FSQA:L and MSc.FSQA:L+TOX programs.
Department(s): Department of Food Science
Location(s): Guelph

FSQA*6100 Food Law and Policy Fall Only [0.50]
The fundamentals of food policy development and Canadian and international food law are learned and practiced through online presentations, independent study and online interactions with other students and industry professionals.
Offering(s): Offered through Distance Education format only.
Department(s): Department of Food Science
Location(s): Guelph

FSQA*6150 Food Quality Assurance Management Winter Only [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
Location(s): Guelph

FSQA*6200 Food Safety Systems Management Winter Only [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
Location(s): Guelph
FSQA*6300  Leadership in Food Safety  Fall Only  [0.50]
This course prepares students for food safety leadership roles in the global food industry by developing core problem-solving, management, and communication competencies. Students are exposed to industry based and governmental based food safety leadership initiatives at both the regional and international levels.
Offering(s): Offered through Distance Education format only.
Department(s): Department of Food Science
Location(s): Guelph

FSQA*6400  Workplace Project in Food Safety  Winter and Summer Reg Required  [1.00]
A major project of relevance to a host employer related to food safety and quality assurance, which includes the preparation of a written and an oral presentation to the graduate faculty.
Offering(s): Offered through Distance Education format only.
Department(s): Department of Food Science
Location(s): Guelph

FSQA*6500  Food Safety and Quality Assurance Research Project  Summer, Fall, and Winter  [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
Location(s): Guelph

FSQA*6600  Principles of Food Safety and Quality Assurance  Fall Only  [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
Location(s): Guelph

Other Graduate Courses Suitable for Credit in this Program

Human Heath and Nutritional Sciences

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>HHNS*6400</td>
<td>Functional Foods and Nutraceuticals</td>
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<tr>
<td>HHNS*6410</td>
<td>Applied Functional Foods and Nutraceuticals</td>
<td>1.00</td>
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Pathobiology

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PABI*6000</td>
<td>Bacterial Pathogenesis</td>
<td>0.50</td>
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<tr>
<td>PABI*6550</td>
<td>Epidemiology of Zoonoses</td>
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Population Medicine

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>POPM*6200</td>
<td>Epidemiology I</td>
<td>0.50</td>
</tr>
<tr>
<td>POPM*6210</td>
<td>Epidemiology II</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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Plant Agriculture

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PLNT*6110</td>
<td>Fruit and Vegetable Technology</td>
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Undergraduate Courses Suitable for Credit in this Program

Food Science

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>FOOD*3030</td>
<td>Food Chemistry I</td>
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<tr>
<td>FOOD*4190</td>
<td>Advanced Food Analysis</td>
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<tr>
<td>FOOD*4090</td>
<td>Functional Foods and Nutraceuticals</td>
<td>0.50</td>
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</table>

Human Health and Nutritional Sciences

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>NUTR*4510</td>
<td>Toxicology, Nutrition and Food</td>
<td>0.50</td>
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</table>

Population Medicine

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<tr>
<th>Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>POPM*4040</td>
<td>Epidemiology of Food-borne Diseases</td>
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Food, Agricultural and Resource Economics

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<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>FARE*6130</td>
<td>Operations Management in the Agri-Food Sector</td>
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