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 Program Assistant
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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>
</tr>
</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 1</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>
</tr>
</tbody>
</table>

At least three additional courses 2

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>
</tr>
</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>
</tr>
</tbody>
</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>
</tr>
</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>
</tr>
<tr>
<td>POPT*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): Restricted to Food Safety and Quality Assurance hybrid
delivery students.
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

#### Food Science
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOOD*6190</td>
<td>Advances in Food Science</td>
<td>0.50</td>
</tr>
<tr>
<td>FOOD*6710</td>
<td>Special Topics in Food Chemistry</td>
<td>0.25</td>
</tr>
<tr>
<td>FOOD*6720</td>
<td>Special Topics in Food Microbiology</td>
<td>0.25</td>
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<tr>
<td>FOOD*6730</td>
<td>Special Topics in Food Physics</td>
<td>0.25</td>
</tr>
<tr>
<td>FOOD*6740</td>
<td>Special Topics in Food Processing</td>
<td>0.25</td>
</tr>
<tr>
<td>FOOD*6750</td>
<td>Special Topics in Food for Health</td>
<td>0.25</td>
</tr>
<tr>
<td>FOOD*6760</td>
<td>Special Topics in Food Quality</td>
<td>0.25</td>
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#### Human Heath and Nutritional Sciences

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HHNS*6400</td>
<td>Functional Foods and Nutraceuticals</td>
<td>0.50</td>
</tr>
<tr>
<td>HHNS*6410</td>
<td>Applied Functional Foods and Nutraceuticals</td>
<td>1.00</td>
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</tbody>
</table>

#### Pathobiology

<table>
<thead>
<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

<table>
<thead>
<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>
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<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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</table>

#### Plant Agriculture

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>PLNT*6110</td>
<td>Fruit and Vegetable Technology</td>
<td>0.50</td>
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### Undergraduate Courses Suitable for Credit in this Program

#### Food Science

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>FOOD*3030</td>
<td>Food Chemistry I</td>
<td>0.50</td>
</tr>
<tr>
<td>FOOD*4190</td>
<td>Advanced Food Analysis</td>
<td>0.50</td>
</tr>
<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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</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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</tbody>
</table>

#### Population Medicine

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POPM*4040</td>
<td>Epidemiology of Food-borne Diseases</td>
<td>0.50</td>
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</table>

#### Food, Agricultural and Resource Economics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>FARE*6130</td>
<td>Operations Management in the Agri-Food Sector</td>
<td>0.50</td>
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