

# FOOD, AGRICULTURAL AND RESOURCE ECONOMICS

The graduate programs in Food, Agricultural and Resource Economics offers opportunities for master of science (MSc), master in food, agricultural and resource economics (MFARE) and doctor of philosophy (PhD). The thesis-based MSc and PhD are research-oriented degrees which require both course work and a thesis. The course-based MFARE degree requires either course work with a major research paper or course work alone.

The MSc, MFARE and PhD program in Food, Agricultural and Resource Economics focuses on two major fields of emphasis:

- Food and agricultural economics
- Natural resource and environmental economics

## Administrative Staff

### Chair

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## Graduate Faculty

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

### Sylvanus Kwaku Afesorbor

BA Ghana, MA Erasmus, PhD Aarhus - Assistant Professor  
Graduate Faculty

### Andreas Boecker

M.Sc., PhD Kiel - Associate Professor and Chair  
Graduate Faculty

### John A.L. Cranfield

B.Sc., M.Sc. Guelph, PhD Purdue - Professor and Associate Dean (External Relations), Ontario Agricultural College  
Graduate Faculty

### Brady J. Deaton

BS Missouri, MS Virginia Tech, PhD Michigan State - Professor  
Graduate Faculty

### Glenn Fox

B.Sc., M.Sc. Guelph, PhD Minnesota - Retired Faculty, Food, Agricultural and Resource Economics  
Associated Graduate Faculty

### Getu Hailu

B.Sc., M.Sc. Alemaya, PhD Alberta - Professor  
Graduate Faculty

### Spencer Henson

B.Sc., PhD Reading - Professor  
Graduate Faculty

### Alan Ker

BA Waterloo, M.Sc. Guelph, PhD North Carolina - Professor  
Graduate Faculty

### Yu Na Lee

BBA, MA Yonsei, MS Cornell, MS California, PhD Minnesota - Assistant Professor  
Graduate Faculty

### Tongzhe Li

AE Melbourne, MS North Carolina A&T State, PhD Washington State - Assistant Professor  
Graduate Faculty

### Jose Nuno-Ledesma

BECON de Guadalajara, MS Minnesota-Twin Cities, PhD Purdue - Assistant Professor  
Graduate Faculty

### Rakhal C. Sarker

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

### Michael von Massow

BA Manitoba, B.Sc., M.Sc. Guelph, PhD McMaster - Associate Professor  
Graduate Faculty

### Richard Vyn

B.Sc. Dordt College, M.Sc. Alberta, PhD Guelph - Associate Professor  
Graduate Faculty

### Alfons J. Weersink

B.Sc. Guelph, M.Sc. Montana State, PhD Cornell - Professor  
Graduate Faculty

## MFARE Program

The Master of Food, Agricultural and Resource Economics focuses on two major fields of emphasis:

1. food and agricultural economics; and
2. natural resource and environmental economics.

The MFARE program provides an alternative pathway to graduate education related to the economics of food, agriculture, and natural resources, with an emphasis on skills acquisition and development of industry specific expertise. Through expanded course work requirements, students develop a breadth of exposure to empirical methods and analytical approaches to undertaking policy analysis and research, and enhanced communication skills.

## Admission Requirements

All students entering the MFARE program must have achieved the University required minimum 70% (B-) average or equivalent. In addition, they are expected to have already taken, the following basic courses:

Code	Title	Credits
ECON*2310	Intermediate Microeconomics (or equivalent)	0.50

ECON*2770	Introductory Mathematical Economics (or equivalent)	0.50
ECON*3740	Introduction to Econometrics (or equivalent)	0.50

Advanced microeconomic theory at the undergraduate level is strongly recommended as preparation for the course work in the MFARE program.

The Graduate Program Committee examines each application before the student is proposed to the Office of Graduate and Postdoctoral Studies for admission into the program.

## Program Requirements

All MFARE students in the Department are required to establish an Advisory Committee and submit the Advisory Committee Appointment form to the Office of Graduate and Postdoctoral Studies not later than the mid-point of the student's second registered semester. Until that time, they are advised by the Departmental Graduate Program Committee.

The advisory committee comprises of at least two graduate faculty members, the chair of which committee is normally the advisor of the student's program. The other member may be from the Department or another member of graduate faculty (who may be from another department when appropriate).

By the end of their first semester, students must choose one of the following two options.

### Course Work and Major Research Paper

In order to satisfy the degree requirements of the course work and major research paper option, students will complete successfully five required courses, a seminar course (FARE\*6800 Seminar in Agricultural Economics) and a research project course (FARE\*6140 Major Paper in Food, Agricultural and Resource Economics) and two graduate courses approved by the student's advisory committee.

Code	Title	Credits
<b>Required Courses</b> <sup>1</sup>		
FARE*6100	The Methodologies of Economics	0.50
FARE*6380	Applied Microeconomics for Agricultural Economists	0.50
FARE*6400	Advanced Topics in Agricultural Economics	0.50
FARE*6910	Applied Policy Analysis I	0.50
FARE*6970	Applied Quantitative Methods for Agricultural Economists	0.50
<b>Graduate Courses</b> <sup>2</sup>		
FARE*6800	Seminar in Agricultural Economics	0.00
FARE*6140	Major Paper in Food, Agricultural and Resource Economics	1.00

1

Assuming all undergraduate background requirements have been met.

2

As approved by the student's advisory committee.

### Course Work

In order to satisfy the degree requirements of the course work option, students will complete successfully five required courses listed below plus four additional graduate courses approved by the student's advisory

committee. Students in this option are restricted from taking FARE\*6140 Major Paper in Food, Agricultural and Resource Economics.

Code	Title	Credits
FARE*6100	The Methodologies of Economics	0.50
FARE*6380	Applied Microeconomics for Agricultural Economists	0.50
FARE*6400	Advanced Topics in Agricultural Economics	0.50
FARE*6910	Applied Policy Analysis I	0.50
FARE*6970	Applied Quantitative Methods for Agricultural Economists	0.50

Four additional graduate courses approved by the student's advisory committee

## MSc Program

The MSc program in Food, Agricultural and Resource Economics focuses on two major fields of emphasis:

1. food and agricultural economics; and
2. natural resource and environmental economics.

The aim of the MSc program is to develop in students a fundamental understanding of economic principles and their application in identifying and solving relevant problems related to food, agriculture, and natural resources. The program also strives to develop appropriate analytical, methodological, and communication skills to enable students to analyze agriculture and resource problems effectively and explain their findings.

### Admission Requirements

All students entering the Master of Science program must have achieved the University required minimum 70% (B-) average or equivalent. In addition, they are expected to have already taken, the following basic courses:

Code	Title	Credits
ECON*2310	Intermediate Microeconomics (or equivalent)	0.50
ECON*2770	Introductory Mathematical Economics (or equivalent)	0.50
ECON*3740	Introduction to Econometrics (or equivalent)	0.50

Advanced microeconomic theory at the undergraduate level is strongly recommended as preparation for the course work in the MSc program.

The Graduate Program Committee examines each application before the student is proposed to the Office of Graduate & Postdoctoral Studies for admission into the program.

### Program Requirements

In order to satisfy the degree requirements of the MSc, students will complete successfully six courses, a seminar course, and write and defend an original MSc thesis. The minimum course work requirements (assuming all undergraduate background requirements have been met) are:

Code	Title	Credits
<b>Required Courses</b>		
FARE*6100	The Methodologies of Economics	0.50

FARE*6380	Applied Microeconomics for Agricultural Economists	0.50
FARE*6910	Applied Policy Analysis I	0.50
FARE*6970	Applied Quantitative Methods for Agricultural Economists	0.50

#### Graduate Courses

FARE*6800	Seminar in Agricultural Economics	0.00
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Two additional graduate course as approved by the student's advisory committee.

## PhD Program

The PhD program in Food, Agricultural and Resource Economics focuses on two major fields of emphasis:

1. food and agricultural economics; and
2. natural resource and environmental economics.

Across these areas there is a focus on both developed and developing countries. Students in the PhD program focus on an area of specialization relevant to their thesis research, plus complete courses in microeconomic theory and economic research methods. All students must complete and defend a thesis in their chosen area of specialization.

### Admission Requirements

Minimum University of Guelph admission requirements for a Doctoral program include:

1. a satisfactory baccalaureate; and
2. at the very minimum a 'B' average in a recognized Master's degree.

Students entering the PhD program are expected to have satisfied the requirements, or their equivalents, of the department's MSc degree in Food, Agricultural and Resource Economics. All applicants are required to upload valid GRE (General exam only) scores with their electronic application prior to the departmental application deadline.

In cases where a student's master's degree is not equivalent to that offered by the department, the student may initially be accepted into the MSc program and may then apply for transfer to the PhD program at some time during the first three semesters. Applications for transfer must be supported by the Graduate Program Committee and approved by the Board of Graduate Studies. The student does not have to complete all the requirements of the MSc before transferring to the PhD program, but must achieve high academic standing.

### Program Requirements

Students enrolled in the PhD program must successfully complete a program of at least ten taught courses that prepare them for the various elements of the qualification examination and thesis research, as outlined below. However, students that are able to demonstrate a satisfactory level of competence in any of these requirements may have these course requirements adjusted accordingly, subsequent to evaluation and the decision of the Graduate Program Committee.

#### Microeconomic Theory

Code	Title	Credits
ECON*6000	Microeconomic Theory I	0.50
ECON*6010	Microeconomic Theory II	0.50

#### Economic Research Methods

Code	Title	Credits
ECON*6140	Econometrics I	0.50
ECON*6160	Econometrics II	0.50
FARE*6100	The Methodologies of Economics	0.50
FARE*6970	Applied Quantitative Methods for Agricultural Economists	0.50

#### Food, Agricultural and Resource Economics

Code	Title	Credits
FARE*6920	Applied Policy Analysis II	0.50
FARE*6400	Advanced Topics in Agricultural Economics	0.50

Two other graduate courses approved by the student's advisory committee. This could include:

FARE*6940	Food Firms, Consumers and Markets II Markets II	0.50
FARE*6960	Natural Resource Economics II	0.50

Or another 6000 level graduate course.

Students may also be permitted to take other courses as substitutes for the above, subject to approval by the Departmental Graduate Program Committee.

### Qualifying Examination

It should be noted that successful completion of the above courses is not necessarily sufficient for qualification to PhD candidacy.

Students are expected to complete successfully the qualifying examination in microeconomic theory that aims to assess a student's understanding of key theoretical concepts. Students are allowed two attempts at this qualifying examination. Students are expected to write the first attempt at this exam in the Summer semester of their first year and (i.e. their third semester in the program), if necessary, the second attempt in the Fall semester of their second year (i.e. their fourth semester in the program). Students that fail the examination at the second attempt will not be permitted to continue.

## Collaborative Specializations

### International Development Studies

The Department of Food, Agricultural and Resource Economics participates in the International Development Studies (IDS) collaborative specialization. Please consult the International Development Studies ([calendar.uoguelph.ca/graduate-calendar/collaborative-specializations/international-development-studies/](http://calendar.uoguelph.ca/graduate-calendar/collaborative-specializations/international-development-studies/)) listing for a detailed description of the MFARE/MSc/PhD collaborative specialization including the special additional requirements for each of the participating departments.

## Courses

### FARE\*6100 The Methodologies of Economics Winter Only [0.50]

Alternative views on the methodology of economics are reviewed and assessed. The process of problem identification in the development of a research project proposal is investigated.

**Department(s):** Department of Food, Agricultural and Resource Economics

**Location(s):** Guelph

**FARE\*6110 International Food Industry and Policy Analysis Fall Only [0.50]**

This course explores the structure and functioning of the agri-food sector beyond the farm gate, including food processing, distribution and retailing, and the implications for the functioning of food markets in terms of the price, quality and safety of food. The focus of the course is on the agri-food sector globally, such that it explores the structure and functioning of the agri-food sector in different geographical locations, at different levels of economic development, etc. The course examines the behaviour of actors within the food sector and the role of policies at the regional, national and international levels.

**Offering(s):** Offered through Distance Education format only.

**Department(s):** Department of Food, Agricultural and Resource Economics

**Location(s):** Guelph

**FARE\*6120 Assessment of Food and Agricultural Technologies Winter Only [0.50]**

This course focuses on the assessment of technology choices in food and agricultural businesses. It positions technology assessment in the broader context of policy making and technology management. It exposes students to examples of the benefits of technology assessment and the consequences of insufficient technology assessment. Students learn and apply specific analysis tools that guide technology choice and implementation.

**Offering(s):** Offered through Distance Education format only.

**Department(s):** Department of Food, Agricultural and Resource Economics

**Location(s):** Guelph

**FARE\*6130 Operations Management in the Agri-Food Sector Winter Only [0.50]**

This course introduces students to the main concepts for analysis in Agri-Food operations and supply chain management, with special attention given to quantitative techniques to support decision-making. The course also includes qualitative case analyses and discussions that build on key concepts of operations management.

**Offering(s):** Offered through Distance Education format only.

**Department(s):** Department of Food, Agricultural and Resource Economics

**Location(s):** Guelph

**FARE\*6140 Major Paper in Food, Agricultural and Resource Economics Unspecified [1.00]**

The major paper is an option only available to MFARE students registered in the course work master program. An original research project related to the specialization of choice in food, agricultural and resource economics will be undertaken. The project will include preparation of a written paper and an oral presentation of the findings to the faculty.

**Restriction(s):** Restricted to Master of Food, Agricultural and Resource Economics students.

**Department(s):** Department of Food, Agricultural and Resource Economics

**Location(s):** Guelph

**FARE\*6380 Applied Microeconomics for Agricultural Economists Fall Only [0.50]**

The objective of this course is to foster a deeper understanding of standard microeconomic concepts and their application to a wide variety of topics in food, agricultural, and resource economics. Emphasis is placed on what tool(s) to use in a wide variety of circumstances to address real life problems. Topics will include decisions by firms and consumers, market equilibrium, and production decisions.

**Prerequisite(s):** ECON\*2770, ECON\*3710, ECON\*3740

**Department(s):** Department of Food, Agricultural and Resource Economics

**Location(s):** Guelph

**FARE\*6400 Advanced Topics in Agricultural Economics Unspecified [0.50]**

The application of economic theory and various contemporary tools of economic analysis in solving production problems in the agricultural sector of the economy.

**Department(s):** Department of Food, Agricultural and Resource Economics

**Location(s):** Guelph

**FARE\*6600 Food Security and the Economics of Agri-Food Systems in Developing Countries Fall Only [0.50]**

The aim of this course is to understand the nature of food security in developing countries and relations with the economic performance of the agri-food system. Towards this aim, the course focuses on both the agri-food system's role in the supply of nutritious food and its importance as a source of livelihood and as a driver of overall processes of economic development.

**Prerequisite(s):** ECON\*1050, ECON\*1100

**Department(s):** Department of Food, Agricultural and Resource Economics

**Location(s):** Guelph

**FARE\*6720 Readings in Agricultural Economics Summer, Fall, and Winter [0.50]**

A reading course on selected topics of special interest. May be offered to individual students or to groups of students in any semester.

**Department(s):** Department of Food, Agricultural and Resource Economics

**Location(s):** Guelph

**FARE\*6800 Seminar in Agricultural Economics Unspecified [0.00]**

Students in the MSc and MFARE major research paper option program must give two presentations at the annual research symposium; one in their first year outlining their research plan, and one in their second year on their thesis research results or major research paper.

**Department(s):** Department of Food, Agricultural and Resource Economics

**Location(s):** Guelph

**FARE\*6910 Applied Policy Analysis I Winter Only [0.50]**

An overview of domestic and international agri-food policies and an introduction to the concepts and methods used to evaluate domestic trade policies.

**Prerequisite(s):** FARE\*6380

**Department(s):** Department of Food, Agricultural and Resource Economics

**Location(s):** Guelph

**FARE\*6920 Applied Policy Analysis II Unspecified [0.50]**

A presentation and evaluation of advanced quantitative agri-food policy models and selected special topics related to domestic and trade policy evaluation.

**Prerequisite(s):** FARE\*6910

**Department(s):** Department of Food, Agricultural and Resource Economics

**Location(s):** Guelph

**FARE\*6930 Food Firms, Consumers and Markets I Markets I Fall Only [0.50]**

This course examines the application of microeconomic theory to food markets. Topics covered include: optimizing behaviour by economic agents, the certainty equivalent profit model and decision making under risk, optimal capital replacement models and their application to food system economics, consumer behaviour with respect to food products and behaviour with respect to food products and behaviour of marketing intermediaries and food processors. New developments in the economic theory of the form are surveyed.

**Prerequisite(s):** ECON\*2310, ECON\*3740

**Department(s):** Department of Food, Agricultural and Resource Economics

**Location(s):** Guelph

**FARE\*6940 Food Firms, Consumers and Markets II Markets II Unspecified [0.50]**

This course builds on Food Firms, Consumers and Markets I by extending the breadth and depth of student's understanding and scope of economic analysis. Advanced techniques in producer and consumer theory, as well as advance market analysis techniques are presented and utilized. Understanding of the research process and advanced methods is emphasized throughout.

**Prerequisite(s):** FARE\*6930

**Equate(s):** AGECE\*6930

**Department(s):** Department of Food, Agricultural and Resource Economics

**Location(s):** Guelph

**FARE\*6950 Natural Resource Economics I Winter Only [0.50]**

Natural Resources I introduces conventional theoretical modeling approaches to renewable resources, e.g. fisheries & forestry. Seminal theoretical literature is discussed. Emphasis is placed on setting up economic models, deriving and interpreting general results. Applied methods include dynamic optimization and regression analysis. Additional topics include Land Economics and the property rights approach.

**Prerequisite(s):** FARE\*6380

**Department(s):** Department of Food, Agricultural and Resource Economics

**Location(s):** Guelph

**FARE\*6960 Natural Resource Economics II Unspecified [0.50]**

Natural Resources II reviews & extends conventional theoretical modeling approaches to renewable resources, e.g. fisheries & forestry. Seminal literature is reviewed and contemp. theoretical work and empirical papers discussed. Emphasis on extending economic models addressing natural resource issues - uncertainty, externalities & policy instruments, and derive reduced-form versions of forestry & fishery for empirical estim. & analysis. Primary method of math analysis involves dyn. opt. techniques. Detailed math derivations & proofs expected. Also- extinction, climate change, carb sequest.

**Prerequisite(s):** FARE\*6950

**Equate(s):** AGECE\*6950

**Department(s):** Department of Food, Agricultural and Resource Economics

**Location(s):** Guelph

**FARE\*6970 Applied Quantitative Methods for Agricultural Economists Fall Only [0.50]**

This course exposes students to the empirical tools agricultural economists use when conducting research. Emphasis is placed on what tool(s) to use in a variety of circumstances. Topics covered will include advanced econometric techniques, optimization and simulation modelling. Students will also be exposed to the different quantitative software packages used in empirical research.

**Prerequisite(s):** ECON\*3740, ECON\*2770

**Department(s):** Department of Food, Agricultural and Resource Economics

**Location(s):** Guelph

**FARE\*6980 Agricultural Trade Relations Winter Only [0.50]**

An examination of the institutional, theoretical and empirical aspects of international agri-food trade.

**Prerequisite(s):** FARE\*6380

**Department(s):** Department of Food, Agricultural and Resource Economics

**Location(s):** Guelph

**FARE\*6990 Applied Quantitative Methods for Agricultural Economists II Winter Only [0.50]**

Students will develop econometric methods and models that will provide solutions to a "real world" economic problem posed by an economic firm. Along a second vein, students will replicate the empirical findings of a published paper central to their thesis. Advanced quantitative methods will be introduced.

**Prerequisite(s):** FARE\*6970

**Department(s):** Department of Food, Agricultural and Resource Economics

**Location(s):** Guelph