FOOD, AGRICULTURAL AND RESOURCE ECONOMICS

The graduate programs in Food, Agricultural and Resource Economics offer opportunities for Master of Science (MSc), Master of Food, Agricultural and Resource Economics (MFARE), and Doctor of Philosophy (PhD) degrees.

The thesis-based MSc and PhD are research-oriented degrees requiring completion of course work and a thesis. They focus on two major fields of emphasis:

- Food and Agricultural Economics; and
- Natural Resource and Environmental Economics.

The MFARE degree requires completion of course work and a major research paper or group consultancy project. It allows students to tailor their program to their particular interests, specifically in:

- Agri-food sector and policy analysis; and
- Agri-food sector management analysis.

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 Afesorgbor
BA Ghana, MA Erasmus, PhD Aarhus - Associate Professor
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M.Sc., PhD Kiel - Associate Professor and Chair
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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
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Associated Graduate Faculty

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

MFARE Program

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 successfully completed the following courses, or their equivalent at another university:

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 recommended to the Office of Graduate and Postdoctoral Studies for admission into the program. Students will not be admitted to the MFARE unless they meet these minimum requirements.

Program Requirements

The Master of Food, Agricultural and Resource Economics focuses on the development of knowledge and skills in the application of economic analysis and quantitative methods, and their application to the food, agricultural and natural resource sectors. The program has a particular focus on policy and business decisions within the food, agricultural and natural resource sectors, enabling students to analyze issues and problems in a complex world and to communicate with a diverse audience. Through the program, students have opportunities to engage with policy, business, and civil society stakeholders, setting them up for success in their career when they complete their graduate studies.

Students must successfully complete the following requirements, totalling 4.0 credits:

Code	Title	Credits
Core Courses		
FARE*6380	Applied Microeconomics for Agricultural Economists	0.50
FARE*6970	Applied Quantitative Methods for Agricultural Economists	0.50
ONE of the following:		
FARE*6910	Applied Policy Analysis I	0.50
FARE*6930	Food Firms, Consumers and Markets	0.50
ONE of the following:		
FARE*6140	Major Paper in Food, Agricultural and Resource Economics	1.00
FARE*6200	Group Consultancy Project in Food, Agricultural and Natural Resource Economics	1.00
Restricted Electives		
Any THREE courses from the following:		
Agri-Food Sector and Policy Analysis		
FARE*6980	Agricultural Trade Relations	0.50
FARE*6600	Food Security and the Economics of Agri-Food Systems in Developing Countries	0.50
FARE*6110	International Food Industry and Policy Analysis	0.50
FARE*6950	Natural Resource Economics I	0.50
Agri-Food Sector Management Analysis		
FARE*6120	Assessment of Food and Agricultural Technologies	0.50
FARE*6130	Operations Management in the Agri-Food Sector	0.50
FARE*6150	Food Retailing, Merchandising and Sales	0.50
FARE*6160	Decision Science: Applications to Food, Agriculture and Natural Resources	0.50
FARE*6170	Futures and Options Markets for Food and Agriculture	0.50
FARE*6180	Agri-Food Supply and Value Chain Management	0.50
FARE*6190	The Firm and Agri-Food Markets	0.50

Throughout their program, students are advised by the MFARE Graduate Program Coordinator.

Students choosing the Major Paper option are required to work under the supervision of a named faculty member in the Department of Food, Agricultural and Resource Economics. A second graduate faculty member will act as the second reader.

MSc Program

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

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.

In order to satisfy the degree requirements of the MSc, students will successfully complete 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
Required Courses:		
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
Two additional graduate courses 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/) listing for a detailed description of the MFARE/MSc/PhD collaborative specialization including the special additional requirements for each of the participating departments.

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.

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*6150 Food Retailing, Merchandising and Sales Winter Only [0.50]
This course explores the merchandising and sales function, strategies and practices used by the retail food sector. The course includes development and application of concepts tied to effective sales management, as well as strategies and approaches to undertaking retail merchandising. Where relevant, focus is placed on business-to-business or business-to-consumer approaches. Students learn to plan, execute, and evaluate food sales and retail merchandising programs in a variety of alternative distribution channels. Offered in conjunction with FARE*4380. Extra work is required for graduate students.
Offering(s): Annually
Restriction(s): Credit may only be obtained for one of FARE*6150 or FARE*4380
Department(s): Department of Food, Agricultural & Resource Economics
Location(s): Guelph

FARE*6160 Decision Science: Applications to Food, Agriculture and Natural Resources Fall Only [0.50]
Quantitative techniques such as classical optimization, mathematical programming, simulation and input-output models are applied to firm, interregional, industry, and international problem situations in agricultural economics, including those dealing with resources and the environment. Time and risk and uncertainty dimensions are addressed. Offered in conjunction with FARE*4500. Extra work is required for graduate students.
Offering(s): Annually
Restriction(s): Credit may only be obtained from one of FARE*4500 or FARE*6160
Department(s): Department of Food, Agricultural and Resource Economics
Location(s): Guelph

FARE*6170 Futures and Options Markets for Food and Agriculture Winter Only [0.50]
This course is an introduction to the study of the theory and application of futures, options and other derivative instruments for marketing, hedging, investment and speculative purposes. Emphasis is placed on applications of agricultural and financial instruments to real agri-food business situations. Offered in conjunction with FARE*4240. Extra work is required for graduate students.
Offering(s): Annually
Restriction(s): Credit may only be obtained for one of FARE*6170 or FARE*4240
Department(s): Department of Food, Agricultural and Resource Economics
Location(s): Guelph

FARE*6180 Agri-Food Supply and Value Chain Management Fall Only [0.50]
This course focuses on the coordination of decision-making along food industry supply chains and networks to achieve strategic and operational goals. This course uses a case-based approach to instruct students in the principles of supply chain management and key concepts for the analysis of agri-food supply chain management issues. Offered in conjunction with FARE*3320. Extra work is required for graduate students.
Offering(s): Annually
Restriction(s): Credit may only be obtained for one of FARE*6180 or FARE*3320
Department(s): Department of Food, Agricultural and Resource Economics
Location(s): Guelph

FARE*6190 The Firm and Agri-Food Markets Fall Only [0.50]
A course in microeconomic theory applied to agricultural and food economics research. The theory of the firm is used to analyze production and resource use in the agri-food sector. Resource allocation issues, risk responsive decision-making, and firm strategy on vertical and horizontal integration are studied. Consumer theory is used to analyze food purchase decisions. How theoretical relationships are quantified and used in the analysis of public policy issues is emphasized. Offered in conjunction with FARE*3030. Extra work is required for graduate students.
Offering(s): Annually
Restriction(s): Credit may be obtained for only one of FARE*6190 or FARE*3030
Department(s): Department of Food, Agricultural and Resource Economics
Location(s): Guelph

FARE*6200 Group Consultancy Project in Food, Agricultural and Natural Resource Economics Summer Only [1.00]
This course provides students with the opportunity to undertake a consultancy project for an external client. Students apply the theoretical and analytical skills developed in their program to design and implement this project, and then communicate the results to the client. Through this process, students develop skills in real-world analysis of agri-food sector, policy and/or management problems in the agri-food and natural resource sectors.
Offering(s): Annually
Restriction(s): Instructor consent required.
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 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): AGEC*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): AGEC*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