

# SUSTAINABLE AGRICULTURE

The Master of Sustainable Agriculture (MSAg) combines strengthening of one's disciplinary expertise with a broad understanding of sustainability and dependencies within the agricultural systems. In addition, students in this program have the opportunity to develop professional skills related to critical thinking and evidence-based decision making, problem solving and project management, data analysis, communication, and operations management that are valued in the workplace. This breadth and depth allow graduates of this program to find creative solutions to address the complex issues the agricultural sector is facing and will continue to face. In-class experiential learning, the internship and completion of sector specific professional development will also enhance career readiness.

Students in the MSAg have the option of specializing their studies in one of the three fields:

1. Livestock Agriculture;
2. Environmental Sciences; and
3. Plant Agriculture.

## Administrative Staff

### Graduate Program Coordinator

Emmanuelle Arnaud (Alexander Hall 126, Ext. 58087)

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### Graduate Program Assistant

Aimee Caldwell

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## Graduate Faculty

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

### Emmanuelle Arnaud

BA McMaster, M.Sc. British Columbia, PhD McMaster - Associate Professor and Assistant Dean, Graduate Programs, Ontario Agricultural College  
Graduate Faculty

### Mehrzad Eskandari

B.Sc., Arsenjan Azad Univ., M.Sc., Karaj Azad Univ., PhD Guelph - Associate Professor  
Graduate Faculty

### Christopher L. Gillard

B.Sc., M.Sc., Guelph - Associated Graduate Faculty

### Brandon Gilroyed

B.Sc. Alberta, PhD Calgary - Associate Professor  
Graduate Faculty

### David C. Hooker

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

### Darren E. Robinson

B.Sc. Winnipeg, M.Sc. Manitoba, PhD Guelph - Professor  
Graduate Faculty

### Peter H. Sikkema

B.Sc., M.Sc. Guelph, PhD Western - Retired Professor, University of Guelph

### Jocelyn Smith

B.Sc. M.Sc., PhD Guelph - Assistant Professor  
Graduate Faculty

### Laura Van Eerd

M.Sc., PhD Guelph - Professor  
Graduate Faculty

## Admission Requirements

Students must hold an Honours Bachelor's degree in agriculture, plant sciences, environmental science, animal biology, agricultural engineering, or related field from a recognized university. Students must have achieved a grade average of at least 70% (B-) in the last four semesters of study, normally the last two years of undergraduate study (full-time equivalent).

Applicants whose first language is not English are required to submit evidence of proficiency in the English language using one of the University's approved tests. Admissible scores for entry to the MSAg are as follows:

- Test of English as a Foreign Language (TOEFL): overall score of 93 with no individual component below 23
- International English Language Testing System (IELTS): overall average of at least 6.5, with no individual component below 6.5
- Canadian Academic English Language (CAEL): overall score of 70 with a minimum of 60 in each of the categories
- PTE-A: overall score of 63 with a minimum of 57 (listening), 61 (reading), 54 (speaking) and 74 (writing)
- Duolingo: overall score of 125
- Advanced Level for the UoG English Language Certificate
- Advanced Level for the UoG Graduate Preparation Program

## Learning Outcomes

Upon successful completion of the Master of Sustainable Agriculture program, graduates will be able to:

1. Distinguish between the various facets of sustainability in the context of agricultural systems both locally and globally, the ethical dimension of sustainability and how sustainability can be integrated in decision making.
2. Critically analyze information and data related to their field of study and apply this knowledge to analyze, recommend or inform ethical solutions to challenges facing agricultural systems.
3. Identify the value, significance and limitations of qualitative and quantitative data, study design and methods used in the analysis of the impact or performance evaluation of specific practices in agriculture and food systems.
4. Use various modes of communication (oral, written, visual) effectively to reach a range of audiences including making convincing pitches to supervisors, and communicating scientific information to industry stakeholders, policy makers and the general public.

5. Assess their professional development needs as lifelong learners and in the context of their career goals, devise a plan to meet those needs, monitor accomplishments and revise as situation/context evolves.

## Program Requirements

Students are required to complete 5.50 credits, as follows:

Code	Title	Credits
<b>Required Courses</b>		
AGR*6010	Seminar in Sustainable Agriculture	0.50
AGR*6020	Practices and Processes in Sustainable Agriculture	0.50
IAEF*6000	Professional Development in Agriculture, Environment, Food and Communities	0.50
IAEF*6030	Internship in Agriculture, Environment, Food and Communities	1.00
<b>Restricted Electives</b>		
<i>One of:</i>		
UNIV*6020	Experimental Design and Applied Data Analysis for the Agricultural Sciences	0.50
STAT*6950	Statistical Methods for the Life Sciences	0.50
ENVS*6440	Field Sampling Strategies and Geostatistics	0.50
BINF*6210	Software Tools for Biological Data Analysis and Organization	0.50
CIS*6180	Analysis of Big Data	0.50
<i>Choose 1.0 credit from:</i>		
FARE*6110	International Food Industry and Policy Analysis	0.50
FARE*6120	Assessment of Food and Agricultural Technologies	0.50
FARE*6130	Operations Management in the Agri-Food Sector	0.50
FARE*6180	Agri-Food Supply and Value Chain Management	0.50
FARE*6600	Food Security and the Economics of Agri-Food Systems in Developing Countries	0.50
CDE*6290	Special Topics in Capacity Building and Extension <sup>1</sup>	0.50
CDE*6320		0.50
CDE*6690	Community and Small Organization Leadership	0.50
CDE*6311	Community Engagement and Conflict Management	0.50
UNIV*6050	Innovation and Entrepreneurship in Agri-Food Systems	0.50
UNIV*6710	Commercialization of Innovation	0.50
MGMT*6170	Equity, Diversity and Inclusion in the Workplace: Advancing Theory, Research And Practice	0.50

<sup>1</sup> "Project Management" offering, only.

Students may choose alternative courses for their restricted electives above upon approval by the Graduate Program Coordinator.

**Students will also complete 1.50 credits of restricted electives** taken from ENVS (<https://calendar.uoguelph.ca/graduate-calendar/appendix-courses/envs/>), ANSC (<https://calendar.uoguelph.ca/graduate-calendar/appendix-courses/ansc/>) and/or PLNT (<https://calendar.uoguelph.ca/graduate-calendar/appendix-courses/plnt/>). Students choosing the Plant Agriculture field may select courses from PLNT and ENVS; students interested in Livestock Agriculture will select courses from ANSC; students interested in focusing on environmental aspects of agriculture will select from ENVS courses. Students may also choose to remain unspecialized, selecting a mixture of courses from any of the fields in consultation with the MSAg Graduate Program Coordinator. Students will devise a personal list of restricted electives courses as part of their Individual Development Plan in the context of their career goals, interests and academic background.