AGRICULTURE, HONOURS (AGRS)

Departments of Plant Agriculture and Animal Biosciences, Ontario Agricultural College

The Honours Agriculture major combines a core curriculum of agricultural science courses with a wide range of electives focusing on agri-food business, animal and plant production, land stewardship and sustainability. This major allows students to create a curriculum uniquely tailored to their career goals and provides diverse opportunities to explore international agriculture and leading edge agricultural research in animal production, plant biotechnology and pest management. The flexibility provided in semesters 5 and 6 permits students to participate in international exchanges and study abroad program. Students can also incorporate a variety of field trips, experiential learning in the workplace and independent study into their program of studies. The combination of a solid understanding of life science and current agricultural practice with specialized skills and experience provided by this program is greatly valued by prospective employers in this essential sector of Canada's economy.

The Co-op program in Honours Agriculture facilitates the transition of students from academic studies to a professional career by enhancing the integration of theory and practice.

Major Requirements (Honours)

This is a major within the degree: Bachelor of Science in Agriculture (calendar.uoguelph.ca/undergraduate-calendar/degree-programs/bachelor-science-agriculture-bsc-agr/).

Code	Title	Credits
Semester 1		
AGR*1110	Introduction to the Agri-Food Systems	1.00
BIOL*1050	Biology of Plants & Animals in Managed Ecosystems	0.50
CHEM*1040	General Chemistry I	0.50
MATH*1080	Elements of Calculus I	0.50
Semester 2		
AGR*1350	Animal Production Systems and Industry: Dairy, Poultry and Egg	0.50
BIOL*1090	Introduction to Molecular and Cellular Biology	0.50
CHEM*1050	General Chemistry II	0.50
FARE*1400	Economics of the Agri-Food System	1.00
Semester 3		
AGR*2320	Soils in Agroecosystems	0.50
AGR*2470	Introduction to Plant Agriculture	0.50
FARE*2700	Survey of Natural Resource Economics	0.50
MBG*2400	Fundamentals of Plant and Animal Genetics	0.50
0.50 electives or restricted electives		0.50
Semester 4		
AGR*2050	Agroecology	0.50
ANSC*2340	Structure of Farm Animals	0.50
BIOC*2580	Introduction to Biochemistry	0.50
ENVS*2040	Plant Health and the Environment	0.50
STAT*2040	Statistics I	0.50
Semester 5 to 8		
Select one of the following options:		10.00
Option A - Production and Management		
Option B - Research		

Option A - Production and Management

Code	Title	Credits
Semester 5		
FOOD*3090	Food Science and Human Nutrition	0.50
2.00 electives or restricted electives		2.00
Semester 6		
2.50 electives or restricted electives		2.50
Semester 7		
2.50 electives or restricted electives		2.50
Semester 8		
AGR*4600	Agriculture and Food Issues Problem Solving	1.00
1.50 electives or restricted electives		1.50

Restricted Electives - Option A

Students should note that some restricted electives require other courses not included among the required courses for the major as prerequisites. Students should consult the most recent undergraduate calendar for specific requirements.

- A minimum of 1.00 credits from the list of restricted electives below:

Code	Title	Credits
AGR*2350	Animal Production Systems and Industry: Beef, Swine and Others	0.50
AGR*2500	Field Course in International Agriculture	0.50
AGR*3010	Special Studies in Agricultural Science I	0.50
AGR*3450	Research Methods in Agricultural Science	0.50
ANSC*4010	Animal Welfare Judging and Evaluation	0.50
ANSC*4230	Challenges and Opportunities in Dairy Cattle Production	0.50
ANSC*4610	Critical Analysis in Animal Science	0.50
CROP*4260	Crop Science Field Trip	0.50
EDRD*2020	Interpersonal Communication	0.50
EDRD*3050	Agricultural Communication	0.50
EDRD*3140	Organizational Communication	0.50
FARE*3310	Operations Management	0.50
FARE*4220	Advanced Agribusiness Management	0.50
FARE*4310	Resource Economics	0.50
FARE*4360	Marketing Research	0.50
FARE*4550	Independent Studies I	0.50
IAEF*3500	Experiential Education	0.50

- A minimum of 2.00 credits from the following lists:

Code	Title	Credits
Select a minimum of 0.50 credits from the following:		
CROP*3300	Grain Crops	0.50
CROP*3310	Protein and Oilseed Crops	0.50

CROP*3340	Managed Grasslands	0.50
ENVS*4090	Soil Management	0.50
ENVS*4160	Soil and Nutrient Management	0.50
HORT*2450	Introduction to Turfgrass Science	0.50
HORT*3150	Principles and Applications of Plant Propagation	0.50
HORT*4380	Tropical and Sub-Tropical Crops	0.50
PBIO*3110	Crop Physiology	0.50
PBIO*3750	Plant Tissue Culture	0.50
Select a minimum of 0.50 credits from the following:		
CROP*4240	Weed Science	0.50
ENVS*3020	Pesticides and the Environment	0.50
ENVS*3210	Plant Pathology	0.50
ENVS*3230	Agroforestry Systems	0.50
Select a minimum of 0.50 credits from the following:		
ACCT*1220	Introductory Financial Accounting	0.50
ECON*1050	Introductory Microeconomics	0.50
ECON*1100	Introductory Macroeconomics	0.50
ECON*2310	Intermediate Microeconomics	0.50
FARE*2410	Agri-food Markets and Policy	0.50
FARE*3170	Cost-Benefit Analysis	0.50
Students may also take any of the following courses as restricted electives:		
BOT*2100	Life Strategies of Plants	0.50
MBG*2040	Foundations in Molecular Biology and Genetics	0.50
MBG*3060	Quantitative Genetics	0.50
OAGR*2070	Introduction to Organic Agriculture	1.00

- A minimum of 7.00 credits must be at the 3000 level or higher, of which 5.00 credits must be in agricultural science and of which 3.50 credits must be at the 4000 level. Refer to Program Counsellor for list of agricultural science courses.
- A humanities or social science courses (0.50 credits) at the 1000-level or above. See Program Counsellor for acceptable list of courses.

Option B - Research

Code	Title	Credits
Semester 5		
AGR*3450	Research Methods in Agricultural Science	0.50
FOOD*3090	Food Science and Human Nutrition	0.50
1.50 electives or restricted electives		1.50
Semester 6		
2.50 electives or restricted electives		2.50
Semester 7		
AGR*4450	Research Project I	0.50
2.00 electives or restricted electives		2.00
Semester 8		
AGR*4460	Research Project II	1.00
1.50 electives or restricted electives		1.50

Restricted Electives - Option B

Students should note that some restricted electives require other courses not included among the required courses for the major as prerequisites. Students should consult the most recent undergraduate calendar for specific requirements.

- A minimum of 2.00 credits from the list of restricted electives below:

Code	Title	Credits
Select a minimum of 0.50 credits from the following:		
CROP*3300	Grain Crops	0.50
CROP*3310	Protein and Oilseed Crops	0.50
CROP*3340	Managed Grasslands	0.50
ENVS*4090	Soil Management	0.50
ENVS*4160	Soil and Nutrient Management	0.50
HORT*2450	Introduction to Turfgrass Science	0.50
HORT*3150	Principles and Applications of Plant Propagation	0.50
HORT*4380	Tropical and Sub-Tropical Crops	0.50
PBIO*3110	Crop Physiology	0.50
PBIO*3750	Plant Tissue Culture	0.50
Select a minimum of 0.50 credits from the following:		
CROP*4240	Weed Science	0.50
ENVS*3020	Pesticides and the Environment	0.50
ENVS*3210	Plant Pathology	0.50
ENVS*3230	Agroforestry Systems	0.50
Select a minimum of 0.50 credits from the following:		
ACCT*1220	Introductory Financial Accounting	0.50
ECON*1050	Introductory Microeconomics	0.50
ECON*1100	Introductory Macroeconomics	0.50
ECON*2310	Intermediate Microeconomics	0.50
FARE*2410	Agri-food Markets and Policy	0.50
FARE*3170	Cost-Benefit Analysis	0.50
Students may also take any of the following courses as restricted electives:		
BOT*2100	Life Strategies of Plants	0.50
MBG*2040	Foundations in Molecular Biology and Genetics	0.50
MBG*3060	Quantitative Genetics	0.50
OAGR*2070	Introduction to Organic Agriculture	1.00

- A minimum of 7.00 credits must be at the 3000 level or higher, of which 5.00 credits must be in agricultural science and of which 3.50 credits must be at the 4000 level. Refer to Program Counsellor for list of agricultural science courses.
- A humanities or social science courses (0.50 credits) at the 1000-level or above. See Program Counsellor for acceptable list of courses.

Co-op Requirements (Honours)

This is a major within the degree: Bachelor of Science in Agriculture (calendar.uoguelph.ca/undergraduate-calendar/degree-programs/bachelor-science-agriculture-bsc-agr/).

Academic and Co-op Work Term Schedule

Year	Fall	Winter	Summer
1	Academic Semester 1	Academic Semester 2	Off
2	Academic Semester 3 COOP*1100	Academic Semester 4	COOP*1000 Work Term I

3	Academic Semester 5	Academic Semester 6	Off
4	Academic Semester 7	COOP*2000 Work Term II	COOP*3000 Work Term III
5	COOP*4000 Work Term IV	Academic Semester 8	N/A

Please refer to the Co-operative Education program policy with respect to work term performance grading, work term report grading and program completion requirements.

For additional program information, students should consult with their Co-op Coordinator and Co-op Faculty Advisor, listed on the Co-operative Education website.

Credit Summary

- In semester 5, students must choose Option A: Production and Management, or Option B: Research.
  - Option A: 10.50 credits from required courses, 3.00 credits of restricted electives, 0.50 of humanities and social sciences, and 6.00 credits of free electives.
  - Option B: 11.50 credits from required courses, 2.00 credits of restricted electives, 0.50 of humanities and social sciences and 6.00 credits of free electives.
- A minimum of 7.00 credits must be at the 3000 level or higher, of which 5.00 credits must be in agricultural science and of which 3.50 credits must be at the 4000 level. Refer to Program Counsellor for a list of agricultural science courses.
- A humanities or social sciences (0.50 credits) at the 1000-level or above. See Program Counsellor for acceptable list of courses.
- Co-op Work Terms: 2.00 credits
- **Total Credits Required to Graduate: 22.00**

Recommended Program Sequence

Code	Title	Credits
Semester 1 - Fall		
AGR*1110	Introduction to the Agri-Food Systems	1.00
BIOL*1050	Biology of Plants & Animals in Managed Ecosystems	0.50
CHEM*1040	General Chemistry I	0.50
MATH*1080	Elements of Calculus I	0.50
Semester 2 - Winter		
AGR*1350	Animal Production Systems and Industry: Dairy, Poultry and Egg	0.50
BIOL*1090	Introduction to Molecular and Cellular Biology	0.50
CHEM*1050	General Chemistry II	0.50
FARE*1400	Economics of the Agri-Food System	1.00
Summer Semester		
No academic semester or work term		
Semester 3 - Fall		
AGR*2320	Soils in Agroecosystems	0.50
AGR*2470	Introduction to Plant Agriculture	0.50
COOP*1100	Introduction to Co-operative Education	0.00
FARE*2700	Survey of Natural Resource Economics	0.50
MBG*2400	Fundamentals of Plant and Animal Genetics	0.50
0.50 electives or restricted electives		0.50
Semester 4 - Winter		
AGR*2050	Agroecology	0.50
ANSC*2340	Structure of Farm Animals	0.50
BIOC*2580	Introduction to Biochemistry	0.50
ENVS*2040	Plant Health and the Environment	0.50
STAT*2040	Statistics I	0.50
Summer Semester		
COOP*1000	Co-op Work Term I	0.50

Option A - Production and Management

Code	Title	Credits
Semester 5 - Fall		
FOOD*3090	Food Science and Human Nutrition	0.50
2.00 electives or restricted electives		2.00
Semester 6 - Winter		
2.50 electives or restricted electives		2.50
Summer Semester		
No academic semester or work term		
Semester 7 - Fall		
2.50 electives or restricted electives		2.50
Winter Semester		
COOP*2000	Co-op Work Term II	0.50
Summer Semester		
COOP*3000	Co-op Work Term III	0.50
Fall Semester		
COOP*4000	Co-op Work Term IV	0.50
Semester 8 - Winter		
AGR*4600	Agriculture and Food Issues Problem Solving	1.00
1.50 electives or restricted electives		1.50

Restricted Electives - Option A

Students should note that some restricted electives require other courses not included among the required courses for the major as prerequisites. Students should consult the most recent undergraduate calendar for specific requirements.

- A minimum of 1.00 credits from the list of restricted electives below:

Code	Title	Credits
AGR*2350	Animal Production Systems and Industry: Beef, Swine and Others	0.50
AGR*2500	Field Course in International Agriculture	0.50
AGR*3010	Special Studies in Agricultural Science I	0.50
AGR*3450	Research Methods in Agricultural Science	0.50
ANSC*4010	Animal Welfare Judging and Evaluation	0.50
ANSC*4230	Challenges and Opportunities in Dairy Cattle Production	0.50
ANSC*4610	Critical Analysis in Animal Science	0.50
CROP*4260	Crop Science Field Trip	0.50
EDRD*2020	Interpersonal Communication	0.50
EDRD*3050	Agricultural Communication	0.50
EDRD*3140	Organizational Communication	0.50
FARE*3310	Operations Management	0.50

FARE*4220	Advanced Agribusiness Management	0.50
FARE*4310	Resource Economics	0.50
FARE*4360	Marketing Research	0.50
FARE*4550	Independent Studies I	0.50

- A minimum of 2.00 credits from the following lists:

Code	Title	Credits
Select a minimum of 0.50 credits from the following:		
CROP*3300	Grain Crops	0.50
CROP*3310	Protein and Oilseed Crops	0.50
CROP*3340	Managed Grasslands	0.50
ENVS*4090	Soil Management	0.50
ENVS*4160	Soil and Nutrient Management	0.50
HORT*2450	Introduction to Turfgrass Science	0.50
HORT*3150	Principles and Applications of Plant Propagation	0.50
HORT*4380	Tropical and Sub-Tropical Crops	0.50
PBIO*3110	Crop Physiology	0.50
PBIO*3750	Plant Tissue Culture	0.50
Select a minimum of 0.50 credits from the following:		
CROP*4240	Weed Science	0.50
ENVS*3020	Pesticides and the Environment	0.50
ENVS*3210	Plant Pathology	0.50
ENVS*3230	Agroforestry Systems	0.50
Select a minimum of 0.50 credits from the following:		
ACCT*1220	Introductory Financial Accounting	0.50
ECON*1050	Introductory Microeconomics	0.50
ECON*1100	Introductory Macroeconomics	0.50
ECON*2310	Intermediate Microeconomics	0.50
FARE*2410	Agri-food Markets and Policy	0.50
FARE*3170	Cost-Benefit Analysis	0.50
Students may also take any of the following courses as restricted electives:		
BOT*2100	Life Strategies of Plants	0.50
MBG*2040	Foundations in Molecular Biology and Genetics	0.50
MBG*3060	Quantitative Genetics	0.50
OAGR*2070	Introduction to Organic Agriculture	1.00

Option B - Research

Code	Title	Credits
Semester 5 - Fall		
AGR*3450	Research Methods in Agricultural Science	0.50
FOOD*3090	Food Science and Human Nutrition	0.50
1.50 electives or restricted electives		1.50
Semester 6 - Winter		
AGR*4450	Research Project I	0.50
2.00 electives or restricted electives		2.00
Summer Semester		
No academic semester or work term		
Semester 7 - Fall		
AGR*4460	Research Project II	1.00
1.50 electives or restricted electives		1.50
Winter Semester		
COOP*2000	Co-op Work Term II	0.50
Summer Semester		
COOP*3000	Co-op Work Term III	0.50
Fall Semester		
COOP*4000	Co-op Work Term IV	0.50
Semester 8 - Winter		
2.50 electives or restricted electives		2.50

Restricted Electives - Option B

Students should note that some restricted electives require other courses not included among the required courses for the major as prerequisites. Students should consult the most recent undergraduate calendar for specific requirements.

- A minimum of 2.00 credits from the list of restricted electives below:

Code	Title	Credits
Select a minimum of 0.50 credits from the following:		
CROP*3300	Grain Crops	0.50
CROP*3310	Protein and Oilseed Crops	0.50
CROP*3340	Managed Grasslands	0.50
ENVS*4090	Soil Management	0.50
ENVS*4160	Soil and Nutrient Management	0.50
HORT*2450	Introduction to Turfgrass Science	0.50
HORT*3150	Principles and Applications of Plant Propagation	0.50
HORT*4380	Tropical and Sub-Tropical Crops	0.50
PBIO*3110	Crop Physiology	0.50
PBIO*3750	Plant Tissue Culture	0.50
Select a minimum of 0.50 credits from the following:		
CROP*4240	Weed Science	0.50
ENVS*3020	Pesticides and the Environment	0.50
ENVS*3210	Plant Pathology	0.50
ENVS*3230	Agroforestry Systems	0.50
Select a minimum of 0.50 credits from the following:		
ACCT*1220	Introductory Financial Accounting	0.50
ECON*1050	Introductory Microeconomics	0.50
ECON*1100	Introductory Macroeconomics	0.50
ECON*2310	Intermediate Microeconomics	0.50
FARE*2410	Agri-food Markets and Policy	0.50
FARE*3170	Cost-Benefit Analysis	0.50
Students may also take any of the following courses as restricted electives:		
BOT*2100	Life Strategies of Plants	0.50
MBG*2040	Foundations in Molecular Biology and Genetics	0.50
MBG*3060	Quantitative Genetics	0.50
OAGR*2070	Introduction to Organic Agriculture	1.00