

AGROECOLOGY, B.SC.

Overview/Entrance Requirements

The Agroecology program provides students with an understanding of the natural processes in the agroecosystem and the impact of agricultural practices on these processes. The program emphasizes three areas: ecological sciences, agricultural production, and the social and economic implications of environmental management. Students will develop an understanding of how to manage natural and agricultural resources in a manner that enhances economic production while maintaining the integrity of natural and agricultural environments. Graduates are prepared for careers at the technical and management levels in government and non-government agencies involved in planning and management of natural and agricultural resources. By appropriate choice of free elective courses, students can prepare for graduate studies.

Degree Requirements

Course	Title	Hours
B.Sc. Agroecology Degree Core		
ABIZ 1000	Introduction to Agribusiness Management	3
ABIZ/ECON 2390	Introduction to Environmental Economics	3
AGEC 2370/ BIOL 2300	Principles of Ecology	3
AGRI 1600	Introduction to Agrifood Systems	3
AGRI 2030	Technical Communications	3
AGRI 2400	Experimental Methods in Agricultural and Food Sciences	3
AGRI 4100	Current Issues in Agricultural Systems	3
ANSC 2500	Animal Production	3
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions	3
BIOL 3312	Community Ecology	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1130 or CHEM 1110	Introduction to Organic Chemistry ¹ Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties	3
ECON 1010	Introduction to Microeconomic Principles	3
ENTM 3170	Crop Protection Entomology	3
HNSC 1200 or HNSC 1210	Food: Facts and Fallacies Nutrition for Health and Changing Lifestyles	3
PLNT 2500	Crop Production	3
PLNT 2520 or BIOL 2500	Genetics Genetics 1	3
PLNT 3540	Weed Science	3
PLNT 4270	Plant Disease Control	3
SOIL 3600	Soils and Landscapes in Our Environment	3
Restricted Electives		
Four courses from Group 1 - Integrated Systems		12
Two courses from Group 2 - Land Science		6
One course from Group 3 - Policy and Economics		3
Two courses from Group 4 - Agrology		6
Free Electives		

30 credit hours ²	30
Total Hours	120

¹ Students can hold CHEM 2100 (Organic Chemistry 1: Foundations of Organic Chemistry) in place of CHEM 1130 (Introduction to Organic Chemistry).

² Students can apply for the Cooperative Education Program. Three work terms are required to graduate with Co-op designation. Co-op courses (3 credit hours each) are used towards free electives.

Restricted Electives

Group 1 – Integrated Systems

Course	Title	Hours
AGRI 2300	Indigenous Issues in Food Systems	3
ANSC/PLNT 4410	Grassland Agriculture: Plant, Animal and Environment	3
PLNT 3560	Organic Crop Production on the Prairies	3
PLNT 4510	Advanced Cropping Systems	3
SOIL 4400	SOIL ECOLOGY	3

Group 2 – Land Science

Course	Title	Hours
SOIL 3XXX	Any 3000 level SOIL (Soil Science) courses	
SOIL 4XXX	Any 4000 level SOIL (Soil Science) courses	

Group 3 – Policy and Economics

Course	Title	Hours
ABIZ 2XXX	Any 2000 level ABIZ (Agribusiness) course	
ABIZ 3XXX	Any 3000 level ABIZ (Agribusiness) course	
ABIZ 4XXX	Any 4000 level ABIZ (Agribusiness) course	

Group 4 - Agrology

Course	Title	Hours
ABIZ XXXX	Any ABIZ course	
AGRI 2300	Indigenous Issues in Food Systems	3
AGRI 3100	Introduction to Digital Agriculture	3
AGRI 3500	Geographical Information Systems (GIS) Applications in Agriculture	3
ANSC XXXX	Any ANSC course	
BIOE 3100	Agricultural Engineering Fundamentals for Agronomists	3
ENTM XXXX	Any ENTM except the following:	
ENTM 3162	Manitoba's Insect Fauna	
ENTM 4280	Aquatic Entomology	
ENTM 4500	Insect Taxonomy and Morphology	
FOOD XXXX	Any FOOD course except the following:	
FOOD 4100	Current Issues in Food and Human Nutrition	
FOOD 4230	Food Research	
PLNT XXXX	Any PLNT course except the following:	
PLNT 3140	Introductory Cytogenetics	
PLNT 4380	Plant Science Thesis	
SOIL XXXX	Any SOIL course	

Progression Plan

Course	Title	Hours
Year 1		
ABIZ 1000	Introduction to Agribusiness Management	3
AGRI 1600	Introduction to Agrifood Systems	3
BIOL 1020	Biology 1: Principles and Themes	3
BIOL 1030	Biology 2: Biological Diversity, Function and Interactions	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1110 or CHEM 1130	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties or Introduction to Organic Chemistry	3
ECON 1010	Introduction to Microeconomic Principles	3
HNSC 1200 or HNSC 1210	Food: Facts and Fallacies or Nutrition for Health and Changing Lifestyles	3
Free Electives		6
Hours		30
Year 2		
ABIZ/ECON 2390	Introduction to Environmental Economics	3
AGEC 2370/ BIOL 2300	Principles of Ecology	3
AGRI 2030	Technical Communications	3
AGRI 2400	Experimental Methods in Agricultural and Food Sciences	3
ANSC 2500	Animal Production	3
PLNT 2500	Crop Production	3
PLNT 2520/ BIOL 2500	Genetics	3
SOIL 3600	Soils and Landscapes in Our Environment	3
Restricted/Free Electives/Co-op		6
Hours		30
Year 3		
BIOL 3312	Community Ecology	3
PLNT 4270	Plant Disease Control	3
ENTM 3170	Crop Protection Entomology	3
PLNT 3540	Weed Science	3
Restricted/Free Electives/Co-op		18
Hours		30
Year 4		
AGRI 4100	Current Issues in Agricultural Systems	3
Restricted/Free Electives/Co-op		27
Hours		30
Total Hours		120

Cooperative Education Program

Co-operative Education is a process that alternates periods of academic study with periods of paid work experience relating to the co-op student's area of study. The Co-operative Education Program provide students with practical experience, coaching, workshops and support as well as the opportunity for career exploration, development and exposure to more than a single type of work environment in their discipline.

Students secure full-time, paid co-op work placements with a FAFS-Co-op Office approved employer(s) that are each a minimum of 420 hours, to be completed within 4 months. The FAFS Co-op Office supports students on both a group and individual basis to develop effective job search skills to assist in securing a co-op position. Prior to starting each work term, students will register in AGRI 2002 (1st work term), AGRI 3002 (2nd work term), and AGRI 4002 (3rd work term) within the term that their co-op placement will take place and pay the associated fees. Students must submit a reflective assignment at the end of the work term and are evaluated for both overall participation and the report on a Pass/Fail basis.

Admission

Students who have been admitted to an undergraduate program within the faculty are eligible to apply to the Co-operative Education Program.

Students are advised that satisfying the entrance requirements does not guarantee a place in the Co-operative Education Program.

If a student has been found to have deliberately falsified information in the application for the Co-op Program, the mater will be immediately reported to Associate Dean (Academic) as an allegation of academic misconduct and handled according to the University Student Discipline Bylaw (<https://catalog.umanitoba.ca/undergraduate-studies/policies-procedures/student-discipline-bylaw/>).

If, prior to acceptance into the Co-op Program, it is found that the student has had an allegation of academic misconduct upheld against them, the student may no longer be eligible for entrance to the FAFS Co-op Education Program.

Degree Program

Co-op applicants should have completed 24 but not more than 90 credit hours towards their degree by the start of their first work term (this will support the completion of 3 work terms). Ideally, the first work term would take place at the end of the second academic year allowing students to pursue professional development activities in year one. However, with approval of the FAFS Co-op Office, the first work term could commence after the first year of a 4-year or Second-Degree program.

Students admitted into the Program must maintain Good Academic Standing (minimum DGPA of 2.0).

Diploma Program

To be considered for admission in the Cooperative Education Program, a first year diploma student must have a minimum Degree GPA of 2.0, and have completed at least 24 credit hours of studies by the end of the academic year of application.

Academic Term Requirements:

Co-operative Education Option students are required to maintain full-time study (minimum 9 credit hours) while registered for an academic term in between work terms.

Students may be required to withdraw from the Co-operative Education Option form any of the following reasons:

- Failure to maintain the minimum academic requirements of the Faculty of Agriculture and Food Sciences.
- Failure to maintain the minimum credit hour requirements of the academic term in the Co-op Option.
- Unsatisfactory performance during a co-op work term.

- Failure to achieve a "Pass" grade in the associated co-op.
- Failure to observe to policies outlined in university governing documents related to Behavioural Policies and Academic Misconduct.
- In opinion of Co-op Coordinators, the student does not possess sufficient ability, skills, aptitude, attitude, diligence or motivation to successfully complete the Co-operative Education Option.

Students are not normally permitted to withdraw from the Co-operative Education Option once they have secured a position for their co-op work term; whether the position was obtained through the FAFS Co-op Office or through students' own self-directed job search. Enrollment in the applicable co-op course (s) will be maintained and students are responsible for all assessed fees for the duration of the co-op work term and for meeting all academic requirements.

Students must end their degree program on an academic term, except by special permission from the FAFS Co-op Office.

Employment Term Requirements:

Prior to starting the work term, students are required to register in the appropriate Agricultural and Food Sciences Co-operative Education Work Term Course within the set deadlines and pay the fee. Successful completion of a work term includes participating in a mid-work term meeting with Co-op Coordinator and completion of a written work term report at the end of each work term.

The student will receive three credit hours for completing each co-op work term and earning a "Pass" grade in each associated co-op course. Each work term is record on the student's academic record and transcript.

In order to receive a co-op designation on their degree parchment, a degree student complete three full time, paid co-op work terms (minimum of 420 hours each) with a FAFS Co-op Office approved employer(s), although each co-op work term is optional.

Although each co-op work term is optional, a degree student must complete three co-op work terms (minimum 420 hours each) with a faculty FAFS Co-op Office approved employer(s) in order to receive a co-op designation on their degree parchment. Diploma students receive a co-op designation after the successful completion of one co-op work term.

During a work term, a co-op student may take a maximum of one additional course worth up to six credit hours for a total of (9) credit hours. If a student would like to request to take an additional 3 credit hour course while on a co-op work term, they must have written approval from their employer, as well as permission from the FAFS Co-op Office.