

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

| | |
|---|----|
| Select four courses from Group 1 - Integrated Systems | 12 |
| Select two courses from Group 2 - Land Science | 6 |
| Select one course from Group 3 - Policy and Economics | 3 |
| Select two courses from Group 4 - Agrology | 6 |

Free Electives

| | |
|-------------------------------------|------------|
| Select 30 credit hours ² | 30 |
| Total Hours | 120 |

- Students can hold CHEM 2100 (Organic Chemistry 1: Foundations of Organic Chemistry) in place of CHEM 1130 (Introduction to Organic Chemistry).
- Students can apply for the Cooperative Education Program. Two 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 |
| 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. Through the Co-operative Education Program, full-time, paid work terms provide the students with practical experience and provide guidance for further career specialization or further academic study.

Students secure full-time, paid co-op work placements with a faculty-approved employer(s) that are each a minimum of 420 hours, to be completed within 4 months. The faculty supports students on both a group and individual basis to determine his/her learning goals for the work placement. Students are expected to attend an orientation session as well as participate in a series of self-evaluations under the guidance of a sessional instructor. Prior to starting each work term, students are register in AGRI 2002 (first placement), AGRI 3002 (2nd placement),

AGRI 4002 (3rd placement) within the term that their co-op placement will take place and pay the fees. Students submit a reflective written report at the end of the work term and are evaluated for both overall participation and the report on a Pass/Fail basis.

Degree Program

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. Full admission into the Program is dependent upon a student's ability to secure a work term placement. . Normally, 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 Faculty and employer, the first work term could commence after the first year of a four-year or second-degree program. Students admitted into the Program must maintain good academic standing (minimum DGPA of 2.0).

Employment Term Requirements: The Co-operative Education Program requires the student to secure two full-time, paid co-op work terms (minimum of 420 hours each) with a faculty approved employer(s). A third work term is optional. 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 interview with the Co-op Coordinator and completion of a written work term report at the end of each work term. Students who receive a passing grade on the work term reports for all required work terms graduate with the Co-operative Education designation acknowledged on their parchment.

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 nine (9). Co-op credit hours earned can be used towards free elective requirements in any degree program.

Diploma Program

Admission: 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.

Students are advised that satisfying the entrance requirements does not guarantee a place in the Cooperative Education Program. Full admission into the program is defendant upon the student receiving a job placement through the Cooperative Education Office.

Employment Term Requirements: The student will receive three credits for completing the Cooperative Education Program. Students are required to register in the employment term course and pay the fee prior to starting the employment term.