AGROECOLOGY (AGECO)

AGECO 121: Plant Stress: It’s Not Easy Being Green
3 Credits

This course is an introduction to plant biology with a strong emphasis on plant "stress" biology - how plants deal with the many hazards that they face, including diseases, insects, the weather, and animals. The course covers major aspects of plant biology and physiology, including photosynthesis, light perception, sense of touch, hormones, secondary metabolism, growth, development, and structure. The course also covers how plants obtain food and water, see their neighbors, communicate with each other, reproduce, compete with each other, consume insects, and even move around - all without muscles, eyes, or brains. The course relates all of these topics to plant stress coping mechanisms and to human needs and desires. Course activities include lectures, class discussions, in-class written assignments, guest lectures, an outdoor walk to observe plants on campus, and movies. This General Education (GN) course is designed to be accessible to non-science majors.

Bachelor of Arts: Natural Sciences
General Education: Natural Sciences (GN)
GenEd Learning Objective: Key Literacies
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Effective Communication

AGECO 122: Atmospheric Environment: Growing in the Wind
3 Credits

Atmospheric Environment: Growing in the Wind is for students who are interested in learning about the dynamic effects of weather on plants and animals. It is about how processes at the ground surface and in the air govern weather conditions on Earth. Growing in the Wind focuses on five major weather elements: energy, temperature, moisture, pressure and wind and how these factors influence ecosystems and habitation of our planet. Emphasis is also given to human impacts on weather and climate, and current environmental issues involving the atmosphere. The lectures are organized around the central theme that the unequal distribution of incoming solar energy (both spatially and temporally) produce temperature and pressure contrasts at the Earth's surface and in the atmosphere that in turn cause storms and control the weather and climate.

Cross-listed with: METEO 122
General Education: Natural Sciences (GN)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Key Literacies

AGECO 134N: Sustainable Agriculture Science and Policy
3 Credits

This inter-domain (GN/GS) general education course addresses the science, socio-economics, and politics of managing food and fiber production systems; and the sustainability implications of current practices and future options. The course will teach students about the soil, plant, animal, and ecological sciences; technologies, socio-economic implications, and policies of our agroecosystems in an integrated manner. We will examine agricultural scientific, agricultural policy, and economic opportunities to enhance the sustainability of agriculture for food and fiber production. Students will have many opportunities to examine and critically analyze scientific knowledge and policies during discussions, writing exercises, and role playing to develop analytical and communication skills. There are no prerequisites for this course. This course can link with other courses that address how research and efforts in agricultural sciences, ecology, policy, economics, philosophy, education, and communication influence sustainable management of natural resources for the present and the future.

General Education: Natural Sciences (GN)
General Education: Social and Behavioral Scien (GS)
General Education - Integrative: Interdomain
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking

AGECO 144: Principles and Practices of Organic Agriculture
3 Credits

An introduction to the science, principles and practices of organic agricultural systems for food production. This natural sciences general education (GN) 3 credit course will teach students about the science of agroecology, with a focus on organic agriculture. We will examine the science, history and development of organic agriculture and its principles and practices. Students will learn about the scientific basis and implementation of fundamental organic farming principles and practices including soil health, diversified cropping systems, organic pest management, and a system perspective. We will also discuss certified organic regulations and policies, organic farming business management and marketing. Learning activities include: i) reading and discussing agricultural scientific articles, ii) listening to guest speakers and videos, iii) hands-on laboratory and greenhouse activities, iv) field trips and group projects. The only prerequisite for this course is a high school level biology or ecology course. This course can link with other courses that address the agricultural sciences, food systems, environmental resource management and policy, land use management and design, and natural resources.

General Education: Natural Sciences (GN)
GenEd Learning Objective: Effective Communication
GenEd Learning Objective: Crit and Analytical Think
GenEd Learning Objective: Integrative Thinking

AGECO 154: Principles of Agronomic Field Operations
2 Credits

Introduction to the cultural methods and equipment used in agronomic crop production.

AGECO 197: Special Topics
1-9 Credits/Maximum of 9

Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.
We will study the biology and ecology of weedy plants drawing on demanding tasks that require diverse abilities. The term weed is an ever-evolving concept that is influenced by various factors including environmental conditions, economic thresholds, and management practices. The study of weeds and their management is a challenging and rewarding field that involves understanding the ecological principles relevant to managed landscapes.

### Enforced Prerequisite at Enrollment: AGRO 28 or HORT 101

Recommended Preparation: SOILS 101

### AGECO 418: Nutrient Management in Agricultural Systems

3 Credits

This course focuses on the fundamentals of nutrient management in agricultural systems, including animal and soil sciences as they relate to crop production. Students will learn about the importance of nutrient cycling in agricultural systems and the environmental implications of nutrient management. The course includes hands-on learning opportunities such as crop scouting and pest management practices.

### Enforced Prerequisite at Enrollment: AGRO 28 or HORT 101

Cross-listed with: ANSC 418, SOILS 418

### AGECO 429: Crop Scouting

2 Credits

This course will teach proper crop scouting techniques and provide students with the skills to identify crop pests and determine pest economic threshold levels. Students will learn how to use infestation/economic threshold charts and interpret internet sources to forecast pest activity. They will also learn advanced scouting techniques and pest management strategies.

### Enforced Prerequisite at Enrollment: AGRO 28 or HORT 101

### AGECO 457: Principles of Integrated Pest Management

3 Credits

Integrated study of pest complexes and their management, emphasizing ecological principles and practices. Students will gain a comprehensive understanding of pest management, including biological, cultural, economic, and regulatory controls. The course will cover various pest control options and the importance of integrating these methods to achieve acceptable levels of pest suppression.

### AGECO 495: Agroecology Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.

The course content is designed to provide a comprehensive understanding of pest management and the integration of various control methods, including biological, cultural, and chemical controls. Students will learn about the economic and regulatory systems in pest management and how to use internet resources to inform decision-making processes in pest management.

### Enforced Prerequisite at Enrollment: Must take two or more of the following: ENT 313 or PPEM 405 or PPEM 318 or HORT 238

Cross-listed with: ENT 457

### AGECO 495: Agroecology Internship

1-18 Credits/Maximum of 18

Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required.
AGECO 496: Independent Studies
1-18 Credits/Maximum of 18
Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.

AGECO 497: Special Topics
1-9 Credits/Maximum of 9
Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

AGECO 499: Foreign Studies
1-2 Credits/Maximum of 4
Courses offered in foreign countries by individual or group instruction.

International Cultures (IL)