**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: Integrative Thinking**
**GenEd Learning Objective: Critical and Analytical Thinking**
**GenEd Learning Objective: Effective Communication**
**General Education: Natural Sciences (GN)**
**General Education: Social and Behavioral Sciences (GS)**
**General Education: Integrative: Interdomain**
**GenEd Learning Objective: Effective Communication**
**GenEd Learning Objective: Critical and Analytical Thinking**
**GenEd Learning Objective: Integrative Thinking**

**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: Critical and Analytical Thinking**
**GenEd Learning Objective: Sustainable Science and Policy**
**General Education: Natural Sciences (GN)**
**General Education: Social and Behavioral Sciences (GS)**
**General Education: Integrative: Interdomain**
**GenEd Learning Objective: Effective Communication**
**GenEd Learning Objective: Critical and Analytical Thinking**
**GenEd Learning Objective: Integrative Thinking**

**AGECO 124N: 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 Sciences (GS)**
**General Education: Integrative: Interdomain**
**GenEd Learning Objective: Critical and Analytical Thinking**
**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: Critical and Analytical Thinking**
**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 anthropocentric construct meaning it is a human colored definition. The term weed is an demanding task that requires diverse abilities. The study of weeds and their management is a challenging and 4 Credits
AGECO 438: Principles of Weed Management
Recommended Preparation: SOILS 101
Cross-listed with: AGRO 438
AGECO 457: Principles of Integrated Pest Management
3 Credits
Integrated study of pest complexes and their management, emphasizing ecological principles drawing on examples from a range of agricultural, forestry and urban systems. This course is designed for sixth, seventh, and eighth semester students and graduate students. AGECO 457 / ENT 457 Principles of Integrated Pest Management (3) The goal of this course is to introduce upper level undergraduates and graduate students to the principles and practices of integrated pest management (IPM). This course addresses IPM issues concerning insects, plant diseases, and weeds in agriculture, natural systems and urban environments. Rooted in ecology, IPM also addresses the influence of human social, economic and regulatory systems in pest management. Emphasis is placed on the basic tactics and tools of IPM including biological, cultural, legal, mechanical and chemical controls, host plant resistance, pest monitoring and decision making. The overarching goals of environmental protection, economic viability and social welfare are considered throughout the course. In addition, students will learn about IPM program implementation both domestically and internationally, including pest population modeling and the use of internet resources to inform decision makers. Several projects will provide real-world examples. These may include field trips and a semester-long project where students research and solve an actual pest management problem. 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)