

# Plant and Soil Science (PLSS)

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**PLSS 5305** Graduate Research Project **3 SCH (3)**

Designed for project option students and requires completion of research project. Prerequisite: departmental approval. May be repeated for a maximum of 6 semester hours.

**PLSS 5306** Thesis **3 SCH (3)**

Designed for thesis option students. The course requires completion of thesis research. Prerequisite: departmental approval. May be repeated for maximum of 6 semester hours.

**PLSS 5329** Adv. Terrestrial Ecosystems **3 SCH (3-0)**

Students will examine the principles and processes that determine the patterns of terrestrial ecosystems along latitudinal gradient with emphasis on the patterns and structures of temperate ecosystems. The course will begin with an overview of global ecosystems but settle with in-depth look at temperate ecosystems as they exist in North America.

**PLSS 5330** Adv. Environmental Science **3 SCH (3-0)**

Designed to expose students to biological, chemical, social, political, cultural, and economic factors that affect the environment. The course will explore scientific and social implications of climate change, global warming, and the effects of anthropogenic pollutants and human population on the environment.

**PLSS 5337** Prac App Plant Biotechnology **3 SCH (3-0)**

The course will include an introduction to theoretical aspects in Plant Biotechnology with emphasis on practical application. Students will have an opportunity to get hands on training with some of the most basic, yet widely utilized techniques in micropropagation and plant molecular diagnostics.

**PLSS 5350** Pesticides and the Environment **3 SCH (3-0)**

Comprehensive in-depth study of characteristics and properties of pesticides and their applications in agricultural sciences, public and environmental health. Emphasis on insecticides, miticides (i.e., acaricides), fungicides and herbicides. Elements of pesticide science, such as pesticide chemical formulations, biochemical pathways of pesticide effects on organisms and the physiology of toxicity on development will be covered.

**PLSS 5351** Advanced Plant Propagation **3 SCH (3-0)**

Emphasis is placed on the basic principles of plant propagation to provide an adequate background in the areas of horticulture. All aspects of plant propagation will be studied including methods and technologies that are used in the propagation industry.

**PLSS 5352** Advanced Plant Physiology **3 SCH (3-0)**

Introduction to physiological processes of plants including physical processes, water relations, and cell physiology. In-depth examination of plant cell structures, photosynthetic processes, transport and translocation of water and solutes with the plant, biochemistry and metabolism, and growth and development of plants.

**PLSS 5353** Advanced Plant Pathology **3 SCH (3-0)**

Advanced study of the biology of plant pathogenic fungi, oomycetes, bacteria and viruses as well as the plant response to pathogen attack. Topics include host recognition and colonization, pathogenicity and virulence determinants, resistance mechanisms and plant defense responses. This course will also cover management practices to minimize the damage associated with plant diseases.

**PLSS 5360** Exper. Designs & Data Analysis **3 SCH (3-0)**

Introduction to experimental design including data analysis software, and data interpretation. Hands-on training on SAS software and preparation of data collection and analysis.

**PLSS 5390** Adv Stud in Plant and Soil Sci **3 SCH (3-0)**

Material offered is determined by the needs of the students. May be repeated under a different topic.

**PLSS 5395** Adv Prob in Plant Science **1-3 SCH (1-3)**

Independent work that may include a laboratory or field problem. Variable credit dependent upon the problem; may be repeated for a total of 3 semester hours for thesis option students or 6 semester hours for project option and course-only option students. Prerequisite: approval of a faculty member who will supervise the problem.

**PLSS 5399** Thesis Topics **1-9 SCH (1-9)**

For thesis option Master's students. This course is to be taken by students who receive a stipend while working on their research project in Plant and Soil Science. Course is designed to be student-specific to meet each student's individual needs and to enhance their graduate education by providing one-on-one time with professors.

**PLSS 6185** Seminar **1 SCH (0-1)**

Student reports and discussion of recent literature and current investigations. May be repeated up to three times.

**PLSS 6326** Soil Chemistry **3 SCH (3-0)**

Advanced study of the chemistry of soils, including properties, processes and applications.

**PLSS 6344** Crop Protection **3 SCH (3-0)**

Advanced study of principles and practical aspects of control in the field vertebrate and insect pests, weeds and diseases caused by pathogens such as viruses, bacteria, fungi and nematodes of all major cultivated crops. Economic and environmental considerations of crop protection including developments in biotechnological and integrated pest managements will be covered.

**PLSS 6345 Phytochem to Imprve Humn Helth 3 SCH (3-0)**

Update the research information on the phytochemicals and describe their role in human diet. Understand the toxic effects and sources of phytochemicals. Prerequisite: approval of instructor.

**PLSS 6346 Citrus & Subtrop Fruit Crops 3 SCH (3-0)**

Encompasses various types of citrus, including oranges, lemons, limes, grapefruit and mandarins as well as avocados and olives. Covers identification, culture, processing, marketing, post-harvest aspects, phytochemicals and economic future. Other crops will be covered in brief. Prerequisite: approval of instructor.

**PLSS 6377 Genetics of Crop Improvement 3 SCH (3-0)**

Critical study of scientific literature and current research concerning principles of plant genetics and their applications to conventional breeding and genetic engineering methods for the improvement of cultivated crops.

**PLSS 6379 Posthar Physiol of Hort Crops 3 SCH (3-0)**

Study of biochemical and physiological processes affecting maturity, quality and conditions of horticultural crops (fruits, vegetables and flowers). Selection and use of handling, storage and transportation facilities will be discussed.

**PLSS 6390 Adv Studies in Horticulture 1-3 SCH (1-3-0)**

Material offered will be determined by the needs of the students. Laboratory and lecture will vary according to the subject. May be repeated under a different topic.

**PLSS 6395 Adv Probs in Horticulture 1-3 SCH (1-3)**

Independent work. Variable credit depending upon the problem. Requires approval of faculty to supervise the problem.

**PLSS 6397 Dissertation Research 3-9 SCH (3-9)**

Research for dissertation.