## 2011-13 Cal Poly Catalog

***Horticulture and Crop Science Department***

# PPSC–PLANT PROTECTION SCIENCE

**PPSC 110 People, Pests and Plagues (4)** **GE B2 & B4**

Introduction to the science of entomology, focusing on insect identification, biology, ecology, and interactions with humans. Insect pest and beneficial species, and their role in shaping how we live, work and eat. Not open for degree credit to students majoring in AEPS, CRSC, FRSC, EHS nor WVIT (viticulture concentration). 3 lectures, 1 activity. Fulfills GE B2 & B4.

**PPSC 311 Agricultural Entomology (4)**

The science of entomology as it relates to insects of importance in agriculture. Focus on the biology, ecology and identification of insects and mites important to California horticulture, field crops and landscapes. 3 lectures, 1 laboratory. Prerequisite: CHEM 110 or CHEM 111; BOT 121 or HCS 120.

**PPSC 321 Weed Biology and Management (4)**

Weed ecology, biology, and implications for management. Identification of weedy and invasive plant species in annual agricultural, perennial semi-managed, range, aquatic, and forest ecosystems, to elucidate weaknesses and strengths in order to facilitate vegetation management. Organic, cultural, biological, mechanical, and chemical methods and their integrated (IPM) uses. 3 lectures, 1 laboratory. Prerequisite: BOT 121 or HCS 120.

**PPSC 327 Vertebrate Pest Management (4)**

Vertebrate pests injurious to crops, livestock, forest products, wildlife, stored products and humans. Life habits, identification, control methods, and materials. Related laws and regulations. 3 lectures, 1 laboratory. Prerequisite: Junior standing.

**PPSC 405 Advanced Weed Management (4)**

Planning, design and implementation of long-term sustainable weed management programs. Analysis of traditional and new technologies for weed management based on their impact on agriculture, society and the environment. 3 lectures, 1 laboratory. Prerequisite: PPSC 321.

**PPSC 414 Grape Pest Management (4)**

Comprehensive survey of major grape pests including diseases, insects, weeds, vertebrates, and nematodes. Identification and biology of grape pests and natural enemies, monitoring, and integrated pest management (IPM) strategies, including cultural, biological, and chemical controls. Guest lectures. Total credit limited to 8 units. 3 lectures, 1 activity. Prerequisite: PPSC 311, BOT 323, FRSC 231.

**PPSC 421 Plant-Pest Interactions (4)**

Plant biochemical and physical defenses to herbivorous insects, plant pathogens and weeds, and the evolutionary and genetic basis thereof. Effects of environmental manipulations, and other cultural controls on pest populations, and the use of induced resistance materials. Not open to students with credit in PPSC 521. 3 lectures, 1 laboratory. Prerequisite: BOT 323 or BOT 324, and PPSC 311 or ZOO 335.

**PPSC 427 Disease and Pest Control Systems for Ornamental Plants (4)**

Recognition, prevention and control of diseases, insect/mite pests and weeds that impact commercial ornamental plantings. Integrated pest management strategies presented including biological, cultural, and safe and proper pesticidal controls. Laboratory emphasizes monitoring, problem solving and application of appropriate pest control measures. 3 lectures, 1 laboratory. Prerequisite: BOT 323 or BOT 324, and HCS 120 and PPSC 311 and PPSC 321.

**PPSC 431 Insect Pest Management (4)**

Principles of insect and mite pest management, including integrated pest management (IPM), applications of ecological theory to pest management, cultural, biological and chemical controls, pesticide resistance management, insect and mite monitoring, biotechnology applications, pesticide laws and regulations, pest control advisor and qualified applicator licensing and certification. One field trip required. 3 lectures, 1 laboratory. Prerequisite: PPSC 311.

**PPSC 441 Biological Control for Pest Management (4)**

Control of arthropods, weeds and vertebrates to include history of biocontrol; biology of beneficial arthropods; methods of introduction, augmentation and conservation; and case studies. Identification of beneficial arthropods to appropriate taxonomic level. Technology, laws and regulations governing use of biocontrol agents. Field trips to insectaries, quarantine facilities and/or crop production areas. 3 lectures, 1 laboratory. Prerequisite: PPSC 311.

**PPSC 511 Ecological Biometrics (4)**

General survey of current analytical methodology available to ecological researchers to evaluate effects and assess the underlying mechanisms that drive natural and cultivated ecosystems. Methodology includes general linear models, ordination, survival analysis, multivariate analyses, and computer simulations. Student research used as a basis for instruction. Total credit limited to 8 units. 3 seminars, 1 activity. Prerequisite: STAT 218 or STAT 512, or consent of instructor. *Crosslisted as HCS/PPSC 511.*

**PPSC 521 Plant-Pest Interactions (4)**

Plant biochemical and physical defenses to herbivorous insects, plant pathogens and weeds, and the evolutionary and genetic basis thereof, with particular focus on the master's thesis. Effects of environmental manipulations, and other cultural controls on pest populations, and the use of induced resistance materials. Not open to students with credit in PPSC 421. 3 lectures, 1 laboratory. Prerequisite: BOT 323 or BOT 324, and PPSC 311 or ZOO 335, and graduate standing.

**PPSC 599 Thesis in Plant Protection Science (1-9)**

Systematic research of a topic in plant protection science, including weed science, entomology, plant pathology, nematology or vertebrate management. Thesis to describe the problem and its significance, methodology, results, data analysis, discussion and conclusion. Enrollment required every quarter in which facilities are used or advisement received. Degree credit limited to 6 units. Total credit limited to 9 units. Prerequisite: Graduate standing and consent of instructor.