AGRI 0159 - INTEGRATED PEST MANAGEMENT

Catalog Description

Formerly known as HORT 52
Hours: 54 lecture
Description: Comprehensive study of integrated pest management with emphasis on sustainable management practices of landscape and small crop pests. Includes identification and study of insects, weeds, plant diseases, vertebrate pests, and beneficial organisms. Studies least toxic pest control strategies, labeling, formulations and safe handling of pesticides. (CSU)

Course Student Learning Outcomes

- CSLO #1: Explain the economic significance of pests on the environmental horticulture economy.
- CSLO #2: Identify ecological principles as they relate to the concept of integrated pest management.
- CSLO #3: Recognize and analyze pest infestation damage caused by insects, weeds, diseases, and other common pests.

Effective Term

Fall 2021

Course Type

Credit - Degree-applicable

Contact Hours

54

Outside of Class Hours

108

Total Student Learning Hours

162

Course Objectives

1. Explain the economic significance of pests on the agricultural economy.
2. Identify ecological principles as they relate to the concept of integrated pest management.
3. Classify pests into the major taxonomic groups significant to agriculture.
4. Identify the major types of agricultural and landscape pests.
5. Recognize and analyze pest infestation damage caused by insects, weeds, diseases, and other common pests.
6. Observe and identify significant anatomical features of pests using microscopes, hand lenses, or other diagnostic equipment.
7. Identify pest monitoring techniques in agricultural and landscape settings.
8. Describe the procedures and practices of biological, cultural, mechanical/physical, and least toxic chemical pest control.
9. Develop an integrated pest management strategy for a specific crop or landscape site.
10. Compare the classifications and formulations of pesticides and their use in a pest control environment.
11. Review the basic laws and regulations governing the use of pesticides.
12. Describe how to prepare pesticides/spray equipment safely and accurately, and using mock products, demonstrate the correct application of these materials.
13. Assess current research in IPM and its application to agricultural systems.

General Education Information

- Approved College Associate Degree GE Applicability
- CSU GE Applicability (Recommended-requires CSU approval)
- Cal-GETC Applicability (Recommended - Requires External Approval)
- IGETC Applicability (Recommended-requires CSU/UC approval)

Articulation Information

- CSU Transferable

Methods of Evaluation

- Classroom Discussions
  - Example: Students will be divided into groups and provided with a case study. Students will discuss the case and devise an IPM strategy for the case study. Groups will then report out the details of their case study as well as their IPM strategy. Performance will be assessed based on appropriateness of IPM strategy and participation. Lecture Objectives: 2, 8, 9, 11,13
- Objective Examinations
  - Example: Weed identification quiz: students identify live samples of weeds to regional common name, identify life cycle, and suggest appropriate sustainable control methods for each species. Performance will be assessed based on students properly identifying the weed sample. Lecture Objective: 3, 4, 6
- Reports
  - Example: Students will individually produce a compilation of integrated pest management data sheets for 25 different specimens describing identification characteristics, life cycle, host range and management strategies of insects, plant pathogens and beneficial organisms. Performance will be assessed based on accuracy and proper use of terminology. Lecture Objectives: 2, 3, 4, 6, 8, 13

Repeatable

No

Methods of Instruction

- Lecture/Discussion
- Distance Learning

Lecture:

1. Lecture/Discussion: Instructor will prepare a lecture on common weed species problematic to crops and how to identify them. This lecture will include current research and management practices in IPM. Students will be provided opportunities through images or specimens and correctly observe and identify common weed species. Instructor will then facilitate a classroom discussion on student findings. Performance will be based on participation, identification of

pest species and usage of proper terminology. Lecture Outcomes: 4, 5, 7, 8, 13

Distance Learning

1. Though a live-recording, the instructor will demonstrate the proper protocol for inspection of plant materials infested with insect pests and diseases and discuss of management strategies. Students will then identify pest infested plant materials and in groups discuss management strategies aligning with IPM practices. Performance will be assessed on inspection and identification of pests and appropriate management strategies. Lecture Objectives: 4, 5, 7

Typical Out of Class Assignments
Reading Assignments

1. Students will read textbooks and various current research articles on the basic principles of integrated pest management and be prepared to discuss in class. 2. Students will read textbooks and field guides to assist in identification of pests and beneficial organisms. Students will then properly identify common pests.

Writing, Problem Solving or Performance

1. Students will read textbooks and various current research articles on plant and insect communication chemicals and give written answers to questions regarding current usage in integrated pest management strategies. 2. Students will read assigned articles on pest control recommendations, and assess and produce a written critique and oral discussion of the article content recommendations.

Other (Term projects, research papers, portfolios, etc.)
Required Materials

- IPM in Practice: Principles and Methods of integrated Pest Managment
  - Author: Mary Louise Flint
  - Publisher: University of California
  - Publication Date: 2012
  - Text Edition: 2nd
  - Classic Textbook?: No
  - OER Link:
  - OER:
- Integrated Pest Management: Experiences with Implementation
  - Author: Rajinder Peshin, David Pimentel
  - Publisher: Western Society of Weed Science
  - Publication Date: 2014
  - Text Edition:
  - Classic Textbook?: No
  - OER Link:
  - OER:
- Integrated Pest Management: The Illustrated Guide
  - Author: Radcliffe, Edward B., Hutchison, William D. and Cancelado, Rafael E.
  - Publisher: Cambridge University Press
  - Publication Date: 2012
  - Text Edition:
  - Classic Textbook?: No
  - OER Link:
  - OER:

Other materials and-or supplies required of students that contribute to the cost of the course.