HORT 90S: SUSTAINABLE INTEGRATED PEST MANAGEMENT (IPM)

Foothill College Course Outline of Record

Heading	Value
Units:	1
Hours:	12 lecture per quarter (12 total per quarter)
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	CSU
Grade Type:	Letter Grade (Request for Pass/No Pass)
Repeatability:	Not Repeatable

Student Learning Outcomes

- Understand the risks of pesticides.
- Integrate pest management controls.

Description

Advanced topics in sustainability build on core Integrated Pest Management (IPM) practices. Class provides additional techniques for managing specific insects, diseases, and weeds using a multi-faceted approach to pest management. Theoretical and practical aspects of sustainability are presented within the framework of specific landscape situations.

Course Objectives

The student will be able to:
A. Review identification of various plant pathogens.
B. Evaluate and choose the best methods to prevent and/or control plant diseases, insect infestations, and weed growth, including the selection of chemical and biological control agents.
C. Discuss steps and proper application of Integrated Pest Management (IPM).
D. Discuss local, state, and federal laws and regulations regarding pest management and the use of pesticides, insecticides, herbicides, and biological control agents utilized in IPM.
E. Identify cultural differences in pest management.

Course Content

A. Review identification of common horticultural pests
1. Insects
2. Diseases
3. Weeds
4. Plant pathogen identification
B. Pest control methods and selection of appropriate technique
1. Insect population growth and natural control factors
2. Equilibrium level
3. Carrying capacity, economic injury level, and economic threshold
4. Equilibrium population density
C. Integrated Pest Management (IPM) applied to horticultural operations
1. Guidelines to develop IPM plans for diseases, insects, and weeds
2. IPM in practice
3. Chemical, biological, and physical control of pathogens, insects, and weeds
4. Application of IPM methods
a. Environmental modifications (cultural practices)
b. Exclusion
c. Biological control agents (parasitoids and predators)
d. Synthetic chemical pesticides
e. Microbial pesticides
f. Transgenic plants
g. Mechanical and physical controls
5. Chemical control
D. Regulations of pest management and agents used for pest management
1. Risk management in pest management programs (Lec)
a. Strategy based
b. Input based
2. Regulatory framework
3. Risk vs. hazard analysis
4. Regulatory aspects of plant disease management (local, state, and federal)
5. Pesticide, insecticide, and herbicide registration
6. Pesticide, insecticide, herbicide, and biological control product labeling (interpretation and use)
E. Pest control cultural issues
1. Pest management standards in other countries
2. Cultural differences regarding use of pesticides

Lab Content

Not applicable.

Special Facilities and/or Equipment

A. Horticultural classroom with multi-media projection system, and other related horticultural facilities and equipment.
B. Students provide a 10X loupe, work boots, leather gloves, and clothing for field work.

Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

A. Student will complete a written and/or practical skills test(s).
B. Documented active participation which furthers understanding of pest management theory and applied skills.

Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

A. Lecture presentations on sustainable Integrated Pest Management (IPM).
B. Slide or web presentations which assist in the identification of pests and diseases.
C. Group discussion of sustainable IPM practices as they pertain to today's environment.

Representative Text(s) and Other Materials

Radcliffe, Edward B. Integrated Pest Management: Concepts, Tactics, Strategies, and Case Studies. Cambridge University Press, 2012.
California Statewide Integrated Insect Pest Management Program Publications. UC Berkeley, CA, 2006.
Although older than five years, these are seminal texts necessary for the presentation of IPM.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

A. Reading assignments include approximately 10-20 pages from the text(s) and/or handouts.
B. Web research of practices related to sustainable Integrated Pest Management (IPM).
C. Samples collected by the student to be gathered in the field and brought to class for examination and diagnosis.

Discipline(s)

Ornamental Horticulture