El Camino College

COURSE OUTLINE OF RECORD - Official

I. GENERAL COURSE INFORMATION

Subject and Number: Horticulture 46
Descriptive Title: Pest Control

Course Disciplines: Ornamental Horticulture

Division: Natural Sciences

Catalog Description: This course emphasizes the concepts of landscape pest management. Identification and control of potential pests and diseases, their habits, hosts, and seasonal history will be studied. Chemical, biological, and integrated pest management, as well as the laws and regulations affecting pest control, will be discussed.

Conditions of Enrollment: **Recommended Preparation**

English 82
AND

Mathematics 40

Course Length: [X] Full Term [ ] Other (Specify number of weeks):
Hours Lecture: 3.00 hours per week [ ] TBA
Hours Laboratory: 0 hours per week [ ] TBA
Course Units: 3.00

Grading Method: Letter
Credit Status Associate Degree Credit

Transfer CSU: [X] Effective Date: Prior to July 1992
Transfer UC: [ ] No

General Education:
El Camino College: _____
CSU GE: _____
IGETC: _____

II. OUTCOMES AND OBJECTIVES

A. COURSE STUDENT LEARNING OUTCOMES (The course student learning outcomes are listed below, along with a representative assessment method for each. Student learning outcomes are not subject to review, revision or approval by the College Curriculum Committee)

1. The successful Pest Control student will be able to discuss the modes of action of various pesticides.
2. The successful Pest Control student will be able to determine the different orders of various pests found in landscapes.
3. The successful Pest Control student will be able to describe the basic concepts of pest control.

The above SLOs were the most recent available SLOs at the time of course review. For the most current SLO statements, visit the El Camino College SLO webpage at http://www.elcamino.edu/academics/slo/.

B. Course Student Learning Objectives (The major learning objective for students enrolled in this course are listed below, along with a representative assessment method for each)

1. Discuss the economic importance and impact of landscape pests and diseases.

   Essay exams
2. Identify the families of invertebrate pests common to Southern California landscapes, including insects, mites, mollusks, and other invertebrate pests and formulate a pest control plan.

   Quizzes
3. Identify vertebrate pests common to Southern California landscapes and formulate a pest control plan.

   Matching Items
4. Identify the species of weeds common to Southern California landscapes and discuss their seasonal lifecycles.

   Matching Items
5. Identify biotic and abiotic plant diseases common to Southern California landscapes and determine their controls.

   Matching Items
6. Compare the classifications and formulations of pesticides and their uses in a pest control environment.

   Multiple Choice
7. Compare and contrast methods of integrated pest management, biological pest control and chemical control.

   Multiple Choice
8. Outline the basic laws and regulations governing the use of pesticides.

   Matching Items

III. OUTLINE OF SUBJECT MATTER (Topics are detailed enough to enable a qualified instructor to determine the major areas that should be covered as well as ensure consistency from instructor to instructor and semester to semester.)

Lecture or Lab	Approximate Hours	Topic Number	Major Topic
Lecture	3	I	Introduction A. Economic impact B. Importance of pest management C. Introduction to chemical pesticides D. Introduction to Integrated Pest Management (IPM)

Lecture	3	II	Chemical Pesticides A. Pesticide groups B. Toxicity C. LD50 and LC50 D. Formulations E. Uses
Lecture	3	III	Control Methods A. Chemical controls B. Biological controls C. Application equipment D. Integrated pest management techniques
Lecture	6	IV	Safe and Effective Use A. Laws and regulations B. The pesticide label C. Handling, mixing, transporting and storage of chemical pesticides D. Safety equipment E. Application safety
Lecture	2	V	Arachnida – Habitats, Pest and Beneficials A. Life cycles B. Body parts C. Spiders D. Mites E. Ticks
Lecture	1	VI	Mollusca A. Slugs B. Snails C. Habitats and feeding D. Controls
Lecture	2	VII	Identification of Invertebrate Pests and Their Significance in the Landscape A. Body parts B. Life cycles – simple metamorphosis vs. complete metamorphosis C. Mouth parts
Lecture	2	VIII	Lesser Insect Orders A. Earwigs B. Termites C. Thrips D. Habitats and feeding E. Controls
Lecture	2	IX	Order Hemiptera – True Bugs A. Various species B. Mouth parts C. Habitats and feeding D. Controls
Lecture	6	X	Order Homoptera – Aphids and Their Allies A. Aphids B. Aphid life cycle C. Leafhoppers, treehoppers and sharpshooters D. Whiteflies E. Mealybugs F. Psyllids G. Scale H. Mouthparts I. Habitats and feeding

			J. Controls
Lecture	6	XI	Order Coleoptera – Beetles A. Scarabs B. Bark beetles C. Ground beetles D. Stem and twig beetles E. Rove beetles F. Click beetles G. Dermestid beetles H. Anobiid beetles I. Ladybird beetles J. Metallic wood-boring beetles K. Leaf beetles L. Long-horned beetles M. Weevils and snout beetles N. Mouthparts O. Habitats and feeding P. Controls
Lecture	3	XII	Order Lepidoptera – Moths and Butterflies A. Moths B. Butterflies C. Butterfly life cycle D. Mouth parts E. Habitats and feeding F. Controls
Lecture	3	XIII	Order Hymenoptera A. Bees – honey bees, carpenter bees, bumble bees B. Wasps C. Ants – Argentine ants, red imported fire ants (RIFA) D. Mouth parts E. Habitats and feeding F. Dangers associated with the order Hymenoptera G. Controls
Lecture	1	XIV	Order Diptera – Flies and Mosquitos A. House flies B. Mosquitos C. Life cycles D. Mouth parts E. Habitats and feeding F. Dangers and diseases associated with the order Diptera G. Controls
Lecture	1	XV	Identification of Vertebrate Pests and Their Significance in the Landscape A. Vertebrate pest groups B. Basic overview
Lecture	3	XVI	Rodents and Rabbits A. Roof rats B. Norway rats C. Pocket gophers D. Moles E. Voles F. Ground squirrels G. Tree squirrels H. Rabbits I. Habitats and feeding J. Damage and diseases associated with rodents

			K. Controls
Lecture	1	XVII	Birds A. Pigeons B. Sparrows and finches C. European starlings D. Habitats and feeding E. Damage and diseases associated with birds
Lecture	1	XVIII	Mammals Other Than Rodents A. Opossum B. Deer C. Skunks D. Habitats and feeding E. Damage Associated with Mammals Other Than Rodents
Lecture	3	XIX	Identification of Weed Pests and Their Significance in the Landscape A. Plant groups – monocots and dicots B. Plant life cycles – annuals, biennials and perennials C. Warm season vs. cool season weeds D. Common plant families of weeds E. Use of herbicides F. Systemic herbicides G. Contact vs. translocated herbicides H. Preemergent vs. post emergent herbicides
Lecture	2	XX	Identification of Plant Pathogens and Their Significance in the Landscape A. Fungal pathogens B. Bacterial pathogens C. Viral pathogens D. Biotic disorders – smog, ozone, frost, etc.
Total Lecture Hours		54	
Total Laboratory Hours		0	
Total Hours		54	

IV. PRIMARY METHOD OF EVALUATION AND SAMPLE ASSIGNMENTS

A. **PRIMARY METHOD OF EVALUATION:**

Problem solving demonstrations (computational or non-computational)

B. **TYPICAL ASSIGNMENT USING PRIMARY METHOD OF EVALUATION:**

Collect twelve invertebrate garden pests. In a table, corrrectly identify the name and family of each pest and indicate the date and location of the collection.

C. **COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS:**

1. Using the nursery area on campus, in a one to two page report, develop and outline a chemical control plan to maintain the plant material in a healthy and saleable state. Consider weed management, insect control, and disease control. Be sure to include a list of control measures and a timetable.

2. Using your own landscape or the landscape of a friend, develop an integrated pest management plan for that landscape. Include weed control, pest and disease management, and a timeline. Present your findings in a one to two page report.

D. **OTHER TYPICAL ASSESSMENT AND EVALUATION METHODS:**

Quizzes

Written homework

Laboratory reports

Multiple Choice

Matching Items

True/False

Other (specify):

identification of various pests

V. INSTRUCTIONAL METHODS

Guest Speakers
Lecture
Multimedia presentations

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instruction delivery shall provide access, full inclusion, and effective communication for students with disabilities.

VI. WORK OUTSIDE OF CLASS

Study
Answer questions
Problem solving activities

Estimated Independent Study Hours per Week: 6

VII. TEXTS AND MATERIALS

A. **UP-TO-DATE REPRESENTATIVE TEXTBOOKS**
Dreistadt, Steve H.. Pests of Landscape Trees and Shrubs: an Integrated Pest Management Guide. 2nd ed. University of California Press, 2004.
Qualifier Text: Discipline Standard,
Marer, Patrick. The Safe and Effective Use of Pesticides. 2nd ed. University of California Press, 2000.
Qualifier Text: Discipline Standard,
Whitson, Tom D.. Weeds of the West. 9th ed. University of California Press, 2006.

Qualifier Text: Discipline Standard,

B. **ALTERNATIVE TEXTBOOKS**

C. **REQUIRED SUPPLEMENTARY READINGS**
Wildlife Pest Control Around the Gardens and Home, Terrell P. Salmon & Robert E. Lickliter, University of California Press, 2004.

D. **OTHER REQUIRED MATERIALS**
A complete list of required and recommended materials is maintained in the Division Office.

VIII. CONDITIONS OF ENROLLMENT

A. Requisites (Course and Non-Course Prerequisites and Corequisites)

Requisites	Category and Justification

B. Requisite Skills

Requisite Skills

C. Recommended Preparations (Course and Non-Course)

Recommended Preparation	Category and Justification
Course Recommended Preparation AND English-82	
Course Recommended Preparation Mathematics-40	

D. Recommended Skills

Recommended Skills
There are sufficient reading requirements that the students need to at least be at the level of developmental reading ability. ENGL 82 - Identify at the paragraph level the topic sentence, supporting details, transitions and patterns of organization of short reading selections. ENGL 82 - Employ basic critical thinking skills such as distinguishing fact from opinion, making valid inferences, and formulating implied main ideas.
Students must be able to calculate appropriate amounts of pesticides for application per area and dilution calculations for pesticide preparation. MATH 40 - Use the properties of the real numbers to evaluate, simplify, and factor algebraic expressions, including expressions with fractions and radicals.

E. Enrollment Limitations

Enrollment Limitations and Category	Enrollment Limitations Impact

Course created by Norman Hogg on 04/01/1975.

BOARD APPROVAL DATE:

LAST BOARD APPROVAL DATE: 04/13/2015

Last Reviewed and/or Revised by James Healy on 01/20/2015