# BUTTE COLLEGE
## COURSE OUTLINE

I. **CATALOG DESCRIPTION**

**EH 60 - Principles of Integrated Pest Management** **3 Unit(s)**

**Prerequisite(s):** NONE
**Recommended Prep:** Reading Level IV; English Level IV; Math Level III
**Transfer Status:** CSU
51 hours Lecture

This course covers the origin, history, and management of insect, plant pathogen, weed, and other pests of field and horticulture crops. Pest biology and life cycles are studied to demonstrate the use of various Integrated Pest Management (IPM) technologies for economic crop production. Pesticide regulations, application, formulations, and materials for specific uses are covered.

II. **OBJECTIVES**

Upon successful completion of this course, the student will be able to:

A. Explain the terms plant protection and IPM as they relate to agriculture.
B. Describe the role of government agencies and regulations as they relate to plant protection, IPM and food safety.
C. Apply the principles and concepts of IPM to agricultural crop examples in California.
D. Identify insects and related pests, diagnose and analyze crop injury, and select proper management techniques.
E. Identify plant pathogens and related pests, diagnose and analyze crop injury, and select proper management techniques.
F. Identify weeds, diagnose and analyze crop injury, and select proper management techniques.
G. Calculate chemical application rates, determine calibration formulas, and recognize bench space, nursery block, and field area formulas.
H. Explain basic first aid and spill management techniques in a pesticide accident situation.
I. Explain the mode of action of pesticides, pesticide absorption by the human body, and the importance of poisoning measurements.
J. Design a year long IPM program for a specific horticulture or agriculture crop at a specific location.
K. Evaluate application and disposal methods of various pesticide formulations and their containers.

III. **COURSE CONTENT**

A. **Unit Titles/Suggested Time Schedule**

Lecture

| Topics | Hours |
|---|---|
| 1. Introduction<br>A. History of plant protection<br>B. History of integrated pest management (IPM) | 2.00 |
| 2. Entomology IPM<br>A. IPM techniques and strategies with beneficial insects<br>B. Insect outbreak prevention<br>C. Managing primary and secondary insect outbreaks | 10.00 |

3. Plant Pathology IPM 10.00
   A. Hosts and pathogenic organisms
   B. Life cycles and infection
   C. Damage and impact on production
   D. Disease outbreak prevention
   E. Managing disease outbreaks
4. Weeds IPM 10.00
   A. Weed life cycles
   B. California weed identification
   C. Weed outbreak prevention
   D. Managing weed infestation
5. IPM of other horticultural pests 8.00
   A. Mollusks life cycles and management
   B. Vertebrates life cycles and management
   C. Nematodes life cycles and management
   D. Prevention of other pest infestation
6. Pesticides and IPM 11.00
   A. Laws and regulations
   B. Types of pesticides
   C. Pesticide application and safety
   D. Common pesticide calculations and calibration methods

Total Hours 51.00

## IV. METHODS OF INSTRUCTION

A. Lecture
B. Group Discussions
C. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
D. Problem-Solving Sessions
E. Reading Assignments

## V. METHODS OF EVALUATION

A. Quizzes
B. Homework
C. Written Assignments
D. Mid-term and final examinations

## VI. EXAMPLES OF ASSIGNMENTS

A. Reading Assignments
   1. Review the California Department of Pesticide Regulation generated handout for Pest Control Advisor Knowledge Expectations in Integrated Pest Management (IPM). Be prepared to discuss the significance of these topics for cultural, biological, physical, and chemical pest control in commercial agriculture.
   2. Read University of California IPM Online on imported red fire ants to determine the role these organisms play in landscape maintenance and management and how invasive pests gain entry into California. Be prepared to present your findings in class discussion.

B. Writing Assignments
   1. Explain the ecological principles as they apply to pest management. Write a 3-4 page explanation to show the relationship between these principles.
   2. Write a 3-4 page pesticide recommendation for an instructor-assigned pest in a tree fruit or

nut crop currently grown in northern California.

C. Out-of-Class Assignments
   1. Solve a pesticide calibration problem set as assigned by the instructor.
   2. Create a virtual insect or weed collection that includes 50 agriculturally-invasive species. Follow the outline of required specimens as designated by the instructor.

## VII. RECOMMENDED MATERIALS OF INSTRUCTION

Textbooks:

A. Pedigo, L.P. & Rice, M.E. Entomology and Pest Management. 6th Edition. Prentice Hall, 2009.

B. Flint, M.L. & Gouveia, P. IPM in Practice Principles and Methods of Integrated Pest Management. 2nd Edition. University of California ANR Communication Services, 2012.

**Created/Revised by:** Carrie Monlux
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