

BUTTE COLLEGE

COURSE OUTLINE

I. CATALOG DESCRIPTION

EH 61 - Plant Protection Materials

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 will introduce the history, laws and regulations, safe and responsible use, toxicology, risks, benefits, and sustainability in the use of horticultural and agricultural chemicals including pesticides, fertilizers, plant growth regulators, defoliants, and antimicrobials. Throughout the course applied examples will be used to generate discussion and aid in the students' ability to formulate integrated agrichemical management programs.

II. OBJECTIVES

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

- A. Evaluate pesticides and other plant protection materials based on modes of action and toxicity levels.
- B. Analyze a pesticide label for application rate information for various crops.
- C. Describe the personal protective equipment (PPE), restricted entry interval (REI) and preharvest interval (PHI) for various pesticides.
- D. Compute calibration values for spray equipment.
- E. Compare various online tools for pesticide research and pest identification.
- F. Contrast various modes of action found in plant protection materials for invertebrates and weeds.
- G. Describe how plant hormones affect growth, senescence, and abscission.
- H. Compose a written agrichemical recommendation and restricted materials permit application.

III. COURSE CONTENT

A. Unit Titles/Suggested Time Schedule

Lecture	
<u>Topics</u>	<u>Hours</u>
1. Overview of pesticides and plant protection materials	4.00
2. Pesticide formulations, mixtures, and adjuvants	2.00
3. State and federal laws, labels, and regulations	2.00
4. California qualified applicators and pest control advisors state licensure knowledge expectations	2.00
5. Applicator safety, personal protective equipment (PPE), restricted entry interval (REI) and preharvest interval (PHI)	4.00
6. Equipment calibration, methods and pesticide calculations	3.00
7. Agrichemicals used to control invertebrates	4.00
8. Agrichemicals used to control, regulate, and defoliate plants	6.00
9. Agrichemicals used to control pathogenic microorganisms	4.00
10. Agrichemicals used to control and repel vertebrate pests	3.00
11. Biological and biochemical interactions with plant protection materials	4.00
12. Legality and hazards of pesticide use	3.00

13. Biorationals and transgenic crop use	3.00
14. Agrichemical application methods and equipment	3.00
15. Safety in the workplace	2.00
16. Recordkeeping and written recommendations	2.00
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. Exams/Tests
- B. Quizzes
- C. Research Projects
- D. Homework
- E. Written Assignments

VI. **EXAMPLES OF ASSIGNMENTS**

- A. Reading Assignments
 - 1. Read The Pesticide Book's chapter on microbials and beneficial insects and their use. Comment on how the use of biological control has helped bring sustainable practices to commercial agriculture.
 - 2. Review and critique existing integrated pest management techniques and procedures for California cotton using your Harvest Aid Materials and Practices text.
- B. Writing Assignments
 - 1. This writing assignment is a review of 1500 words or less (this is about 4-5 pages, double spaced, 12 point font, including figures and excluding references) on one pesticide from the list provided by the instructor. The assignment will be marked on your ability to research a pesticide topic of current interest and present your findings in a clear, concise and informative fashion.
 - 2. Explain the principles as they apply to pesticide rotation. Write a 3-4 page explanation to show the relationship between these principles and include 5 specific examples of pesticide groups or classes that could be rotated in a cropping system.
- C. Out-of-Class Assignments
 - 1. Locate information on a local bird pest as designated by the instructor. Give some information of potential avicides or other control practices in commercial or organic production. Give the target bird pest and crop infested.
 - 2. Complete the review questions on pesticide application equipment in your textbook.

VII. **RECOMMENDED MATERIALS OF INSTRUCTION**

Textbooks:

- A. Ware, G.W. and Whitacre, D.M. The Pesticide Book. 6th Edition. MeisterPro, 2004.
- B. O'Connor, P.J. The Safe and Effective Use of Pesticides. 2nd Edition. University of California, Agriculture and Natural Resources, 1999.
- C. Hutmacher, R.B., Vargas, R.N., Wright, S.D., and Roberts, B.A. Harvest Aid Materials and Practices for California Cotton. 1st Edition. University of California, Agriculture and Natural

Resources, 2003.

D. Flint, M.L. Plant Growth Regulators - A Study Guide for Agricultural Pest Control Advisors.
2nd Edition. University of California, Agriculture and Natural Resources, 2003.

Materials Other Than Textbooks:

A. The instructor will provide supplemental up-to-date materials

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