BUTTE COLLEGE
COURSE OUTLINE

I. **CATALOG DESCRIPTION**

EH 66 - Orchard Production and Management **3 Unit(s)**

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

This course is an introduction to the management of fruit and nut trees. Topics include climate zones, soil selection, financing, farm organization, irrigation systems, field layout, varietal selection, nutritional needs, harvesting, labor management, marketing, and budgeting.

II. **OBJECTIVES**

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

A. Compare California with U.S. fruit production.
B. Identify and locate the principle California fruit crops, current acreages, and trends.
C. Recognize the basic structures of plants and describe their function.
D. Prepare an orchard budget and cost analysis.
E. Schedule a seasonal sequence of orchard crop cultural practices in California.
F. Explain the basic economic concepts of orchard production and marketing.
G. Categorize general cultural practices in orchard crops.
H. Explain market standards, market agencies, market agreements, and marketing of orchard crops.
I. Explain the botany of varieties and development of fruit and nut crops.
J. Identify and describe environmental conditions influencing local crop production.
K. Explain the effects of temperature, water, spacing and fertility on plant growth and production.

III. **COURSE CONTENT**

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

Lecture

Topics	Hours
1. California Fruit and Nut Industry	2.00
2. Pruning Principles	3.00
3. Pruning and Training Systems	3.00
4. Pollination and Climatic Requirements	5.00
5. Site Selection and Orchard Development	4.00
6. Irrigation, Nutrient Management, and Frost Protection	5.00
7. Pest Management	2.00
8. Rootstock Selection and Plant Breeding	2.00
9. Harvesting and Transport	3.00
10. Management, Budgeting, and Calendar of Operations	3.00
11. Marketing and Consumer Trends	2.00
Total Hours	34.00

Lab

Topics	Hours

1.	Introduction to Pomology and Orchard Management, Industry Resources	3.00
2.	Vegetative Structures	3.00
3.	Fruiting Wood	6.00
4.	Orchard Planning and Planting	6.00
5.	Pruning and Training	6.00
6.	Grafting and Rootstocks	6.00
7.	Flower and Fruit Anatomy and Physiology	9.00
8.	Orchard Plan Field Trip and Presentation	3.00
9.	Pest and Disease Management	3.00
10.	Irrigation and Frost Protection	3.00
11.	Harvest Procedures	3.00
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. Lab Projects
E. Written Assignments

VI. EXAMPLES OF ASSIGNMENTS

A. Reading Assignments
   1. Read from the "UC publication Almond Production Manual" and California state harvest market reports. Be prepared to discuss the domestic and export markets for almonds in California.
   2. Read two journal articles on new rootstocks under development and present your findings during class discussion.

B. Writing Assignments
   1. Complete a three page lab report comparing and contrasting several different pruning and training methods used in peach, almond, walnut, and plum orchards.
   2. Research six types of rootstocks and scion wood and write a three page report of appropriate graft combinations required in specific growing regions in California.

C. Out-of-Class Assignments
   1. Maintain six live branches or vines throughout the semester and keep a weekly journal of the physiological changes of the fruiting wood and fruit development over a period of four months.
   2. Attend a field trip to a local sheller/huller facility. Be prepared to take notes on various aspects of harvesting processes and be prepared to discuss your findings in class.

VII. RECOMMENDED MATERIALS OF INSTRUCTION

Textbooks:

A. Westwood, M.N. Temperate-Zone Pomology: Physiology and Culture. 3rd Edition. Timber Press, 2009.
B. Ingels, C., Geisel, P., Norton, M. The Home Orchard. 1st Edition. Univ of California Agriculture & Natural Resources, 2007.

Created/Revised by: Carrie Monlux
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