

Discipline: Agriculture	Sub-discipline: Plant Science
General Course Title: Introduction to Fruit Science	Min. Units: 3 Semester
Proposed Suffix: L	
<p>Course Description: The botany, taxonomy, and development of major fruit, vine, and nut crops in California including variety selection, production practices including site selection establishment, fertilization, pollination, irrigation, harvest, storage, processing, marketing, pest management, and pruning. Laboratory required.</p>	
Required Prerequisites or Co-Requisites ¹	
Advisories/Recommended Preparation ²	
<p>Course Objectives: <i>At the conclusion of this course, the student should be able to:</i></p> <ul style="list-style-type: none"> • Explain the historical background of California and U.S. fruit production. • Compare California with U.S. fruit production. • Identify the principle California fruit crops, current acreages, and trends. • Diagram the basic structures of plants and describe their function. • Describe the various growth and fruiting habits of orchard trees and vines. • Explain the environmental factors influencing fruit production. • Explain the underlying theories of tree and vine pruning. • Demonstrate the steps in training a young tree and vine. • Define horticultural terminology. • Locate and interpret new horticultural and viticultural information. • Identify local fruit and vine species and varieties. • Identify principle plant tissues. • Trace liquid conduction in the tree and vine. • Describe the process of photosynthesis and its response to environmental changes. • Identify fruiting characteristics of fruit trees and grapevines. • Judge fruit trees and vines for training and production. • Predict local frost possibility from local meteorological conditions. • Outline a reasonable frost control system. • Select a training system for a given orchard or vineyard variety. • Prune first, second and third year trees and vines. • Prune a mature tree and vine for production. 	
<p>Course Content:</p> <ol style="list-style-type: none"> 1. Fruit Production <ol style="list-style-type: none"> A. Development on a national scale, history in action, factors involved in developing fruit ranches and vineyards in U.S. present status. B. Importance of California in fruit production <ol style="list-style-type: none"> 1. climatic conditions responsible 2. scope and principle fruits 3. grape variety and uses 4. grape districts and specialties <p>Introduction to Fruit Science (Content Continued)</p> <ol style="list-style-type: none"> 2. Elementary Tree and Vine Botany <ol style="list-style-type: none"> A. External structures – buds, top, roots, stem, fruit, shoot growth B. Cells, tissues, their structure and functions with special emphasis on their 	

¹ Prerequisite or co-requisite course need to be validated at the CCC level in accordance with Title 5 regulations; co-requisites for CCCs are the linked courses that must be taken at the same time as the primary or target course.

² Advisories or recommended preparation will not require validation but are recommendations to be considered by the student prior to enrolling.

- response to orchard and vineyard production practices.
 - C. Identification of fruit trees and vines – characteristics of our common fruit trees and vines – study of peculiar structures.
 - D. Study of fruiting habits
 - 1. climatic conditions responsible
 - 2. seasonal wood and cane production
 - E. Physiology of the grapevine
- 3. Environmental Relations
 - A. Climate, weather, soil, moisture, biological
 - B. Effect of high and low temperatures – freezing damage to tree and vine tissues and fruits – dew point and relation to frost – weather conditions for frost – rest influence.
 - C. Avoiding low temperature damage
 - 1. location
 - 2. wind machines
 - 3. combustion
 - 4. irrigation
 - 5. late pruning of vines
- 4. Pruning
 - A. Purposes
 - B. Pruning principles – how growth habits influence pruning – vigor as a guide – fruit as a guide – environment as a guide.
 - C. Responses to pruning – response at various ages – seasonal variations – building tree and vine resources – influence upon bud formation.
 - D. Specific pruning practices – fruit trees
 - 1. almond, peach, apricot, apple, pear
 - a. bearing wood
 - b. seasonal growth in vigor and volume
 - c. local practices recommended
- 5. Training
 - A. Year-to-year pruning to develop framework and fruiting of young trees and vines.
 - 1. locally recommended systems
 - 2. training for mechanical harvesting
 - B. Pruning systems
 - 1. fruit tree
 - 2. grapevine
- 6. Fruit Tree and Vine Nutrition
- 7. Cultivation and Irrigation Practices Used in Orchards and Vineyards
- 8. Thinning and Girdling of Grapevines

**Introduction to Fruit Science
(Content Continued)**

- 9. Grape Production
 - A. Table grapes
 - B. Wine grapes
 - C. Raisin grapes – including DOV
 - D. Pest management, fertility, and water requirements

<ul style="list-style-type: none"> E. Harvest and processing F. Marketing <p>10. Citrus Production</p> <ul style="list-style-type: none"> A. Climatic requirements B. Oranges – seeded and seedless C. Lemons D. Other citrus crops E. Pest management, fertility, and water requirements F. Harvest, storage, and handling G. Marketing <p>11. Nut Production</p> <ul style="list-style-type: none"> A. Walnuts B. Almonds C. Pistachios D. Pest management, fertility, pollination, and water requirements E. Harvest, storage, and handling F. Marketing <p>12. Pome Fruits</p> <ul style="list-style-type: none"> A. Apple B. Pear C. Pomegranate D. Pest management, fertility, pollination, and water requirements E. Harvest, storage, and handling F. Marketing <p>13. Stone Fruits</p> <ul style="list-style-type: none"> A. Peach B. Apricot C. Nectarine D. Plum E. Cherries F. Pest management, fertility, pollination, and water requirements G. Harvest, storage, and handling requirements <ul style="list-style-type: none"> 1. fruit drying and preservation H. Marketing <p>14. Small Fruits</p> <ul style="list-style-type: none"> A. Strawberries B. Raspberries and blackberries – cane fruits C. Blueberries D. Pest management, fertility, pollination, water and pH requirements E. Harvest, storage, and handling requirements F. Marketing <p>Laboratory Activities: Individual Laboratory Activities are designed to support course objectives.</p>	
<p>Methods of Evaluation: Lecture Comprehensive Quizzes and Exams Written Critical Thinking Scenarios Problem Analysis and Solution Research and Term Papers</p>	<p>Methods of Evaluation: Laboratory Laboratory Skill Validation by Observation Laboratory Reports Laboratory Research Projects and Reports Laboratory Skill Practicum Exams</p>
<p>Typical Textbooks, Manuals, or Other Support Materials <u>Modern Fruit Science.</u> Childers. (ISBN# 0-938378-104) Horticultural Publications – Rutgers University.</p>	

Statewide Articulation: Transfers as lower division elective	
FDRG Lead Signature:	Date:
Mark E. Bender, PhD CSU Stanislaus	
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