

Discipline: Agriculture	Sub-discipline: Viticulture
General Course Title: Vineyard Pest and Disease Management	Min. Units: 4 Semester
Proposed Suffix: L	
<p>Course Description:</p> <p>A study of the identification and the biology of common vineyard pests and diseases is covered in this course. Techniques and strategies for sampling and monitoring and effective control measures will be covered. Pest management strategies for insects, weeds and diseases will be emphasized, including bio-control and sustainable agricultural practices in addition to pesticide use, safety and compliance.</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"> • Define the importance of pest management • Describe the vineyard yearly growth cycle and relate it to high and low risk periods of disease and pest pressure • Describe vine structure and identify which vine parts are susceptible to each particular disease and pest • Explain the principles and practices of vineyard disease and pest monitoring • Explain how vine health relates to its susceptibility or tolerance to disease and pest pressure • Be able to identify and describe the life-cycles of common vineyard pests and diseases • Be able to identify and describe the life cycles of natural enemies of vineyard pests • Discuss various strategies and critical time periods for vineyard pest and disease control • Discuss the implications of a Glassy-Winged Sharpshooter infestation in any Californian grape growing region and to the winegrape industry in general • Develop and write an Integrated Pest Management master plan for a vineyard that addresses disease and pest control, spanning an entire year cycle. 	
<p>Course Content:</p> <ol style="list-style-type: none"> 1. Pest and Disease Management Overview <ol style="list-style-type: none"> A. Definitions B. Vocabulary C. Insects and natural enemies D. Disease biology E. Weed management 2. Vine Structure and the Vineyard Yearly Growth Cycle <ol style="list-style-type: none"> A. Vine parts susceptible to infection and pest damage B. Vine cycle and periods of disease pressure C. Vine cycle and periods of pest pressure 3. Degree Days <ol style="list-style-type: none"> A. Insect development B. Disease modeling for risk management <p>Vineyard Pest and Disease Management (Content Continued)</p>	

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.

4. Virus Diseases and Control Measures
 - A. Leaf-roll viruses / vectors
 - B. Fanleaf degeneration viruses / vectors
 - C. Rugose wood viruses
 - D. Viroids
5. Bacterial Diseases and Control Measures
 - A. Monitoring and sampling strategies
 - B. Crown gall
 - C. Pierce's Disease
 - D. Vectors
6. Fungal Diseases and Control Measures
 - A. Powdery mildew
 - B. Downy mildew
 - C. *Botrytis* bunch rot
 - D. *Eutypa* die-back
 - E. *Phomopsis* cane and leaf spot
 - F. Oak root fungus
 - G. Trunk diseases
 - H. Other
7. Soil Pests and Control Measures
 - A. Phylloxera
 - B. Nematodes
8. Insect and Mite Pests and Control Measures
 - A. Leafhopper
 - B. Sharpshooter
 - C. Spider mites
 - D. Mealybugs
 - E. Orange Tortrix / Omniverous Leafroller
 - F. Leafroller and Thrips
 - G. Western Grapeleaf Skeletonizer
 - H. Branch Twig and Cane Borer
 - I. Cutworms
 - J. Grape Bud Beetle
 - K. False Chinch Bug
9. Natural Enemies and Beneficial Insects
 - A. Parasites and Parasitoids
 - B. *Crysoperla*
 - C. *Hippodamia*
 - D. *Trichogramma*
 - E. *Cryptolaemus*
 - F. *Anagrus*
 - G. Predacious mites

**Vineyard Pest and Disease Management
(Content Continued)**

10. Vertebrate Pests and Control Measures
 - A. Deer
 - B. Gophers

- C. Meadow Voles
- D. Squirrels
- E. Birds
- F. Pigs
- G. Rabbits
- H. Others

11. Weeds and Control Measures

- A. Annuals vs. Perennials
- B. Spring/Summer Weeds vs. Winter Weeds
- C. Dicotyledonous Weeds vs. Monocotyledonous Weeds

12. Sustainable Agricultural Practices / Bio-Control Methods / Organic Practices

13. Pesticides

- A. Different classes of compounds
- B. Regulation and Regulatory Agencies
- C. Safety and Compliance
- D. Sprayer Calibration

Laboratory Activities: Individual Laboratory Activities are designed to support course objectives.

Methods of Evaluation: Lecture
 Comprehensive Quizzes and Exams
 Written Critical Thinking Scenarios
 Problem Analysis and Solution
 Research and Term Papers

Methods of Evaluation: Laboratory
 Laboratory Skill Validation by Observation
 Laboratory Projects and Reports
 Laboratory Research Projects and Reports
 Laboratory Skill Practicum Exams

Typical Textbooks, Manuals, or Other Support Materials

- Grape Pest Management, 2nd edition, UC DANR, 1992
- Wine Pest Profile: Wine Grapes in California, CAWG report for FQPA compliance, 1999.
- The Safe and Effective Use of Pesticides, Univ. of Calif., 1999.

Statewide Articulation: CPSLO-PPSC 414, UCD-VEN 118, other universities as lower division elective

FDRG Lead Signature:

Date:

Mark E. Bender, PhD CSU Stanislaus

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Internal Tracking Number