

Department:

Viticulture and Enology

Course Description:

This course focuses on how effective grape production depends on the grower developing a system of grape management that is appropriate for each vineyard. The course will also examine the decisions that need to be made for managing all the normal cultural practices, such as planting, fertility, harvesting, and pruning, as well as managing the insect, disease, and weed problems that occur either regularly or sporadically. The information in this course will address management issues related to common, expected pest problems as well as the occasional appearance of minor pest problems.

Course Competencies:

Upon completion of the course, the student should be able to:

1. Explain differences between cultural, biological and chemical control.
2. Describe reasons for and methods of reducing pesticide use.
3. Calibrate a sprayer to achieve the desired pest control goals.
4. List pesticide license requirements for his/her location.
5. Describe basic pest biology of bud and fruit insect pests.
6. Describe basic pest biology of leaf and root insect pests.
7. Describe which insects are considered minor, absent, or infrequent pests of grapes.
8. Identify insect pests of grapes.
9. Explain how to select insecticides for management of grape insect pests while considering factors such as efficacy, cost, safety, and proper use.
10. Explain how non-chemical controls can be used to manage grape insect pests.
11. Explain the importance of monitoring and scouting.
12. Describe the recommended type of between-row vegetation.
13. Identify economically important weed species in his/her area.
14. Describe when weed management of vines is most critical.
15. Identify grapevine herbicides and appropriate use.
16. Describe non-herbicide alternatives to weed control.
17. Develop a sustainable weed management plan.
18. Explain and describe viral and bacterial diseases.
19. Explain and describe disease vectors.
20. Determine which disease is causing damage based on symptoms of grape fruit, leaves, and vines.
21. Explain how weather affects the development of grape diseases.
22. Explain which stage of vine development is susceptible or not susceptible to particular diseases.

23. Explain the difference between protectant and systemic fungicides.
24. Explain how to select the appropriate fungicide for management of particular diseases.
25. Explain how cultural controls can be used to manage diseases.
26. Describe why some pesticides are more likely and some less likely to be selected for resistant pest populations.
27. List ways to alternate insecticides in order to manage for resistance.
28. Describe the different ways insect populations can develop resistance to insecticides.
29. Describe which fungicides are appropriate to select for disease-resistant populations of pathogens and which have low or no risk for resistance development.
30. Relate weed population change to management strategies.
31. List and describe organic insect, disease, and weed management practices.
32. Determine which fungicides and insecticides are organic and which are not.
33. Explain how pheromone mating disruption works and how it can be used to manage populations of grape berry moth.
34. Identify and describe bird, deer and vertebrate pest control options and which are most effective.
35. Identify sources of pesticide information updates.
36. Identify sources for emerging pest information.

Course Content:

- A. Overview of Grape Integrated Pest Management (IPM)
- B. Insects
 1. Bud and Fruit Pests
 2. Leaf, Root, and Typically Minor Pests
- C. Insecticides
- D. Diseases
 1. Fruit Rots, Downy Mildew, Powdery Mildew
 2. Anthracnose, Crown Gall, Eutypa, and Phomopsis
- E. Organic Pest Management, Pest Alternatives
- F. Management of Birds, Deer, and Other Vertebrate Pests

Learning Assessments:

Students will be evaluated using portfolios and presentations, written examinations, laboratory and field observations, class projects and activities, active participation in course dialog and scholarly activities including discovery, application and integration.

Instructional Materials:

Midwest Commercial Small Fruit and Grape Spray Guide, Bordelon, Ellis, Weinzierl, Midwest Fruit Workers Group, 2008

**Guidelines for Requesting Accommodations Based on
Documented Disability or Medical Condition**

It is the intention of Highland Community College to work toward full compliance with the Americans with Disabilities Act, to make instructional programs accessible to all people, and to provide reasonable accommodations according to the law.

Students should understand that it is their responsibility to self-identify their need(s) for accommodation and that they must provide current, comprehensive diagnosis of a specific disability or medical condition from a qualified professional in order to receive services. Documentation must include specific recommendations for accommodation(s). Documentation should be provided in a timely manner prior to or early in the semester so that the requested accommodation can be considered and, if warranted, arranged.

In order to begin the process all students **must** complete the “Disabilities Self-Identification Form” at this link:

<https://highlandcc.edu/pages/disability-services>.

This form can also be accessed at the Highland Community College homepage under Students Services/Student Resources/Disability Service or by contacting the Disabilities Coordinator.