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Course Outline for VWT 31
FALL VINEYARD OPERATIONS
Effective: Fall 2016

I. CATALOG DESCRIPTION:

VWT 31 — FALL VINEYARD OPERATIONS — 3.00 units

This class has a strong emphasis on the practical applications of viticulture. Students will be involved in the operation of the LPC Campus Hill Vineyard putting into action, viticultural practices for the fall and winter seasons including canopy management techniques, irrigation disciplines, pest and disease control, fruit contracts, maturity sampling, harvesting, pruning, erosion control via cover crop, fertilization, weed control, and vineyard development and establishment with a focus on sustainable vineyard management. Students under the age of 21 must have a declared major of either viticulture and/or enology to participate in any tasting activities as stated in the California State Assembly Bill 1989. 2 hours lecture, 3 hours laboratory

2.00 Units Lecture 1.00 Units Lab

Strongly Recommended

VWT 10 - Introduction to Viticulture
with a minimum grade of C

Grading Methods:

Letter Grade

Discipline:

| | MIN |
|-----------------------|------------|
| Lecture Hours: | 36.00 |
| Lab Hours: | 54.00 |
| Total Hours: | 90.00 |

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 1

III. PREREQUISITE AND/OR ADVISORY SKILLS:

Before entering this course, it is strongly recommended that the student should be able to:

A. VWT10

1. discuss the importance of grapes in world history
2. explain the impact that California has had on global wine grape production
3. describe grapevine biology and physiology
4. identify the above and below ground components of the grape vine throughout the seasonal intervals of grape vine development
5. distinguish between specific grape varieties and how they can be utilized in various production programs
6. illustrate the importance of the relationship of soil and climate relative to quality grape and wine production
7. evaluate and manage the seasonal specific requirements of the vineyard and apply the appropriate cultural practices
8. interpret the harvest process from planning through processing
9. analyze the basic tenets of winemaking

IV. MEASURABLE OBJECTIVES:

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

1. explain how vine structure and vine function are related to crop quality
2. distinguish how climate, soils and vineyard practices affect vine growth and grape quality
3. describe the current approaches to pest controls and recommend appropriate actions based on the discipline of Integrated Pest Management
4. apply and maintain a hillside vineyard erosion control program
5. analyze the current approaches to weed control and recommend appropriate actions through integrated pest management
6. describe and apply the practice of canopy management throughout the Fall season including leaf pulling, cluster thinning and know how it affects grape quality
7. explore the varied aspects of wine grape harvesting including accurately predicting vineyard yields, ripeness (Brix) determination by refractometer, create a harvest plan, organize the harvest crew and harvesting supplies, know appropriate harvesting techniques and wine grape handling, and know the specifics for a grape contract
8. identify and apply a fall fertilizing plan including the use and operation of specific fertilizer application equipment
9. list the irrigation needs of the vine and watering strategies for the vineyard as a whole and how it changes seasonally;

- including the operation and maintenance of the vineyard irrigation system including programming the irrigation controller
- 10. differentiate between the types of trellis structures used and how to install and maintain them
- 11. evaluate and apply different methods of pruning and why they are used on certain varieties
- 12. create the vineyard cycle of growth and identify seasonal viticultural practices that must be completed during each stage of vine growth to insure quality production

V. CONTENT:

Viticulture practices for the fall and winter seasons including

- A. Vine structure and function
 - 1. The structure of the grapevine
 - 2. The physiological processes of the vine
- B. How vineyard soils and climate affect quality
 - 1. Vineyard soils analysis
 - 2. Vineyard location climate awareness
 - 3. Guiding crop quality
- C. Pest Control
 - 1. Identifying common vineyard pests including: burrowing rodents, mites, sharpshooters, mildew and molds, mealybugs, etc;
 - 2. Assessing threats and threat levels
 - 3. Learning control methods through Integrated Pest Management
- D. Vineyard Floor Management
 - 1. Assessing vineyard floor requirements
 - 2. Vine rows and middles management practices
 - 3. Cover crop selection and application
 - 4. Weed control through Integrated Pest Management
 - 5. Herbicide selection through Integrated Pest Management
 - 6. Herbicide application procedures; PPE, safe handling, mixing and disposing
- E. Canopy Management
 - 1. Assessing canopy vigor and requirements
 - 2. Applying the discipline of leaf pulling
 - 3. Understanding cluster thinning
 - 4. Seasonal canopy management practices
- F. Harvesting Grapes
 - 1. Vineyard sampling for sugar/acid ratios using a refractometer
 - 2. Techniques for crop sampling
 - 3. Field estimating crop size
 - 4. Harvesting techniques
 - 5. Handling and transportation of grapes
 - 6. Winery/grower relations
- G. Pruning
 - 1. Equipment needed
 - 2. head pruning
 - 3. cordon training
 - 4. cane pruning
 - 5. head training
 - 6. New pruning techniques
- H. Vineyard nutrition
 - 1. Assessing the nutritional needs of the vineyard site
 - 2. Optional fertilizer assessments
 - 3. Fertilizer safety: PPE, handling, mixing, application and disposal
- I. Support for Vines
 - 1. Types of trellis systems
 - 2. Trellising materials
 - 3. Installing and maintaining a trellised vineyard
- J. Season cultural practices in the vineyard
 - 1. Understanding the growth cycles of the vine and how each season has different cultural demands
 - 2. Vineyard equipment safety, operation and maintenance

VI. METHODS OF INSTRUCTION:

- A. **Lecture** -
- B. **Discussion** -
- C. **Demonstration** - Field demonstrations
- D. **Audio-visual Activity** -
- E. **Observation and Demonstration** -
- F. **Lab** - Student hands-on laboratory activities and field practice
- G. **Classroom Activity** -
- H. **Projects** -
- I. **Field Trips** -

VII. TYPICAL ASSIGNMENTS:

- A. Weekly reading assignments in text related to lecture topics
- B. Field Trips at specified locations
- C. Vineyard cultural practices, e.g. Training and pruning
- D. Laboratory/field projects related to viticulture practices

VIII. EVALUATION:

A. **Methods**

- 1. Exams/Tests
- 2. Quizzes
- 3. Papers
- 4. Oral Presentation
- 5. Projects
- 6. Group Projects
- 7. Home Work

8. Lab Activities

B. **Frequency**

1. 2-1.5 hr examinations equally spaced during semester.
2. Quizzes at the instructors discretion typically once per week
3. Tests, exams, quizzes will be scheduled as appropriate to insure that students receive regular and adequate feedback of thier understanding of the content
4. 1-two page industry related research paper due at the end of the semester
5. Readings and homework assigned and due weekly

IX. TYPICAL TEXTS:

1. Goldhammer, Ted . *Grape Growers Handbook*. 2nd ed., Apex, 2015.
2. White, Robert. *Understanding Vineyard soils*. 2nd ed., Oxford University Press, 2015.
3. Keller, Marcus. *The Science of Grapevines*. 2nd ed., Academic Press, 2015.

X. OTHER MATERIALS REQUIRED OF STUDENTS:

- A. Industry standard vine pruning shears