VIT 130 Course Outline as of Fall 2015

CATALOG INFORMATION

Dept and Nbr: VIT 130 Title: GRAPEVINE PHYSIOLOGY
Full Title: Grapevine Physiology
Last Reviewed: 9/27/2021

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	1.00	Lecture Scheduled	4.50	4	Lecture Scheduled	18.00
Minimum	1.00	Lab Scheduled	0	4	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	4.50		Contact Total	18.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 36.00 Total Student Learning Hours: 54.00

Title 5 Category:	AA Degree Applicable
Grading:	Grade or P/NP
Repeatability:	00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:	
Formerly:	

Catalog Description:
An advanced viticulture theory course that covers grapevine physiology and phenology. Topics include vine balance, flowering and fruit set, stages of berry growth, and vine water status. This course is designed for those working in the winegrape industry and already familiar with basic vineyard operations.

Prerequisites/Corequisites:

Recommended Preparation:
Eligibility for ENGL 100 or ESL 100

Limits on Enrollment:

Schedule of Classes Information:
Description: An advanced viticulture theory course that covers grapevine physiology and phenology. Topics include vine balance, flowering and fruit set, stages of berry growth, and vine water status. This course is designed for those working in the winegrape industry and already familiar with basic vineyard operations. (Grade or P/NP)
Prerequisites/Corequisites:

Recommended: Eligibility for ENGL 100 or ESL 100
Limits on Enrollment:
Transfer Credit:
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**	Effective:	Inactive:
CSU GE:	**Transfer Area**	Effective:	Inactive:
IGETC:	**Transfer Area**	Effective:	Inactive:

CSU Transfer:	Effective:	Inactive:
UC Transfer:	Effective:	Inactive:

CID:

Certificate/Major Applicable:
Both Certificate and Major Applicable

COURSE CONTENT

Student Learning Outcomes:
At the conclusion of this course, the student should be able to:
1. Students will be able to demonstrate an understanding of how grapevines function on the cellular level.
2. Expalin the relationship between the underlying vine physiological processes and vine growth and fruit ripening.
3. Discuss how varying environmental conditions can affect the vine's physiological processes.
4. Make appropriate, well timed vineyard management decisions based on knowledge of the vine's physiological processes.

Objectives:
Upon successful completion of this course, the student will be able to:
1. Explain how vine structure relates to vine function.
2. Explain the physiological processes that drive vine growth and fruit ripening.
3. Describe vine balance and its relationship to fruit quality.
4. Explain vine water potential and its impact on vine growth and irrigation management.
5. Discuss the impacts of environment and management on vine flowering and fruit set.
6. Explain how photosynthesis and source/sink relationships affect vine growth and fruit ripening.

Topics and Scope:

I. Review of vine annual cycle of growth

A. Vocabulary and definitions
B. Vine structure
C. Vegetative growth phases vs. reproductive growth phases

II. Vine phenology
A. Budbreak
B. Flowering
C. Fruit ripening

III. Vine physiological processes
A. Photosynthesis
B. Respiration
C. Translocation
D. Transpiration
E. Source-sink relationships
F. Water uptake and vine turgor

IV. Vine balance
A. Definition and how to measure it
B. Effects on vine vigor
C. Effects on fruit quality

V. Anlagen and grapevine inflorescence initiation
A. Effects of plant growth substances on anlagen and inflorescence fertility
B. Effects of environment
C. Effects of pathological intervention

VI. Grapevine flowering, pollination and fertilization
A. Vine nutritional impacts
B. Vine water status impacts
C. Environmental impacts

VII. Seed, embryo, and fruit development post-fertilization
A. Vine nutritional impacts
B. Vine water status impacts
C. Environmental impacts

VIII. Vine water potential - vine water status
A. Definition
B. How to measure it, what the numbers mean
C. Impacts on vine vegetative growth
D. Impacts on vine reproductive growth

Assignment:

1. Reading from textbook (20-30 pages/week)
2. Written original research paper on a specific vine physiological function and its impact on vine growth. (5-8 pages)
3. Quizzes (1-3)

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Research paper	Writing 45 - 60%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

None	Problem solving 0 - 0%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None	Skill Demonstrations 0 - 0%

Exams: All forms of formal testing, other than skill performance exams.

Quizzes: Matching items, Completion, Short Answer	Exams 15 - 25%

Other: Includes any assessment tools that do not logically fit into the above categories.

Participation and discussion	Other Category 20 - 30%

Representative Textbooks and Materials:
Instructor prepared materials
The Science of Grapevines: Anatomy and Physiology, Markus Keller, Elsevier Press Academic Press, 2010