

VITICULTURE & ENOLOGY, BACHELOR OF SCIENCE

College of Agricultural & Environmental Sciences

The Program

The Viticulture & Enology major provides an interdisciplinary education in the biological and physical principles underlying grape and wine production as well as practical knowledge of grape growing (viticulture) and wine making (enology). This program provides the knowledge base for problem-solving and decision-making in commercial grape and wine production.

The curriculum builds upon a foundation of biology, chemistry, biochemistry and mathematics with specialized courses related to grape and wine production. To complete the program, students may choose to place particular emphasis on viticulture, enology or economics. Credit may also be earned for foreign language study and internships.

Major Advisors

M. Bartlett

Related Major Programs

Food Science & Technology; Plant Sciences.

Career Alternatives

Graduates are qualified for a variety of vineyard and winery positions, including production management, quality control and research. Additionally, they may work in related fields such as pest management, nursery production and analytical services.

Graduate Study

Several graduate groups offer programs of study leading to advanced degrees in the fields of viticulture and enology. For the M.S. or Ph.D. degree, see Agricultural & Environmental Chemistry (Graduate Group) (<https://catalog.ucdavis.edu/departments-programs-degrees/agricultural-environmental-chemistry-graduate-group/>), Engineering: Chemical Engineering (<https://catalog.ucdavis.edu/departments-programs-degrees/chemical-engineering/>), Ecology (Graduate Group) (<https://catalog.ucdavis.edu/departments-programs-degrees/programs-degrees/ecology/>), Food Science (Graduate Group) (<https://catalog.ucdavis.edu/departments-programs-degrees/food-science-graduate-group/>), Integrative Genetics & Genomics (Graduate Group) (<https://catalog.ucdavis.edu/departments-programs-degrees/integrative-genetics-genomics-graduate-group/>), Horticulture & Agronomy (Graduate Group) (<https://catalog.ucdavis.edu/departments-programs-degrees/horticulture-agronomy-graduate-group/>), Microbiology (Graduate Group) (<https://catalog.ucdavis.edu/departments-programs-degrees/microbiology/>), Plant Biology (Graduate Group) (<https://catalog.ucdavis.edu/departments-programs-degrees/plant-biology-graduate-group/>), Plant Pathology (<https://catalog.ucdavis.edu/departments-programs-degrees/plant-pathology/>), Soils & Biogeochemistry (Graduate Group) (<https://catalog.ucdavis.edu/departments-programs-degrees/soils-biogeochemistry-graduate-group/>), and Viticulture & Enology (Graduate Group) (<https://catalog.ucdavis.edu/departments-programs-degrees/viticulture-enology-graduate-group/>).

The major requirements below are in addition to meeting University Degree Requirements (<https://catalog.ucdavis.edu/undergraduate-education/university-degree-requirements/>) & College Degree Requirements (<https://catalog.ucdavis.edu/undergraduate-education/college-degree-requirements/>); unless otherwise noted. The minimum number of units required for the Viticulture & Enology Bachelor of Science is 124.

Preparatory Requirements

Before *transferring* into the Viticulture & Enology major, students must complete the following courses with a grade of C- or better and with a combined grade point average of at least 2.500 at the University of California (at least 3.000 for similar courses taken at community college) for these and all other preparatory courses. In addition, students' overall UC GPA must be 2.250 or higher. All courses must be taken for a letter grade.

Requirement	Units
BIS 002A	5
CHE 002A, 002B, 002C, 008A	17
MAT 016A (Discontinued for spring 2025 **) or MAT 019A	3-4
PHY 001A, 001B or 007A	4-6

Recommendations

Completion of UC Davis equivalents of the following preparatory courses for the major are not required for entry but are highly recommended. Failure to complete these will delay entry into required upper division courses and may thus delay graduation. Some courses may be available at UC Davis during Summer Session:

Requirement	Units
CHE 008B	4
MAT 016B (Discontinued for spring 2025 **) or MAT 019B	3-4
PLS 002	4
BIS 102	3

Requirements

Code	Title	Units
Preparatory Subject Matter		
<i>Biological Science</i>		
BIS 002A	Introduction to Biology: Essentials of Life on Earth	5
<i>Chemistry</i>		
CHE 002A	General Chemistry	21
CHE 002B	General Chemistry	
CHE 002C	General Chemistry	
CHE 008A	Organic Chemistry: Brief Course	
CHE 008B	Organic Chemistry: Brief Course	
<i>Mathematics; choose MAT 016A & MAT 016B or MAT 019A & MAT 019B:</i>		
MAT 016A	and (Discontinued for spring 2025) **	6-8
& MAT 016B DISCONTINUED FOR SPRING 2025 **		
MAT 019A	Calculus for Data-Driven Applications	
& MAT 019B and Calculus for Data-Driven Applications		

Physics; choose PHY 001A & PHY 001B or PHY 007A:	4-6	(A) Plant Science Area (p. 2) (B) Food Science & Microbiology Area (p. 2) (C) Economics & Business Area (p. 3) (D) Language Area (p. 3) (E) Internship Area (p. 3)																																																																																																
PHY 007A General Physics or PHY 001A Principles of Physics & PHY 001B and Principles of Physics																																																																																																		
Plant Science	7																																																																																																	
PLS 002 Botany & Physiology of Cultivated Plants PLS 021 Application of Computers in Technology or PLS 021V Application of Computers in Technology																																																																																																		
Viticulture & Enology	5																																																																																																	
VEN 002 Introduction to Viticulture VEN 003 Introduction to Winemaking																																																																																																		
Preparatory Subject Matter Subtotal	48-52																																																																																																	
Depth Subject Matter																																																																																																		
<i>Biological Science; choose BIS 102 & BIS 103 or BIS 105:</i>	3-6																																																																																																	
BIS 105 Biomolecules & Metabolism or BIS 102 Structure & Function of Biomolecules & BIS 103 and Bioenergetics & Metabolism																																																																																																		
Microbiology	5																																																																																																	
MMG 102 or MIC 102 DISC																																																																																																		
MMG 103L or MIC 103L DISCONTINUED FOR FALL 2026 **																																																																																																		
Choose one:	4																																																																																																	
PLS 120 Applied Statistics in Agricultural Sciences or STA 106 Applied Statistical Methods: Analysis of Variance																																																																																																		
Viticulture & Enology	36-38																																																																																																	
VEN 101A Viticultural Practices VEN 101B Viticultural Practices VEN 101C Viticultural Practices																																																																																																		
VEN 110 Grapevine Growth & Physiology VEN 118 Grapevine Pests, Diseases & Disorders																																																																																																		
VEN 123 Analysis of Musts & Wines VEN 124 Wine Production VEN 125 Wine Types & Sensory Evaluation VEN 126 Wine Stability VEN 128 Wine Microbiology VEN 135 Wine Technology & Winery Systems AND In consultation with the advisor, choose three: (6-8)																																																																																																		
VEN 123L Analysis of Musts & Wines Laboratory VEN 124L Wine Production Laboratory VEN 125L Sensory Evaluation of Wine Laboratory VEN 126L Wine Stability Laboratory VEN 127L Post-Fermentation Wine Processing Lab VEN 128L Wine Microbiology Laboratory																																																																																																		
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In consultation with advisor, choose 28 units from the following five areas. At least 12 units must be from one of the following areas: (A) Plant Science, (B) Food Science & Microbiology, or (C) Economics & Business	28																																																																																																	
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FST 104	Food Microbiology	3	GER/COM 011	Travel & the Modern World	4
FST 104L	Food Microbiology Laboratory	4	GER 020	Intermediate German	4
FST 109	Principles of Quality Assurance in Food Processing	3	GER 021	Intermediate German	4
			GER 022	Intermediate German	4
FST 110	Food Processing	4	SPA 021	Intermediate Spanish	5
FST 110L	Food Processing Laboratory	2	or SPA 021V	Intermediate Spanish	
FST 127	Sensory Evaluation of Foods	4	or SPA 021Y	Intermediate Spanish	
VEN 111	World Viticulture	3	SPA 022	Intermediate Spanish	5
VEN/FST 114	Fermented Foods	4	or SPA 022V	Intermediate Spanish	
VEN 140	Distilled Beverage Technology	3	or SPA 022Y	Intermediate Spanish	
VEN 219	Natural Products of Wine	3	SPA 031	Spanish for Heritage Speakers I	5
VEN 235	Winery Design	4	SPA 032	Spanish for Heritage Speakers II	5
MIC 140	(Discontinued for spring 2023) **		SPA 033	Spanish for Heritage Speakers III	5
MIC 150	(Discontinued for spring 2024) **		or SPA 033V	Spanish for Heritage Speakers III	
MIC 155L	(Discontinued for spring 2023) **				

**

Course(s) discontinued; see your advisor for course options.

(C) Economics & Business Area

Code	Title	Units	Code	Title	Units
ARE 100A	Intermediate Microeconomics: Theory of Production & Consumption	4	Choose a maximum of 8 units:		8
				May be increased to 12 units in exceptional circumstances.	
ARE 112	Fundamentals of Organization Management	4	VEN 190X	Winemaking Seminar	
ARE 113	Fundamentals of Marketing Management	4	VEN 192	Internship	
ARE 118	Tax Accounting	4	VEN 198	Directed Group Study	
ARE 130	Agricultural Markets	4	VEN 199	Special Study for Advanced Undergraduates	
ARE 140	Farm Management	4	VEN 290	Seminar	
ARE 150	Agricultural Labor	4	VEN 298	Group Study (may be counted as restricted electives by prior arrangement with advisor)	
ECN 001A	Principles of Microeconomics	4			
or ECN 001AV	Principles of Microeconomics				
or ECN 001AY	Principles of Microeconomics				
ECN 001B	Principles of Macroeconomics	4			
or ECN 001BV	Principles of Macroeconomics				
MGT 011A	Elementary Accounting	4			
or MGT 011AV	Elementary Accounting				
or MGT 011AY	Elementary Accounting				
MGT 011B	Elementary Accounting	4			

(D) Language Area

Maximum 12 units, not counting course 001, of one of the following languages: French, German, Italian, Portuguese or Spanish.

Courses taught in English will not count as restricted electives in this major. *At least one course must be Intermediate or Conversational; qualifying Intermediate or Conversational courses are listed below:*

Code	Title	Units
FRE 021	Intermediate French	5
or FRE 021Y	Intermediate French	
FRE 022	Intermediate French	5
or FRE 022Y	Intermediate French	
FRE 023	Intermediate French	5
or FRE 023Y	Intermediate French	