VITICULTURE & ENOLOGY, BACHELOR OF SCIENCE

College of Agricultural & Environmental Sciences

The Major 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.

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	3
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	3
PLS 002	4
BIS 102	3

The Program

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

H. Heymann

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/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/).

Code	Title	Units
Preparatory Subject Matter		
Biological Science		*5*
BIS 002A	Introduction to Biology: Essentials of Life on Earth	
Chemistry		*21*
CHE 002A	General Chemistry	
CHE 002B	General Chemistry	
CHE 002C	General Chemistry	
CHE 008A	Organic Chemistry: Brief Course	
CHE 008B	Organic Chemistry: Brief Course	
Mathematics		*6*
MAT 016A	Short Calculus	
MAT 016B	Short Calculus	
Physics; choose PHY 001A & PHY 001B or PHY 007A:		*4-6*
PHY 007A	General Physics	
or PHY 001A & PHY 001B	Principles of Physics 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		48-50
Depth Subject Matter		
Biological Science; choose BIS 102 & BIS 103 or BIS 105:		*3-6*

BIS 105	Biomolecules & Metabolism	
or BIS 102 & BIS 103	Structure & Function of Biomolecules and Bioenergetics & Metabolism	
Microbiology		*5*
MIC 102	Introductory Microbiology	
MIC 103L	Introductory Microbiology Laboratory	
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	
If more than three are taken, the extra courses will count as restricted electives in Area B.		
Depth Subject Matter Subtotal		48-53
Restricted Electives		
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
(A) Plant Science Area (p. 2)		
(B) Food Science & Microbiology Area (p. 2)		
(C) Economics & Business Area (p. 2)		
(D) Language Area (p. 3)		
(E) Internship Area (p. 3)		
Restricted Electives Subtotal		28
Total Units		**124-131**

(A) Plant Science Area

Code	Title	Units
ABT/IAD 142	Equipment & Technology for Small Farms	2
ABT/LDA 150	Introduction to Geographic Information Systems	4
ATM 133	Biometeorology	4
BIS 101	Genes & Gene Expression	4
BIS 101D	Genes & Gene Expression Discussion	1
BIT 160	Principles of Plant Biotechnology	3
ENT 110	Arthropod Pest Management	5
HYD/ESM/ABT 110	Irrigation Systems & Water Management	4
HYD 124	Plant-Water-Soil Relationships	4
MCB/PLB 126	Plant Biochemistry	3
NEM 100	Plant Nematology	4
PLB 111	Plant Physiology	3
PLB 112	Plant Growth & Development	3
PLB/ENT/PLP 123	Plant-Virus-Vector Interaction	3
PLB 143	Evolution of Crop Plants	4
PLP 120	Introduction to Plant Pathology	4
PLS 154	Introduction to Plant Breeding	4
PLS 157	Physiology of Environmental Stresses in Plants	4
PLS 158	Mineral Nutrition of Plants	4
PLS 171	Principles & Practices of Plant Propagation	4
PLS 176	Introduction to Weed Science	4
SSC 100	Principles of Soil Science	5
SSC 102	Environmental Soil Chemistry	3
SSC 109	Sustainable Nutrient Management	4
SSC 118	Soils in Land Use & the Environment	4
VEN 112	Soils in Viticulture	3
VEN 115	Raisin & Table Grape Production	2
VEN 216	Sustainable Vineyard Development	5
VEN 217	Field & GIS Evaluation of Soils	3

(B) Food Science & Microbiology Area

Code	Title	Units
BIS 101	Genes & Gene Expression	4
BIS 101D	Genes & Gene Expression Discussion	1
FST 102A	Malting & Brewing Science	4
FST 102B	Practical Malting & Brewing	4
FST 104	Food Microbiology	3
FST 104L	Food Microbiology Laboratory	4
FST 109	Principles of Quality Assurance in Food Processing	3
FST 110	Food Processing	4
FST 110L	Food Processing Laboratory	2
FST 127	Sensory Evaluation of Foods	4
MIC 140	Bacterial Physiology (Discontinued)	3
MIC 150	Genomes of Pathogenic Bacteria	3
MIC 155L	Bacterial Physiology Lab (Discontinued)	4
VEN 111	World Viticulture	3
VEN/FST 114	Fermented Foods	4
VEN 140	Distilled Beverage Technology	3
VEN 219	Natural Products of Wine	3
VEN 235	Winery Design	4

(C) Economics & Business Area

Code	Title	Units
ARE 100A	Intermediate Microeconomics: Theory of Production & Consumption	4

ARE 112	Fundamentals of Organization Management	4
ARE 113	Fundamentals of Marketing Management	4
ARE 118	Tax Accounting	4
ARE 130	Agricultural Markets	4
ARE 140	Farm Management	4
ARE 150	Agricultural Labor	4
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
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
FRE 022	Intermediate French	5
FRE 023	Intermediate French	5
GER/COM 011	Travel & the Modern World	4
GER 020	Intermediate German	4
GER 021	Intermediate German	4
GER 022	Intermediate German	4
SPA 021	Intermediate Spanish	5
or SPA 021V	Intermediate Spanish I	
or SPA 021Y	Intermediate Spanish	
SPA 022	Intermediate Spanish	5
or SPA 022V	Intermediate Spanish II	
or SPA 022Y	Intermediate Spanish	
SPA 031	Intermediate Spanish for Native Speakers I	5
SPA 032	Intermediate Spanish for Native Speakers II	5
SPA 033	Intermediate Spanish for Native Speakers III	5

(E) Internship Area

Code	Title	Units
Choose a maximum of 8 units:		8
May be increased to 12 units in exceptional circumstances.		
VEN 190X	Winemaking Seminar	
VEN 192	Internship	
VEN 198	Directed Group Study	
VEN 199	Special Study for Advanced Undergraduates	
VEN 290	Seminar	
VEN 298	Group Study (may be counted as restricted electives by prior arrangement with advisor)	