

WINE AND VITICULTURE

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Department Head: Benoit Lecat

Academic Programs

| Program name | Program type |
|----------------------|--------------|
| Wine and Viticulture | BS |

Professional positions within the grape and wine industry are multi-dimensional, where winemakers and winegrape-growers work together with wine marketing and sales personnel. To develop successful strategies, management teams need to understand all aspects of wine.

The WVIT major provides a unique interdisciplinary learning experience, combining a solid foundation in winegrape production, winemaking, and wine business with a concentration in enology, viticulture or wine business. With a campus located in the heart of California's Central Coast wine country, Cal Poly students have the added benefit of gaining hands-on experience at one of more than 400 local vineyards and wineries. The WVIT major is based on fundamental and applied sciences, modern agribusiness principles, and appropriate social sciences. The curriculum encompasses winegrape cultivation, enology, sensory science, and wine business and fosters an academic alliance among production agriculture, food -science, and agricultural business interests to provide an academic understanding of the "vine to glass" philosophy.

Cal Poly has a 14-acre campus vineyard, a state-of-the-art facility, the JUSTIN & J. Lohr Center for Wine and Viticulture and a wine sales program that provide students the opportunity to practice our "learn-by-doing" method of education.

Undergraduate Program BS Wine and Viticulture

The major is based on fundamental and applied sciences, modern agribusiness principles, and appropriate social sciences. The curriculum encompasses winegrape cultivation, enology, and wine business and fosters an academic alliance among production agriculture, food science, and agricultural business interests to provide an academic understanding of the "vine to glass".

Concentrations

Enology

The science of winemaking and its creative and practical application. Students monitor and assess wines and winemaking choices using sensory, chemical and microbiological analyses. Graduates are able to make creative winemaking decisions, manage a winery and provide successful solutions to winemaking challenges.

Viticulture

Intensive training in all aspects of quality wine grape production. Students learn site evaluation and vine-yard development, disease and pest management, sustain-ability, and state-of-the-art cultural practices. Graduates typically become vineyard managers, pest control advisors, or vineyard owners.

Wine Business

Students learn financial management, principles of vineyard and winery operations, strategic planning, branded wine marketing, packaging, wine consumer behavior, and government compliance. Graduates are prepared for a variety of wine industry careers, with many planning to operate vineyards or wineries of their own.

Graduate Program

Cal Poly offers a Master of Science degree in Agriculture in which students can choose a thesis topic in enology, viticulture or wine business. Please refer to the MS Agriculture (<https://catalog.calpoly.edu/collegesandprograms/collegeofagriculturefoodenvironmentalsciences/#graduate>) section of the College of Agriculture, Food and Environmental Sciences.

WVIT Courses

WVIT 101. Orientation to Wine and Viticulture. 1 unit

Term Typically Offered: TBD

CR/NC

Introduction to the wine and viticulture program. Emphasis on curriculum and career planning. Credit/No Credit grading only. 1 lecture.

WVIT 102. Global Wine and Viticulture. 4 units

Term Typically Offered: F, SP

Introduction to wine grape growing, winemaking, and wine business. Brief history and overview of major global wine regions, including growing conditions, grape varieties, winemaking styles, and wine business practices. 4 lectures.

WVIT 202. Fundamentals of Enology. 4 units

Term Typically Offered: F, SP

Prerequisite: CHEM 111 or CHEM 127.

Introduction to the science of winemaking: development of wine components in grapes, grape maturation, harvesting, pre-fermentation wine-making methods, alcoholic fermentation, malolactic fermentation, wine maturation and post fermentation practices, wine spoilage, maintenance of wine integrity. 4 lectures.

WVIT 233. Basic Viticulture. 4 units

Term Typically Offered: F, W

Prerequisite: PLSC 120 or BOT 121; CHEM 127; and SS 120.

Fundamentals of grape growing, with emphasis on wine grapes. Fundamentals of vine anatomy and physiology, development and phenology, trellising systems, soils, climatic factors, vineyard establishment, grafting, irrigation, fertility, harvest practices, pruning, major pests, and major varieties and rootstocks. Not open to students with credit in WVIT 231. Course may be offered in classroom-based or online format. 4 lectures. Crosslisted as PLSC 232/WVIT 233. Formerly AEPS 232/WVIT 233.

WVIT 270. Selected Topics. 1-4 units

Term Typically Offered: TBD

Prerequisite: Open to undergraduate students and consent of instructor.

Directed group study of selected topics. The Class Schedule will list topic selected. Total credit limited to 8 units. 1 to 4 lectures.

WVIT 300. Survey of Grape Growing and Winemaking. 4 units

Term Typically Offered: F, W, SP

2020-21 or later: Upper-Div GE Area B

2019-20 or earlier catalog: GE Area B5, B6, or B7

Prerequisite: Junior standing; completion of GE Area A with grades of C- or better; one course from GE Area B1; one course from GE Area B2; and one course in GE Area B4 with a grade of C- or better (GE Area B1 for students on the 2019-20 or earlier catalogs).

Fundamentals of viticulture and enology. Overview of grapevine physiology, major varieties, soils, climatic factors, management practices and wine regions of the world. Exploration of wine fermentation, finishing, aging, bottling and wine chemistry. Compare red, white, sparkling and fortified wine production. Not open to students with credit in WVIT 202 or WVIT 233. 4 lectures. Fulfills GE Area Upper-Division B (GE Areas B5, B6, or B7 for students on the 2019-20 catalog).

WVIT 301. Wine Microbiology. 4 units

Term Typically Offered: SP

Prerequisite: MCRO majors must have MCRO 224; WVIT majors must have MCRO 221 or MCRO 224; and WVIT 202; open to MCRO or WVIT majors only.

Wine yeasts, bacteria, and molds: morphology and methods of identification; successful alcoholic and malolactic fermentations; management and prevention of unwanted microbial growth; micro-organisms and flavor development. 3 lectures, 1 laboratory. Crosslisted as MCRO/WVIT 301.

WVIT 302. Wine Fermentation Laboratory. 2 units

Term Typically Offered: W, SP

Prerequisite: WVIT 202; WVIT major; and at least 18 years in age.

Alcoholic and malolactic fermentation, maturation, stabilization and bottling of finished wines. Not open to students with credit in WVIT 404, WVIT 405 or WVIT 406. 1 lecture, 1 laboratory.

WVIT 331. Advanced Viticulture - Fall. 4 units

Term Typically Offered: F

Prerequisite: PLSC 232 or WVIT 233.

Advanced viticulture theory and practice, with an emphasis on fall season activities. Identification of rootstocks, wine and table grapes, species taxonomy and diversity, and breeding for grapevine improvement. Field trips may be required. Course may be offered in classroom-based or online format. 3 lectures, 1 laboratory. Crosslisted as PLSC/WVIT 331. Formerly AEPS/WVIT 331.

WVIT 332. Advanced Viticulture - Winter. 4 units

Term Typically Offered: W

Prerequisite: PLSC 232 or WVIT 233; and PLSC/WVIT 331.

Advanced viticulture theory and practice with emphasis on winter season activities. Pruning to influence vine balance, productivity, training and trellising systems, vineyard establishment, cover cropping and weed management. Field trips required. 3 lectures, 1 laboratory. Crosslisted as PLSC 336/WVIT 332. Formerly AEPS 336/WVIT 332.

WVIT 333. Advanced Viticulture - Spring. 4 units

Term Typically Offered: SP

Prerequisite: PLSC 232 or WVIT 233; and PLSC/WVIT 331.

Advanced viticulture theory and practices with emphasis on spring activities. Vine source/sink relations, factors impacting yield and berry composition, the role environmental conditions on vine physiology, and canopy management. Field trips required. Course may be offered in classroom-based or online format. 3 lectures, 1 laboratory. Crosslisted as PLSC 337/WVIT 333. Formerly AEPS 337/WVIT 333.

WVIT 339. Internship Wine and Viticulture. 1-12 units

Term Typically Offered: F,W,SP,SU

CR/NC

Prerequisite: WVIT 202; AEPS/WVIT 231 or WVIT 232 or WVIT 233; junior standing; and consent of internship instructor.

One or two quarters spent with an approved wine industry employer engaged in wine production or related agribusiness and viticulture activities. Applying and developing production and managerial skills and abilities. One unit of credit may be allowed for each full week of completed and reported internship. Total Major credit limited to 6 units. Total credit limited to 12 units. Credit/No Credit grading only.

WVIT 343. Branded Wine Marketing. 4 units

Term Typically Offered: F, W, SP

Prerequisite: AGB 212 or ECON 201 or ECON 221 or ECON 222.

Wine pricing as it relates to quality, packaging, and service. Distribution options with emphasis on the three tier system, promotional strategies, including public relations, mass media advertising, personal selling, and direct marketing. Domestic and international marketplaces. 4 lectures.

WVIT 344. Direct to Consumer Wine Sales. 4 units

Term Typically Offered: F

Prerequisite: WVIT or RPTA major. Co-requisite: AGB 212 or ECON 201 or ECON 221 or ECON 222.

Factors driving direct-to-consumer initiatives in the US wine business: tasting rooms, wine clubs/mailling lists, eCommerce, telemarketing, and events. Using current research and case studies to explore features of a direct-to-consumer approach, while facilitating compliance. Topics include: experiential marketing, social media, brand differentiation. 4 lectures.

WVIT 345. Wine Marketing Research and Market Analysis. 4 units

Term Typically Offered: W

Prerequisite: STAT 217 or STAT 218; and WVIT 343.

Application of statistical theory to design research to examine the wine and grape markets. Research examining the evaluation of appropriate data collection methods, quantitative analyses, and interpretation of primary and secondary wine and grape industry data. 4 lectures. Formerly WVIT 444.

WVIT 346. Winery Digital Media Marketing and Data Analytics. 4 units

Term Typically Offered: TBD

Prerequisite: AGB 260 and WVIT 343.

Development of digital marketing skills (audio and video) and techniques to produce content for wineries and evaluate results. Emphasis on regulatory restrictions in wine marketing, return on investment strategy, optimization and analytic metrics and customer acquisition costs. Course may be offered in classroom-based or online format. 4 lectures.

WVIT 365. Wine Analysis and Amelioration. 4 units

Term Typically Offered: SP

Prerequisite: WVIT 202 and CHEM 312; for WVIT majors only. Corequisite: CHEM 313 or CHEM 314.

Winery laboratory practices. Basic principles, techniques, and interpretation of common analyses for sugars, acidity, nitrogen, alcohol, volatile acidity, sulfur dioxide, phenols and color; wine and must amelioration, amendment effects, usage, calculations and procedures of addition. 3 lectures, 1 laboratory.

WVIT 400. Special Problems for Advanced Undergraduates. 1-4 units

Term Typically Offered: TBD

Prerequisite: Consent of instructor.

Individual investigation, research, studies, or surveys of selected problems. Total credit limited to 6 units, with a maximum of 4 units per quarter.

WVIT 404. Winemaking I. 4 units

Term Typically Offered: F

Prerequisite: WVIT 202; WVIT 365; WVIT major; and at least 18 years in age.

Planning, managing and implementing harvest in the pilot winery; sanitation practices; monitoring grape maturity; handling juices and musts; alcoholic and malolactic fermentation, general cellar practices; sensory and laboratory analyses. 3 lectures, 1 laboratory.

WVIT 405. Winemaking II. 4 units

Term Typically Offered: W

Prerequisite: WVIT 404; WVIT major; and at least 18 years in age.

Planning, managing and implementing harvest in the pilot winery; sanitation practices; monitoring and maintaining wine integrity; planning for bottling; blending trials; general cellar practices; sensory and laboratory analyses. 3 lectures, 1 laboratory.

WVIT 406. Winemaking III. 4 units

Term Typically Offered: SP

Prerequisite: WVIT 405; WVIT major; and at least 18 years in age.

Planning, managing and implementing the preparation of wine for bottling; blending; fining; filtration; bottling; conducting general cellar practices; sensory and laboratory analyses. 3 lectures, 1 laboratory.

WVIT 414. Grape Pest Management. 4 units

Term Typically Offered: F

Prerequisite: PLSC 232 or WVIT 233; PLSC 313; BOT/PLSC 323.

Comprehensive survey of major grape pests including diseases, insects, weeds, vertebrates, and nematodes. Identification and biology of grape pests and natural enemies, monitoring, and integrated pest management (IPM) strategies, including cultural, biological, and chemical controls. Guest lectures. 3 lectures, 1 activity. Crosslisted as PLSC/WVIT 414. Formerly AEPS/WVIT 414.

WVIT 423. Wine Law and Compliance. 4 units

Term Typically Offered: W, SP

Prerequisite: WVIT 343.

Legal aspects of wine making/marketing. Emphasis of both Federal (Tax and Trade Bureau) and State business requirements as well as State and Federal regulations impacting winery and viticultural practices in California. 4 lectures.

WVIT 428. Winegrape Vineyard Management. 4 units

Term Typically Offered: SP

Prerequisite: AGB 214, SS 221 and WVIT 233. Recommended: WVIT 331, WVIT 332, and WVIT 333.

Winegrape vineyard management practices including: financial projections and budgeting, contracting and supervision of labor, trellis installation and repair, irrigation systems maintenance, fertilization and spray scheduling. Field trips required. 3 lectures, 1 laboratory.

WVIT 433. Wine Sales and E-Commerce. 4 units

Term Typically Offered: SP

Prerequisite: WVIT 343.

Professional selling in the wine industry. Selling wine through the seven avenues of wine distribution in the 3-tier system. Exploration of aspects of wine selling, from customer relation management to cultural and legal differences among states. How strategies for selling differ for various sized wineries. 4 lectures.

WVIT 442. Sensory Evaluation of Wine. 4 units

Term Typically Offered: F, W, SU

Prerequisite: WVIT 202; STAT 218; WVIT major; and at least 18 years in age.

Evaluation of wines using the techniques in sensory evaluation. Difference and rating tests; descriptive analysis and pairing of wine and food. 3 lectures, 1 laboratory.

WVIT 447. Logistics for the Global Wine Industry. 4 units

Term Typically Offered: SP

Prerequisite: WVIT 102; WVIT 343; and STAT 218.

Scope and elements of the international wine logistics system including supply and distribution channels, transportation, inventory, warehousing, packaging and order processing. 4 lectures.

WVIT 450. Wine Business Plan Development. 4 units

Term Typically Offered: W

Prerequisite: AGB 214 or BUS 214; and BUS 301 or WVIT 343.

The strategic planning process for wine businesses. Development of a complete business plan with careful adherence to the unique and complex regulations that apply to wine businesses. The business plan will include specification of the product, distribution, finance, and marketing. 4 lectures.

WVIT 460. Senior Project - Wine Business. 4 units

Term Typically Offered: F, SP

Prerequisite: Senior standing; WVIT Major; WVIT 343; and one of the following: WVIT 345 or WVIT 450.

Selection and analysis of wine and viticulture business problems and opportunities in directed group-based projects. Problems typical to those that graduates may encounter in marketing and management in the wine and viticulture industry. Formal report and presentation required. 4 lectures.

WVIT 463. Issues, Trends and Careers in the Wine Industry. 2 units

Term Typically Offered: W, SP

Prerequisite: Senior standing; WVIT majors only.

Current issues and trends in viticulture, enology and wine business. Career opportunities and planning for WVIT majors nearing graduation. 2 seminars.

WVIT 464. Senior Project - Enology and Viticulture. 4 units

Term Typically Offered: F, W, SP

Prerequisite: Senior standing; and STAT 218.

Completion of a research proposal and comprehensive literature review, including analysis of experimental results from published peer-reviewed articles in enology and/or viticulture. Written and oral presentations. 4 lectures.

WVIT 465. Senior Project - Research Experience in Enology or Viticulture. 2 units

Term Typically Offered: TBD

Prerequisite: Senior standing; STAT 218; and consent of instructor.

Involvement in the experimental design, execution, data analysis and reporting of research under the direct supervision of faculty. Completion of several critiques of current peer-reviewed journal articles in enology and/or viticulture. Total credit limited to 4 units.

WVIT 470. Selected Advanced Topics. 1-4 units

Term Typically Offered: TBD

Prerequisite: Consent of instructor.

Directed group study of selected topics for advanced students. Open to undergraduate and graduate students. The Class Schedule will list topic selected. Total credit limited to 8 units. 1 to 4 lectures.

WVIT 471. Selected Advanced Laboratory. 1-4 units

Term Typically Offered: TBD

Prerequisite: Consent of instructor.

Directed group laboratory study of selected topics for advanced students. Open to undergraduate and graduate students. The Class Schedule will list topic selected. Total credit limited to 8 units. 1 to 4 laboratories.

WVIT 477. Advanced Wine Sensory Analysis. 4 units

Term Typically Offered: TBD

Prerequisite: WVIT 301; WVIT 442; and at least 18 years in age.

Advanced sensory evaluation of wines. Human physiology and wine chemistry in the interphase of wine sensory analysis. Wine varieties and styles, including selected appellations of Spain, France, Germany, Italy, Chile, Argentina, South Africa, Australia, New Zealand, Canada, and United States. 3 lectures, 1 laboratory.