

V 13. Raisin Production and Processing (2)

Prerequisite: V 11 or permission of instructor. Principles and practices of raisin production and processing operations. The college vineyard and raisin processing laboratory will be utilized. (1 lecture, 3 lab hours)

V 15. Introduction to Enology (3) (Former E 15)

History and development of the wine industry; mechanics of various processes and factors involved in wine making.

V 16. Vineyard Operations (3)

Application of spring vineyard operations; laying out a vineyard, planting, trellising, training young vines, thinning, girdling; and grape propagation, cuttings, rootings, grafting (cleft, notch, bench, and green); T-budding and spring care of fall budded vines. (2 lecture, 3 lab hours)

V 50. Grape Varieties (3) Summer only

Prerequisite: V 11. Grape varieties common to California; rootstocks and species, identification, adaptability, and use.

V 101. Processing and Marketing Grapes (3)

Prerequisite: V 11, 50, Econ 1A. Processes in preparing grapes for market, marketing procedures; grape processing plants, and grape and raisin marketing centers. (2 lecture, 3 lab hours; 3-day field trip)

V 110. Grape Diseases and Pests (3)

Prerequisite: Ag 106, V 11. Grape diseases and pests; identification and control; application of sprays, insecticides; establishment of control programs. (2 lecture, 3 lab hours)

V 115. Winery Practices (5) (Former E 115)

Prerequisite: V 15, 50, Chem 109, Bact 54. Principles and practices of preparation of dessert and table wines; operation of plant equipment; controlled tests; sanitation and waste disposal problems. (3 lecture, 6 lab hours)

V 116. Advanced Winery Practices (4) (Former E 116)

Prerequisite: V 115. Winery operations; quality control and production of specialty products; laboratory tests for aldehydes and esters, copper and iron, pasteurization and fining; microbiological techniques. (2 lecture, 6 lab hours)

**V 158A-B. Unit Operations I and II (3-3) (V 158A same as AgM 158)
(Former E 158A-B)**

Not open to students with credit in E 151A-B. Prerequisite: permission of instructor. Basic principles of industrial operations as they apply to the wine industry with application to chemistry and physics, transformation of energy, heat transfer, and flow of fluids; application of principles as they apply to evaporation, heat exchange equipment, distillation and drying.

V 160. Winery Technology (3) (Former E 160)

Prerequisite: permission of instructor. Technological study of winery equipment; evaluation, location, and operation; sanitation procedures. (2 lecture, 3 lab hours; 3- or 4-day field trip)

V 166. Vineyard Management (3)

Prerequisite: V 15, 101. Management of vineyards in the San Joaquin Valley; coordination of production and marketing, cost studies, and planning an economical vineyard. (2 lecture, 3 lab hours)