This list excludes FST courses, which are some of the most common electives for our students to take. Students are encouraged to review FST course offerings each quarter in Schedule Builder. FST course descriptions are available at https://ucdavis.pubs.curricunet.com/Catalog/food-science

BCM 230—Practical NMR Spectroscopy & Imaging (1)

Lecture—1 hour(s). Prerequisite(s): CHE 107A; CHE 107B; (PHY 009A, PHY 009B, PHY 009C; or PHY 005A, PHY 005B, PHY 005C) or consent of instructor. Basic theory, experimental methods, and instrumentation of NMR. Enables understanding of NMR spectroscopy and imaging experiments. (S/U grading only.) Effective: 1997 Winter Quarter.

CHE 107A—Physical Chemistry for the Life Sciences (3)

Lecture—3 hour(s). Prerequisite(s): CHE 002C or CHE 002CH; (MAT 016C or MAT 017C or MAT 021C); (PHY 007C or PHY 009C or PHY 009HC). Physical chemistry intended for majors in the life science area. Introductory development of classical and statistical thermodynamics including equilibrium processes and solutions of both nonelectrolytes and electrolytes. The thermodynamic basis of electrochemistry and membrane potentials. GE credit: SE. Effective: 2017 Spring Quarter.

CHE 107B—Physical Chemistry for the Life Sciences (3)

Lecture—3 hour(s). Prerequisite(s): CHE 107A. Continuation of CHE 107A. Kinetic theory of gases and transport processes in liquids. Chemical kinetics, enzyme kinetics and theories of reaction rates. Introduction to quantum 956 theory, atomic and molecular structure, and spectroscopy. Application to problems in the biological sciences. GE credit: SE. Effective: 2016 Fall Quarter.

CHE 240—Advanced Analytical Chemistry (3)

Lecture—3 hour(s). Prerequisite(s): CHE 110A; CHE 115; Or equivalent. Numerical treatment of experimental data; thermodynamics of electrolyte and non-electrolyte solutions; complex equilibria in aqueous and non-aqueous solutions; potentiometry and specific ion electrodes; mass transfer in liquid solutions; fundamentals of separation science, including column, gas and liquid chromatography. Effective: 1997 Winter Quarter.

CHE 241C—Mass Spectrometry (3)

Lecture—3 hour(s). Prerequisite(s): CHE 110C; CHE 115; Or equivalent. Mass spectrometry and related methods with emphasis on ionization methods, mass analyzers, and detectors. Related methods may include ion-molecule reactions, unimolecular dissociation of organic and bio-organic compounds, and applications in biological and environmental analysis. Effective: 2002 Winter Quarter.

EBS 265—Design & Analysis of Engineering Experiments (5)

Lecture—3 hour(s); Lecture/Discussion—2 hour(s). Prerequisite(s): STA 100; ASE 120; or an introductory course in statistics. Simple linear, multiple, and polynomial regression, correlation, residuals, model selection, one-way ANOVA, fixed and random effect models, sample size, multiple comparisons, randomized block, repeated measures, and Latin square designs, factorial experiments, nested design and subsampling, split-plot design, statistical software packages. Effective: 2000 Spring Quarter.

EBS 268—Polysaccharides Surface Interactions (3)

Lecture—3 hour(s). Prerequisite(s): Graduate students in science or engineering. Study of fundamental surface science theories as applied to physical and chemical interactions of carbohydrates and polysaccharides. (Same course as ECH 268.) Effective: 2017 Winter Quarter.

EBS 270—Modeling & Analysis of Physical and Biological Processes & Systems (4)

Lecture—3 hour(s); Discussion—1 hour(s). Prerequisite(s): MAT 022B or EBS 130; Familiarity with a programming language. Mathematical modeling of biological systems: model development; analytical and numerical solutions. Case studies from various specializations within Biological & Agricultural Engineering. Effective: 2021 Winter Quarter

ETX 220—Analysis of Toxicants (3)

Lecture—3 hour(s). Prerequisite(s): Coursework in organic chemistry. Principles of microanalysis of toxicants. Theoretical considerations regarding separation, detection and quantitative determination of toxicants using chemical and instrumental techniques. (Same course as FOR 220.) Effective: 2006 Winter Quarter.

ETX 220L—Analysis of Toxicants Laboratory (2)

Laboratory—6 hour(s). Prerequisite(s): ETX 220 (can be concurrent); and Consent of Instructor. Laboratory techniques for microanalysis of toxicants. Separation, detection, and quantitative determination of toxicants using chemical and instrumental methods. Effective: 1997 Winter Quarter

MIB 200A—Microbial Biology (3)

Lecture—3 hour(s). Prerequisite(s): MIC 102; Or equivalent; prior coursework in Microbiology. Designed to provide an overview of various aspects of microbiology and microbial processes. Topics will include microbial genetics and genomics, microbial metabolism, signaling, and adaptations. Effective: 2011 Fall Quarter.

MIC 215—Recombinant DNA (3)

Lecture—3 hour(s). Prerequisite(s): BIS 101; BIS 102; BIS 103; Or the equivalent. Application of recombinant DNA technology to modern problems in biology, biochemistry, and genetics, emphasizing molecular cloning strategies, choice of vectors, preparation of insert DNA, and selection procedures. Effective: 1998 Fall Quarter.

NUT 252—Nutrition & Development (3)

Lecture—3 hour(s). Prerequisite(s): NUB 210A, NUB 210B, and NUB 210C recommended. Relationship of nutrition to prenatal and early postnatal development. Effective: 2018 Spring Quarter

PLS 173—Molecular & Cellular Aspects of Postharvest Biology (3)

Lecture/Discussion—3 hour(s). Prerequisite(s): PLS 002 or BIS 001C or BIS 002C; Or equivalent. Basic concepts and current knowledge of issues relevant to postharvest biology. Mechanisms of fruit ripening, senescence, programmed cell death. Metabolism and functions of phytohormones, carbohydrates,

lipids, pigments, flavor compounds, and phytonutrients at molecular and cellular levels. GE credit: SE. Effective: 2017 Spring Quarter

PLS 174—Microbiology & Safety of Fresh Fruits & Vegetables (3)

Lecture—3 hour(s). Prerequisite(s): PLS 002 or BIS 001C or BIS 002C; Or equivalent. Overview of microorganisms on fresh produce, pre- and postharvest factors influencing risk of microbial contamination, attachment of microorganisms to produce, multiplication during postharvest handling and storage, and methods of detection. Mock outbreak trial and presentation of science-based forensic discovery. GE credit: SE. Effective: 2008 Fall Quarter.

PLS 205—Experimental Design & Analysis (5)

Lecture—3 hour(s); Discussion/Laboratory—2 hour(s). Prerequisite(s): PLS 120; Or equivalent. Introduction to the research process and statistical methods to plan, conduct and interpret experiments. Not open for credit to students who have completed AGR 205. (Former AGR 205.). Effective: 2010 Winter Quarter.

PLS 206—Applied Multivariate Modeling in Agricultural & Environmental Sciences (4)

Lecture—3 hour(s); Discussion—1 hour(s). Prerequisite(s): PLS 120; (STA 106 or STA 108 or PLS 205). Multivariate linear and nonlinear models. Model selection and parameter estimation. Analysis of manipulative and observational agroecological experiments. Discriminant, principal component, and path analyses. Logistic and biased regression. Bootstrapping. Exercises based on actual research by UC Davis students. Not open for credit to students who have complete AGR 206. (Former AGR 206.). Effective: 2017 Winter Quarter.

STA 106—Applied Statistical Methods: Analysis of Variance (4)

Lecture—3 hour(s); Discussion/Laboratory—1 hour(s). Prerequisite(s): STA 013 C- or better or STA 013Y C- or better or STA 032 C- or better or STA 100 C- or better. Basics of experimental design. One-way and two-way fixed effects analysis of variance models. Randomized complete and incomplete block design. Multiple comparisons procedures. One-way random effects model. GE credit: SE. Effective: 2019 Fall Quarter.

STA 141B—Data & Web Technologies for Data Analysis (4)

Lecture—3 hour(s); Discussion—1 hour(s). Prerequisite(s): STA 141A C- or better. Pass One and Pass Two restricted to Statistics majors and graduate students in Statistics and Biostatistics. Open to all students during Open Registration. Essentials of using relational databases and SQL. Processing data in blocks. Scraping Web pages and using Web services/APIs. Basics of text mining. Interactive data visualization with Web technologies. Computational data workflow and best practices. Statistical methods. Effective: 2019 Fall Quarter.

STA 200A—Introduction to Probability Theory (4)

Lecture—3 hour(s); Discussion—1 hour(s). Prerequisite(s): MAT 021A; MAT 021B; MAT 021C; MAT 022A; Consent of Instructor. Fundamental concepts of probability theory, discrete and continuous random variables, standard distributions, moments and moment-generating functions, laws of large numbers and the central limit theorem. Effective: 2018 Winter Quarter.

STA 200B—Introduction to Mathematical Statistics I (4)

Lecture—3 hour(s); Discussion—1 hour(s). Prerequisite(s): STA 200A; or Consent of Instructor. Sampling, methods of estimation, bias-variance decomposition, sampling distributions, Fisher information, confidence intervals, and some elements of hypothesis testing. Effective: 2018 Winter Quarter.

STA 200C—Introduction to Mathematical Statistics II (4)

Lecture—3 hour(s); Discussion—1 hour(s). Prerequisite(s): STA 200B; or Consent of Instructor. Testing theory, tools and applications from probability theory, Linear model theory, ANOVA, goodness-of-fit. Effective: 2019 Summer Session 1.

STA 206—Statistical Methods for Research I (4)

Lecture—3 hour(s); Discussion/Laboratory—1 hour(s). Prerequisite(s): Introductory statistics course; some knowledge of vectors and matrices. Focus on linear statistical models. Emphasis on concepts, method and data analysis. Topics include simple and multiple linear regression, polynomial regression, diagnostics, model selection, factorial designs and analysis of covariance. Use of professional level software. Effective: 2021 Winter Quarter.

VEN 125—Wine Types & Sensory Evaluation (2)

Lecture—2 hour(s). Prerequisite(s): PLS 120 or STA 106. Open to upper division and graduate students in Viticulture & Enology; others by approval of instructor. Principles of sensory evaluation and application to wines. Factors influencing wine flavor, data from sensory analysis of model solutions. GE credit: QL, SE. Effective: 2018 Spring Quarter.

VEN 125L—Sensory Evaluation of Wine Laboratory (2)

Laboratory—3 hour(s); Term Paper—3 hour(s). Prerequisite(s): VEN 125 (can be concurrent). Restricted to upper division major students in fermentation science or viticulture & enology; graduate students in the food science program. Sensory evaluation of wines and model systems using discrimination tests, ranking, descriptive analysis and time-intensity analysis. Data will be analyzed by appropriate statistical tests and the results interpreted in extensive weekly lab reports. GE credit: QL, SE, VL, WE. Effective: 2001 Winter Quarter.

VEN 215—Sensometrics (3)

Lecture—3 hour(s). Prerequisite(s): FST 117; ((VEN 125, VEN 125L) or (FST 107A or FST 107B)); Or equivalent to FTS 117. Experimental design and statistical analysis, including multivariate analysis, for both sensory and instrumental data in enology and food-related studies. Effective: 2004 Fall Quarter.

VEN 219—Natural Products of Wine (3)

Lecture—3 hour(s). Prerequisite(s): VEN 123; VEN 124; or natural products background, and consent of instructor. Structure, occurrence, and changes due to wine production to the natural products found in wine. Chemicals with a sensory impact will be emphasized, including flavonoids and other phenolics, terpenes and norisoprenoids, pyrazines, oak volatiles and other wine constituents. Effective: 1997 Winter Quarter