

# FOOD SCIENCE (FDSC)

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## FDSC Courses

### FDSC 1101 Orientation to the Food Science Major (1 unit)

Term Typically Offered: F

CR/NC

Understanding the depth and breadth of the Food Science program. Emphasis on the Food Science major, the Food Science and Nutrition Department, related club and professional organization activities, and academic and career planning. Credit/No Credit grading only. 1 lecture. Formerly FSN 102.

### FDSC 1110 Introduction to Food Science and Sustainability (3 units)

Term Typically Offered: F

Basic principles of food science. Chemical, physical, and microbiological properties of foods. Ingredient properties, preservation, processing, and sustainable practices. Overview of the commercial food processing industry at state and national levels. Field trip may be required. Not open to students with credit in FSN 230 or FSN 1111. 2 lectures, 1 laboratory. Formerly FSN 125.

### FDSC 3310 Food Laws and Regulations (3 units)

Term Typically Offered: SP

Prerequisite: One of the following: FSN 125, FDSC 1110, FSN 230, FSN 1111, WVIT 102, or WVIT 1102.

Federal, state, and local laws and regulations affecting the production, processing, packaging, marketing, and distribution of food. U.S. Food and Drug Administration (FDA), U.S. Department of Agriculture (USDA), and California codes. 3 lectures. Formerly FSN 374.

### FDSC 3330 Food Processing and Engineering I (4 units)

Term Typically Offered: F

Prerequisite: One of the following: FSN 125, FSN 1110, FSN 230, or FSN 1111; MATH 141 or MATH 1261; and PHYS 121 or PHYS 1121.

Introduction to engineering concepts applied to food processing (unit conversion, mass and energy balances, thermodynamics, etc.). Explore unit operations (drying, mixing, heating, refrigeration, etc.). Operate pilot scale processing equipment and evaluate operation results. Field trip required. 3 lectures, 1 laboratory. Formerly FSN 330.

### FDSC 3340 Food Quality Assurance and Prerequisite Programs (4 units)

Term Typically Offered: SP

Prerequisite: Junior standing; one of the following: FSN 125, FDSC 1110, FSN 230, or FSN 1111; one of the following: ASCI 211, ASCI 2211, BRAE 220, BRAE 2220, MCRO 221, or MCRO 2221; and STAT 218 or STAT 1110. Recommended: STAT 314 or STAT 3320.

Prerequisite programs, microbiological and physical methods of quality assurance analyses, and basic statistical control used to ensure production of a safe and wholesome food supply. Development of food production standards and interpretation of specifications. Packaging and container evaluation. Field trip required. 3 lectures, 1 laboratory. Formerly FSN 335.

### FDSC 3345 Food Safety and Sanitation (4 units)

Term Typically Offered: F

Prerequisite: FSN 335 or FDSC 3340.

Principles, practices, and regulations governing and ensuring the safety and sanitation of the food supply. Sanitary plant design, cleaning and sanitizing compound selection, HACCP, FSMA, risk assessment, import safety, food bioterrorism and defense, product recalls, traceability, and plant sanitation. 3 lectures, 1 laboratory. Formerly FSN 375.

### FDSC 3350 Food Chemistry (4 units)

Term Typically Offered: SP

Prerequisite: One of the following: FSN 125, FDSC 1110, FSN 230, or FSN 1111; and CHEM 314 or CHEM 3350.

Study of molecular properties of major food components (water, carbohydrates, lipids, proteins, etc.) and chemical reactions occurring as a result of processing and or storage. Role of food components in food systems. 3 lectures, 1 laboratory. Formerly FSN 364.

**FDSC 3355 Food Analysis (3 units)**

Term Typically Offered: F

Prerequisite: FSN 364 or FDSC 3350.

Principles of chemical and biochemical methods and techniques for measuring food protein, carbohydrates, lipids, water, vitamins, minerals and other components of foods using approved methods. 2 lectures, 1 laboratory. Formerly FSN 368.

**FDSC 4420 Sensory Evaluation of Food (3 units)**

Term Typically Offered: F

Prerequisite: One of the following: FSN 125, FDSC 1110, FSN 230, or FSN 1111; and STAT 314 or STAT 3320.

Sensory attributes of food, physiological basis of sensory evaluation, sensory panels, environment for sensory evaluation, sample preparation and presentation, types of score cards, statistical methods for data analysis and interpretation. Course may be offered in classroom-based or hybrid format. 2 lectures, 1 laboratory. Formerly FSN 311.

**FDSC 4425 Food Product Development (3 units)**

Term Typically Offered: SP

Prerequisite: Senior standing; FSN 311 or FDSC 4420; FSN 330 or FDSC 3330; and FSN 364 or FDSC 3350. Concurrent: FDSC 4426.

Functionality of water, carbohydrates, proteins, lipids, additives and other food ingredients used in the formulation, development, and processing of foods. Product development processes from idea generation to marketing to consumer guided technical prototype development will be completed. 1 lecture, 2 laboratories. Formerly FSN 408.

**FDSC 4426 Food Science Exit Exam (0 units)**

Term Typically Offered: SP

CR/NC

Concurrent: FDSC 4425.

Assessment of BS Food Science program through completion of a senior exit survey. Results will only be used to improve the curriculum. Course offered online only. Credit/No Credit grading only. Formerly FSN 469.

**FDSC 4430 Food Processing and Engineering II (4 units)**

Term Typically Offered: SP

Prerequisite: FSN 330 or FDSC 3330.

Theory of engineering principles governing heat transfer, fluid flow, and mass transfer. Application of these principles to selected unit operations in food processing. Food processing operations with emphasis on thermal processing. Non-traditional processing technology such as microwave, ionizing radiation, and high pressure. Field trip required. 3 lectures, 1 laboratory. Formerly FSN 474.

**FDSC 4445 Food Safety Modernization Act: Human Food Safety and Produce Safety (3 units)**

Term Typically Offered: SP

Prerequisite: One of the following: FSN 375, FDSC 3345, FSN 275, or FSN 2245.

Food Safety Modernization Act training on the implementation of hazard analysis risk-based preventive controls for human food and the produce safety rule, good agricultural practices, and co-management of natural resources and food safety. Field trip required. 3 lectures. Formerly FSN 490.

**FDSC 4460 Senior Project - Scientific and Technical Writing Course (2 units)**

Term Typically Offered: TBD

Prerequisite: Senior standing and two of the following: FSN 330, FDSC 3330, FSN 335, FDSC 3340, FSN 364, FDSC 3350, FSN 375, or FDSC 3345.

Directed culminating experience for Food Science students choosing the senior project scientific writing option. 2 lectures. Formerly FSN 457.

**FDSC 4461 Senior Project - Research (2 units)**

Term Typically Offered: F, SP

Prerequisite: Senior standing; FSN 364 or FSN 3350; STAT 218 or STAT 1110; and consent of instructor.

Directed culminating experience for Food Science students choosing the senior project research option. Required for Blended MS in Food Science. Formerly FSN 458.

**FDSC 4462 Senior Project - Internship (2 units)**

Term Typically Offered: F, SP, SU

Prerequisite: Senior standing and two of the following: FSN 330, FDSC 3330, FSN 335, FDSC 3340, FSN 364, FDSC 3350, FSN 375, or FDSC 3345.

Directed culminating experience for Food Science students choosing the senior project internship option. Required for Culinology concentration. Students must complete a project as a component of their internship. Formerly FSN 459.

**FDSC 5520 Food Product Innovation (3 units)**

Term Typically Offered: TBD

Prerequisite: Graduate standing. Recommended: FSN 311 or FDSC 4420.

Focus on product innovation strategies, project management, product life cycle, project development team management, product innovation metrics, process optimization and cost management. Plan and execute an industry-relevant specialized project. 2 lectures, 1 laboratory. Formerly FSN 508.

**FDSC 5545 Advanced Food Safety (3 units)**

Term Typically Offered: SP

Prerequisite: Graduate standing, FSN 375, or FDSC 3345; and MCRO 421 or MCRO 4421.

In-depth analysis of food safety issues including outbreaks, risk assessment, Food Safety Modernization Act (FSMA), product and process assessments. Special emphasis on the critical evaluation, development and execution of food safety research. 2 lectures, 1 laboratory. Formerly FSN 575.

**FDSC 5550 Chemistry of Food Systems (3 units)**

Term Typically Offered: F

Prerequisite: Graduate standing.

Integration of food chemistry concepts to develop an in-depth understanding on the role of structural and functional properties of components in food systems. Research topics for components in specific food systems. 3 lectures. Formerly FSN 564.