FOOD SCIENCE AND TECHNOLOGY (FDST)

FDST 101 Introductory Food Science
Crosslisted with: FDST 101H
Description: Food composition, safety, processing, packaging, labeling, product development, food marketing and related topics.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Format: LEC
Prerequisite for: FDST 301

FDST 101H Introductory Food Science
Crosslisted with: FDST 101
Description: Food composition, safety, processing, packaging, labeling, product development, food marketing and related topics.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Format: LEC
Prerequisite for: FDST 301

FDST 107 Introduction to the Companion Animal Food Industry
Crosslisted with: ASCI 107
Description: The companion animal food industry, products, processes, and career opportunities.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Format: LEC

FDST 131 The Science of Food
Crosslisted with: CHEM 131, CHEM 131H, FDST 131H, NUTR 131, NUTR 131H
Description: General scientific concepts in biology, chemistry, and physics using food as a model. What food is from both chemical and nutritional perspectives, and the fate of food from when it leaves the farm to when it becomes a part of the individual. Assists students in making intelligent decisions about many food related controversial issues (e.g., food irradiation, food additives, health foods).
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Prerequisite for: FDST 301
ACE: ACE 4 Science

FDST 131H The Science of Food
Crosslisted with: CHEM 131, CHEM 131H, FDST 131, NUTR 131, NUTR 131H
Description: General scientific concepts in biology, chemistry, and physics using food as a model. What food is from both chemical and nutritional perspectives, and the fate of food from when it leaves the farm to when it becomes a part of the individual. Assists students in making intelligent decisions about many food related controversial issues (e.g., food irradiation, food additives, health foods).
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Prerequisite for: FDST 301
ACE: ACE 4 Science

FDST 132 Practical Applications in Food Science
Crosslisted with: FDST 132H
Description: Food processing, preservation, nutrition, safety, quality, marketing, and related topics. Food processing procedures and equipment. Microbiological and chemical procedures.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Format: LAB

FDST 132H Practical Applications in Food Science
Crosslisted with: FDST 132
Description: Food processing, preservation, nutrition, safety, quality, marketing, and related topics. Food processing procedures and equipment. Microbiological and chemical procedures.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Format: LAB

FDST 205 Food Composition and Analysis
Crosslisted with: FDST 205H
Description: Major components of foods, their structures, and their role in the functional and nutritional properties of foods. Chemical methods for the determination and characterization of major food components.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC

FDST 205H Food Composition and Analysis
Crosslisted with: FDST 205
Description: Major components of foods, their structures, and their role in the functional and nutritional properties of foods. Chemical methods for the determination and characterization of major food components.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
FDST 280 Contemporary Issues in Food Science
Crosslisted with: FDST 280H
Description: Current issues in food science, food safety problems, the impact of biotechnology on food production and processing, organic foods, functional foods and other contemporary topics.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Format: LEC

FDST 280H Contemporary Issues in Food Science
Crosslisted with: FDST 280
Description: Current issues in food science, food safety problems, the impact of biotechnology on food production and processing, organic foods, functional foods and other contemporary topics.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Format: LEC

FDST 301 Chemistry of Food
Prerequisites: FDST 101 or FDST 131 or permission
Notes: FDST 301 will not count toward a FDST major.
Description: Emphasizes essential principles of chemistry and their application to food systems. Covers the molecular properties of major food components (proteins, carbohydrates and lipids) and their chemical reactions. Provides understanding of how chemistry impacts food quality and contributes to wellness.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Offered: SPRING
ACE: ACE 4 Science

FDST 363 Heat and Mass Transfer
Crosslisted with: MSYM 363
Description: Fundamentals of food engineering including material and energy balances, fluid mechanics, heat transfer and mass transfer.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC

FDST 372 Food Safety and Sanitation
Crosslisted with: FDST 372H, NUTR 372, NUTR 372H
Description: Various factors that result in food illness: food allergy, natural toxins, parasites, microbial and viral food borne infections and food borne intoxications. Students will assess hazards, identify critical control points and establish monitoring and system verification procedures.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC

FDST 372H Food Safety and Sanitation
Crosslisted with: FDST 372, NUTR 372, NUTR 372H
Description: Various factors that result in food illness: food allergy, natural toxins, parasites, microbial and viral food borne infections and food borne intoxications. Students will assess hazards, identify critical control points and establish monitoring and system verification procedures.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC

FDST 396 Independent Study in Food Science and Technology
Crosslisted with: FDST 396H
Description: Individual or group projects in research, literature review, or extension of course work under supervision and evaluation of a departmental faculty member.
Credit Hours: 1-5
Min credits per semester: 1
Max credits per semester: 5
Max credits per degree: 12
Format: IND

FDST 396H Independent Study in Food Science and Technology
Crosslisted with: FDST 396
Description: Individual or group projects in research, literature review, or extension of course work under supervision and evaluation of a departmental faculty member.
Credit Hours: 1-5
Min credits per semester: 1
Max credits per semester: 5
Max credits per degree: 12
Format: IND

FDST 401 Teaching Applications of Food Science
Crosslisted with: FDST 801
Prerequisites: BIOS 101 and CHEM 109
Description: The science of food and how food can be used in the classroom to enhance science education. FDST 401 / 801 will not count toward a food science and technology major or minor.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC

FDST 403 Food Quality Assurance
Description: Quality related issues as they pertain to manufacturing, processing, and/or testing of foods, with a major emphasis on food regulations, statistical process control and Hazard Analysis of Critical Control Points (HACCP).
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
FDST 405 Food Microbiology
Crosslisted with: BIOS 445, BIOS 845, FDST 805
Description: Nature, physiology, and interactions of microorganisms in foods. Introduction to food-borne diseases, the effect of food processing systems on the microflora of foods, principles of food preservation, food spoilage, and foods produced by microorganisms. Food plant sanitation and criteria for establishing microbial standards for food products.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Prerequisite for: FDST 460, FDST 460H, FDST 860; FDST 908B
FDST 406 Food Microbiology Laboratory
Crosslisted with: BIOS 446, BIOS 846, FDST 806
Description: The microorganisms in foods and the methods used to study them.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Format: LAB
FDST 412 Cereal Technology
Crosslisted with: FDST 812, FDST 812H
Description: Chemistry and technology of the cereal grains. Post-harvest processing and utilization for food and feed. Current industrial processes and practices, and the theoretical basis for these operations.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
FDST 412H Cereal Technology
Crosslisted with: FDST 412, FDST 812
Description: Chemistry and technology of the cereal grains. Post-harvest processing and utilization for food and feed. Current industrial processes and practices, and the theoretical basis for these operations.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
FDST 415 Molds and Mycotoxins in Food, Feed, and the Human Environment
Crosslisted with: FDST 815
Description: Occurrence, growth, and mycotoxin production of molds in human foods, animal feeds, and the human environment. Spoilage, mycotoxin production conditions, toxicity, and pathological effects. Culture media, methods and techniques for enumerating and identifying molds, analytical methods for mycotoxins, and effects of food and feed processing on mycotoxin stability.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
FDST 419 Meat Investigations
Crosslisted with: ASCI 419, ASCI 819, FDST 819
Description: Conduct independent research and study meat industry problems in processing, production, storage, and preparation of meat and meat products.
Credit Hours: 1-3
Min credits per semester: 1
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
FDST 420 Fruit and Vegetable Technology
Crosslisted with: FDST 820
Description: Harvesting and postharvest handling of fruit and vegetables, processing and safety issues, processes of ripening and/or maturation in fresh fruits and vegetables.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
FDST 425 Food Toxicology
Crosslisted with: FDST 825
Description: Toxic substances that may be found in foods with emphasis on bacterial toxins, mycotoxins, and naturally occurring toxicants of plants, animals, and seafood. Basic toxicological methodology and the effects of food processing and handling on food-borne toxicants.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Format: LEC
FDST 429 Dairy Products Technology
Crosslisted with: FDST 829
Description: Physical, chemical, and microbiological properties of milk. Principles of milk processing and manufacture of cultured dairy products, cheeses, ice cream, and concentrated dairy products.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
FDST 430 Sensory Evaluation
Crosslisted with: FDST 830, STAT 430, STAT 830
Description: Food evaluation using sensory techniques and statistical analysis.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
FDST 441 Functional Properties of Food
Crosslisted with: FDST 841, NUTR 441, NUTR 841
Description: Relationship of structure and functionality of ingredients in food systems.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
FDST 442 Omnivore’s Digestive-Tract Microbiome
Crosslisted with: FDST 842
Prerequisites: BIOS 312 or equivalent
Description: Detailed examples and conceptual overview of studies that define the digestive tract microbial ecosystem both at the local and systemic scale in the context of omnivores such as humans and animals are presented. The concepts in focus are associated with high-dimensional datasets (or big data) used for studying these complex biosystems, and the multi-dimensional interactions between the microbiomes in its ecosystem. Topics include the host-cycle of life in health and disease in relation to the bacteria of the digestive tract, as well as the modification of their ecology due to health issues, nutrition, and microbial competition or chemical modification.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC

Offered: SPRING
FDST 445 Experimental Foods
Crosslisted with: FDST 845, NUTR 445, NUTR 845
Description: Introduction to food research. Application of research techniques to selected problems.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC

FDST 448 Food Chemistry
Crosslisted with: FDST 848
Description: Molecular components of various foods and the reactions of these components during the processing of foods.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Prerequisite for: FDST 460, FDST 460H, FDST 860

FDST 449 Food Chemistry Laboratory
Crosslisted with: FDST 849
Description: Experiments involving the isolation, purification, and characterization of the molecular components of foods.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Format: LAB

FDST 451 Food Science and Technology Seminar
Description: Student presentations of food science literature and research.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Format: LEC

FDST 455 Microbiology of Fermented Foods
Crosslisted with: FDST 855
Prerequisites: FDST 405/805
Description: Physiology, biochemistry, and genetics of microorganisms important in food fermentation. How microorganisms are used in fermentation and the effects of processing and manufacturing conditions on production of fermented foods. On-campus students must also register for FDST 455L/855L.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Format: LEC

FDST 455L Microbiology of Fermented Foods Laboratory
Crosslisted with: FDST 855L
Prerequisites: FDST 405/805 and parallel FDST 455/855
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Format: LAB

FDST 458 Advanced Food Analysis
Crosslisted with: FDST 458H, FDST 858
Description: Theory and application of molecular and atomic spectroscopy, immunochemistry and thermal methods to the analysis of foods. Chemical separation techniques for the isolation of food constituents.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC

FDST 458H Advanced Food Analysis
Crosslisted with: FDST 458, FDST 858
Description: Theory and application of molecular and atomic spectroscopy, immunochemistry and thermal methods to the analysis of foods. Chemical separation techniques for the isolation of food constituents.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC

FDST 460 Food Product Development Concepts I
Crosslisted with: FDST 460H, FDST 860
Prerequisites: FDST 405 and 448
Description: Develop a commercially viable food product using chemical, microbiological and sensory analysis principles, and marketing and packaging sciences. Capstone course.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
ACE: ACE 10 Integrated Product
FDST 460H Food Product Development Concepts I
Crosslisted with: FDST 460, FDST 860
Prerequisites: FDST 405 and 448
Description: Develop a commercially viable food product using chemical, microbiological and sensory analysis principles, and marketing and packaging sciences. Capstone course.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
ACE: ACE 10 Integrated Product

FDST 465 Food Engineering Unit Operations
Crosslisted with: FDST 865, MSYM 465, MSYM 865
Description: Unit operations and their applications to food processing.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC

FDST 470 Nutraceuticals and Functional Foods
Crosslisted with: FDST 870
Description: Evaluation of natural compounds impact on human health. Inflammation, cancer, heart disease, and the impact of gut micro-flora on health.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC

FDST 490 Food Industry Experience
Description: Obtain a working knowledge of the food industry and begin developing professional credentials. Required seminars/discussions to be completed prior to the internship. At the completion of the internship, a written report of the experience and a seminar presentation of the same material is required.
Credit Hours: 1-3
Min credits per semester: 1
Max credits per semester: 3
Max credits per degree: 3
Format: LEC

FDST 499H Honors Thesis
Description: Conduct a scholarly research project and write a University Honors Program or undergraduate thesis.
Credit Hours: 3-6
Min credits per semester: 3
Max credits per semester: 6
Max credits per degree: 6
Format: IND