

FOOD SCIENCE AND TECHNOLOGY

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The Food Science and Technology (FST) Bachelor of Science curriculum at Cal Poly Pomona is an interdisciplinary program that draws faculty and courses from Human Nutrition and Food Science, Animal Science, Horticulture, Food Marketing and Agribusiness, Biology, Chemistry, and Industrial and Manufacturing Engineering. Students have the option of choosing science and technology, business, culinology®, or pre-professional (for students interested in pre-vet, pre-med or pre-dental academics) tracks while moving through a curriculum designed to meet the Institute of Food Technologists (IFT) undergraduate standards and guidelines. Students will be able to tailor the program to their general interests and career goals by choosing one of the following career tracks.

Science and Technology

This track emphasizes learning scientific concepts with the application of technology. It provides the opportunity to expand beyond the background provided by the core courses of the major. This track is for students interested in pursuing a master's and/or a doctoral program in a science or technology field in the future. In addition, this track provides additional background for research and development jobs in industry and the public sector and it will prepare one to become a food chemist, food microbiologist, or a food processing technologist. By carefully selecting electives, students may also earn a minor in chemistry, microbiology, or foods and nutrition.

Business

This track applies food science and technology knowledge to marketing and entrepreneurship. With a science and technology foundation and an emphasis in business, students can successfully compete for food industry jobs in project management, technical sales, marketing and advertising. This track is designed for students interested in pursuing a Master of Business administration (MBA) program later on.

Culinology®

Culinology is a trademark of the Research Chefs Association (RCA). This track is one of few programs approved by RCA in the U.S. The curriculum blends food science and culinary arts and will provide tools to successfully develop foods for retail and food service consumption. This track is particularly attractive to those interested in product development. Students will receive a bachelor's degree in Food Science and Technology under the Institute of Food Technologists' guidelines while taking a number of courses in Culinary Arts.

Pre-professional

The Pre-professional track prepares students for a degree in Food Science and Technology that meets the Institute of Food Technologists' guidelines for an undergraduate program in Food Science while preparing to enter veterinary, medical, and other professional graduate programs. This track includes 24 units in biological science and chemistry courses. With a professional degree in veterinary sciences, an undergraduate degree in FST will prepare students to be successful in jobs related to inspection, safety, and processing of animal foods.

The major was established in fall 1999 in response to increasing demands from the fast-growing Southern California food industry for food scientists and technologists. It allows students to apply knowledge from basic disciplines such as chemistry, microbiology, physics and engineering to different areas of Food Science and Technology such as food chemistry, food processing, sensory evaluation, food analysis, product development, and packaging and food safety among others. Competencies in these areas enable graduates to succeed in the food industry as well as in local and federal governmental agencies as they face challenges in food manufacturing, research and development, quality control, food regulations, and marketing.

The type of work performed by food scientists includes research, interpretation, and application of information regarding the basic composition, structure and properties of foods. They study the chemistry of changes occurring during processing and utilization of food products by consumers. Process design for commercial food processing, selection and application of unit operations for the production of processed foods, optimization of processing parameters. Selection and application of microbiological and chemical analyses for food products. Establishment and implementation of Standard Sanitation Operating Procedures (SSOPs), Good Manufacturing Practices (GMPs) and Hazard Analysis Critical Control Point (HACCP) systems in food processing facilities. Monitoring for compliance with government, company and industry standards for quality or safety of food products. Product development and improvement, product formulation, selection and application of ingredients. Food packaging selection and testing. Establishment of quality assurance systems in food processing facilities. Training of plant employees in technical, quality and safety aspects.

Cal Poly Pomona is uniquely positioned for this program because of its 1) accessibility to a vast labor market for graduates, 2) diversified faculty, and 3) excellent agricultural and technological facilities and laboratories.

High school students planning to major in Food Science and Technology are advised to build a background in foods, chemistry, mathematics, physics and biology. Community college students should concentrate on chemistry (including organic), biology (including microbiology), math, statistics, communication skills and general education.

Because the food industry serves a basic human need, a career in food science is a wise choice, as it does not generally experience the economic fluctuations of other industries. The growing needs to improve the quality, quantity, variety, and safety of foods, coupled with the growing public demand for healthier, more convenient foods, virtually ensures the stability of employment for food scientists.

Students completing the Food Science and Technology program will be prepared for careers in a variety of areas:

Food industry: quality control, product development, food marketing, food processing, food microbiology, food engineering and food analysis.

University and private laboratories: research, extension, consulting.

Government agencies: Food and Drug Administration (FDA), U.S. Department of Agriculture (USDA), State and local health departments and other agencies.

International agencies: World Health Organization (WHO), Food and Agriculture Organization (FAO), World Bank and nonprofit organizations, international research centers.

Graduate school: food science and technology with specialization in food engineering, food chemistry or food microbiology; dairy science, meat science, post-harvest physiology and technology, cereal science, meat science, enology, agricultural and biological engineering, biotechnology, public health, packaging, and toxicology.

The Institute of Food Technologists (IFT) is the main professional group for food scientists with more than 28,000 members. The Institute also has an active Student Association (IFTSA). The Southern California Section of IFT (SCIFTS) provides many opportunities for scholarships and professional networking at the local level through regular activities.

CORE COURSES FOR MAJOR

Core courses include food chemistry, food analysis, food microbiology, unit operations in food processing, food engineering, and food laws and regulations.

Orientation to the College of Agriculture	AG	100	(1)
Introduction to the Profession	FN	100	(1)
Introduction to Food Science and Technology	FST	125	(4)
Food Process Engineering I	FST	232/232L	(3)
Food Laws and Regulations	FST	322	(4)
Food Safety and Current Issues	FST	325	(4)
Food Process Engineering II	FST	332/332L	(3)
Unit Operations in Food Processing	FST	417/417L	(4)
Food Chemistry I	FST	420/420L	(4)
Food Analysis	FST	422/422L	(4)
Principles of HACCP	FST	423/423A	(4)
Food Chemistry II	FST	426/426L	(4)
Internship in Food Science and Technology	FST	441	(2)
Food Science Colloquium	FST	464	(2)

SUPPORT COURSES

General Chemistry	CHM	122/122L	(4)
General Chemistry	CHM	123/123L	(4)
Organic Chemistry	CHM	201/250L	(4)
# or Organic Chemistry	CHM	314/317L	(4)
# and Organic Chemistry	CHM	315/318L	(4)
# and Organic Chemistry	CHM	316/319L	(4)
Biochemistry	CHM	321/321L	(4)
Microbiology	MIC	201/201L	(4)
College Physics	PHY	121/121L	(4)
Food Microbiology	MIC	320/320L	(4)
Calculus for the Life Sciences	MAT	120	(4)

The following major support courses should be used to satisfy the indicated GE requirements. If these courses are not used to satisfy GE, the total units to degree may be more than 180 units.

Freshman English I (A1)	ENG	104	(4)
Freshman English II (A3)	ENG	105	(4)
Statistics with Applications (B1)	STA	120	(4)
College Chemistry (B2)	CHM	121/121L	(4)
Basic Biology (B3)	BIO	115/115L	(5)
Nutrition, Science, and Health (B4)	FN	305	(4)
Ethical Issues in Food, Agricultural, and Apparel Industries (C4 or D4)	AG	401	(4)
Introduction to American Government (D1a)	PLS	201	(4)
United States History (D1b)	HST	202	(4)
Agriculture and the Modern World (D2)	AG	101	(4)
General Psychology (E)	PSY	201	(4)

For Pre-professional and Science and Technology Tracks only

DIRECTED ELECTIVES

Business Track Core and Elective Courses

Required Courses:

Food Packaging	FST	319/319A	(4)
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Sensory Evaluation	FST	318/318L	(2/2)
Food Product Development	FST	421/421L	(2/2)

Plus 21 units from the following courses:

Sales and Advertising Management	FMA	225	(4)
Food and Agribusiness Marketing	FMA	304	(4)
Wholesaling and Retailing of Food Products	FMA	306	(4)
Financial Analysis Agribusiness I	FMA	326	(4)
Financial Analysis Agribusiness II	FMA	327	(3)
Int'l Food and Agribusiness Mktg.	FMA	330	(4)
Operations Mgmt. for Agribusiness	FMA	376	(4)
Food and Ag Mktg Appl	FMA	405	(4)
Food Systems in Developing Nations I	FST	424	(4)
Food Systems in Developing Nations II	FST	425	(4)
Global Business Perspectives	IBM	210	(4)
Principles of Mktg Mgmt	IBM	301	(4)
Promotional Strategies	IBM	307	(4)
Business Logistics	IBM	309	(4)
Int'l Mktg Mgmt	IBM	414	(4)
Intro to Electronic Business	EBZ	301	(4)
Trigonometry	MAT	106	(4)
Principles of Management	MHR	301	(4)
Operations Management	TOM	301	(4)
Production Management	TOM	332	(4)
Total Quality Management	TOM	401	(4)
Project Management	TOM	436	(4)
Principles of Economics	EC	201	(4)
Seminar in Waste Mgmt Econ	EC	438	(4)
Industrial Organization	EC	440	(4)
Internship in FST	FST	441	(2)
Internship in FST	FST	442	(2-4)

Note for FST Business Track Students:

Select a sufficient number of courses so that the total from Elective Track and GE is at least 89 units.

Culinology® Track Core and Elective Courses

Required Courses:

Sensory Evaluation	FST	318/318L	(2/2)
Food Product Development	FST	421/421L	(2/2)
Sanitation Practices in the Hospitality Industry	HRT	225	(1)
Professional Cooking I	HRT	281/281L	(2/2)
World Cuisine	HRT	324/324L	(2/2)
Professional Healthy Cooking	HRT	325/325L	(2/2)
Professional Cooking II	HRT	381/381L	(2/2)

Select 8 units from the following courses:

Introduction to Foods	FN	121/121L	(2/2)
Culture and Meal Patterns	FN	328/328L	(2/2)
Healthy American Cuisine	HRT	255	(4)
Beer and Culture	HRT	312	(4)
Wines, Beers, and Spirits	HRT	315	(4)
Wines of the World	HRT	316	(4)
Culinary Product Development and Evaluation	HRT	485	(4)
Internship*	FST	442	(2-4)
Culinary Produce Technology	PLT	222	(4)

*Denotes Capstone Experience

Note for FST Culinology® Track Students:

Select a sufficient number of courses so that the total from Elective Track and GE is at least 76 units.

Pre-Professional Track Core and Elective Courses

Required Courses:

Organic Chemistry	CHM 315/318L	(3/1)
Organic Chemistry	CHM 316/319L	(3/1)
College Physics/Lab	PHY 122/122L	(3/1)
Genetics	BIO 303	(4)
Cell, Molecular and Dev Bio	BIO 310	(4)
Introduction to Vertebrate Zoology	ZOO 238/238L	(3/2)

Select 7 units from the following courses:

Human Anatomy	ZOO 234/234L	(2/2)
Human Physiology	ZOO 235/235L	(3/1)
Human Embryology	ZOO 415/415L	(3/1)
Histology	ZOO 422/422L	(3/2)
Mammalogy	ZOO 430/430L	(2/2)
Comparative Anatomy of Vertebrates	ZOO 451/451L	(3/2)
Trigonometry	MAT 106	(4)
Science Communication	BIO 190	(1)
Developmental Biology	BIO 320/320L	(3/2)
Neuroscience (required for Pre-med students)	BIO 424	(4)
Cellular Physiology	BIO 428/428L	(3/2)
Concepts of Molecular Biology	BIO 450	(4)
Molecular Biology Techniques	BIO 451/451L	(2/2)
College Physics/Laboratory (required for Pre-med students)	PHY 123/123L	(3/1)
Anatomy and Physiology of Domestic Animals	AVS 350/350L	(5)

Note for FST Pre-professional Track Students:

Select a sufficient number of courses so that the total from Elective Track and GE is at least 75 units.

Science and Technology Track Core and Elective Courses

Required Courses:

Food Packaging	FST 319/319A	(4)
Sensory Evaluation	FST 318/318L	(2/2)
Food Product Development	FST 421/421L	(2/2)

Plus 21 units from the following courses:

Meat Science and Industry	AVS 327/327L	(3/1)
Meat Processing and Technology	AVS 427/427L	(3/1)
Horizons in Biotechnology	BIO 230	(1)
Genetics	BIO 303	(4)
Cell, Molecular and Developmental Biology	BIO 310	(4)
Plant Products in Food Science	BOT 310	(4)
Quantitative Analysis	CHM 221/221L	(2/2)
Fundamentals of Physical Chemistry	CHM 301/301L	(3/1)
Organic Chemistry and Laboratory	CHM 315/318L	(3/1)
Organic Chemistry and Laboratory	CHM 316/319L	(3/1)
Spectroscopic Methods	CHM 342/342L	(2/2)
Separation Methods	CHM 343/343L	(2/2)
Nutrition	FN 235	(4)
Intro to Research Methods	FN 263	(2)

Nutrition of the Life Cycle	FN 335	(4)
Nutrient Drug Interactions	FN 343	(2)
Community Nutrition	FN 346/346L	(2/1)
Advanced Nutrient Metabolism I	FN 433	(4)
Introduction to Foods	FN 121/121L	(2/2)
Food Systems in Developing Nations I	FST 424	(4)
Food Systems in Developing Nations II	FST 425	(4)
Internship	FST 442	(2-4)
Trigonometry	MAT 106	(4)
Microbial Structures and Functions	MIC 300/300L	(3/2)
General Epidemiology	MIC 330	(4)
Medical Bacteriology	MIC 410/410L	(3/2)
Immunology/Serology	MIC 415/415L	(3/2)
Medical Mycology	MIC 425/425L	(3/2)
General Virology	MIC 430/430L	(3/2)
Energy and Society	PHY 301	(4)
Post Harvest Physiology	PLT 351/351L	(3/1)
Human Physiology	ZOO 235/236L	(3/1)

Note for FST Science and Technology Track Students:

Select a sufficient number of courses so that the total from Elective Track and GE is at least 89 units.

GENERAL EDUCATION REQUIREMENTS

Students should consult the catalog website www.csupomona.edu/~academic/catalog/ for current information regarding this requirement. Unless specific courses are stated under Support Courses, see the list of approved courses under General Education Requirements, Areas A through E.

Area A. Communication and Critical Thinking (12 units)

1. Written Communication
2. Oral Communication
3. Critical Thinking

Area B. Mathematics and Natural Sciences (16 units)

1. Mathematics/Quantitative Reasoning
2. Physical Science
3. Biological Science
4. Science and Technology Synthesis

Area C. Humanities (16 units)

1. Fine and Performing Arts
2. Philosophy and Civilization
3. Literature and Foreign Languages
4. Humanities Synthesis

Area D. Social Sciences (20 units)

1. U.S. History, Constitution, and American Ideals
2. History, Economics, and Political Science
3. Sociology, Anthropology, Ethnic and Gender Studies
4. Social Science Synthesis

Area E. Lifelong Understanding and Self-development (4 units)

MINOR IN CULINOLOGY®

Culinology® is the blending of culinary arts and food science and technology. This is an interdisciplinary minor offered jointly by the Human Nutrition and Food Science Department of the College of Agriculture and the Collins School of Hospitality Management. This minor is particularly suited for students majoring in Food Science and Technology, Foods and Nutrition, Chemistry and related sciences, as well as students in Hospitality Management with an interest in culinary arts and food science.

Courses required for the Culinology® minor:

Prerequisite Courses:

General Chemistry (GE Area B2)	CHM 121/121L	3/1
General Chemistry	CHM 122/122L	3/1
Elements of Organic Chemistry	CHM 201	3
Elements of Organic Chemistry Laboratory	CHM 250	1

Minor-specific courses:

Sanitation Practices in the Hospitality Industry	HRT 225	1
Professional Cooking I	HRT 281/281L	2/2
Professional Cooking II	HRT 381/381 L	2/2
World Cuisine	HRT 324/324L	2/2
Introduction to Food Science and Technology	FST 125	4
Food Chemistry I	FST 420/420L	3/1
Food Chemistry II	FST 426/426L	3/1
Food Product Development	FST 421/421L	3/1
or Culinary Product Development & Evaluation	HRT 485	4

Total units including prerequisite courses. 41

MINOR IN FOOD SCIENCE & TECHNOLOGY

The Food Science and Technology minor was designed to provide students basic principles and concepts that will improve their knowledge and understanding of food from a scientific perspective and of the use of technology to transform raw food materials. The minor provides students an overview of the field of food science and technology, basic aspects of food safety, and current issues about commercially processed foods. In addition, the students will have the opportunity to further explore specific areas in food science and technology through elective course work. The minor will broaden career opportunities for students following closely related majors such as nutrition science, dietetics, animal science, chemistry, biology, and chemical engineering. Science students take most of the pre-requisite courses as part of the curriculum for their major.

FST Minor Curriculum

Pre-requisite courses:

General Chemistry I (GE B-2)	CHM 121/121L	3/1
General Chemistry II	CHM 122/122L	3/1
Elements of Organic Chemistry	CHM 201	3
Elements of Organic Chemistry –Laboratory	CHM 250L	1
Basic Biology (GE B-3)	BIO 115/115L	3/2
Microbiology	MIC 201/201L	3/2
Statistics with Applications (GE B-1)	STA 120	4

Minor-specific required courses

Introduction to Food Science and Technology	FST 125	4
Food Safety and Current Issues	FST 325	4

Electives

Complete 12-13 units from the courses listed below:		
Food Process Engineering I (*)	FST 232/232L	2/1

Food Process Engineering II	FST 332/332L	2/1
Sensory Evaluation of Food	FST 318/318L	2/2
Food Packaging	FST 319/319A	3/1
Unit Operations in Food Processing I	FST 417/417L	2/1
Unit Operations in Food Processing II	FST 427/427L	2/1
Food Chemistry I	FST 420/420L	3/1
Food Chemistry II	FST 426/426L	3/1
Food Product Development	FST 421/421L	2/2
Food Analysis	FST 422/422L	3/1
Food Microbiology	FST 422/422L	2/2

(*Pre-requisite courses for FST232/232L are: MAT114 or MAT120 Analytic Geometry and Calculus or Calculus for the Life Sciences (GE B-1) and PHY121/121L College Physics (GE B-2).

COURSE DESCRIPTIONS

All courses offered by the department may be taken on a CR/NC basis by non-majors only.

FST 125 Introduction to Food Science and Technology (4)

An introduction to the scope, principles and practices of food science and technology. Basic aspects of chemistry and microbiology of food products. Introduction to food safety and sanitation and basics of food laws and regulations. Principles of the most common methods of food preservation. Overview on the commercial processing of specific food commodities. 4 lecture discussions.

FST 232/232L Food Process Engineering I (2/1)

Process engineering principles including math concepts for food engineering calculations, units and dimension, thermodynamics, material and energy balance, and fluid flow. 2 lectures/problem solving, and 1 three-hour laboratory. Prerequisites: MAT 120, PHY 121/121L and FST 125. Concurrent enrollment required.

FST 299/299A/299L Special Topics in Food Science and Technology for Lower Division Students (1-4)

Group study of a selected topic in food science and technology, which is specified in advance for lower division students. Total credit limited to 4 units. Instruction is by lecture, laboratory, activity, or a combination. Prerequisite: permission of instructor.

FST 318/318L Sensory Evaluation of Foods (2/2)

Principles, theory and methodology of sensory evaluation of foods and applications in food research and development and consumer testing. Group projects and field trips. 2 lectures, 2 three-hour labs. Prerequisites: FST125 or FN 121/121L, STA 120.

FST 319/319A Food Packaging (3/1)

Exploration of the role of food packaging in food preservation. Discussion of food packaging materials and their impact on food products. Overview of product stability and shelf life extension. Demonstrations and field trips. 3 lecture discussions and 1 two-hour activity. Concurrent enrollment required. Prerequisite: FST 125.

FST 321/321L Experimental Food Science (3/1)

Experimental study of ingredient functions and factors affecting food product quality as measured by sensory and objective methods. Guided group projects involving problem identification, literature search, project design, data collection, critical analysis of data, oral and written presentations of findings. 3 lecture/problem-solving, 1 three-hour laboratory. Concurrent enrollment required. Prerequisites: FN 121/121L, CHM 201/250L or CHM 316 and CHM 317.

FST 322 Food Laws and Regulations (4)

An examination of the rules and regulations of various governmental agencies with regard to the processing, packaging, labeling and marketing of food products. Sources of information necessary for communication with government on public food policy information. 4 lectures. Prerequisite: FST 125.

FST 325 Food Safety and Current Issues (4)

Overview of physical, chemical and microbiological hazards and their role in foodborne illness and the safety of the food supply. Introduction to the Hazard Analysis Critical Control Point System. The role of government and basic aspects of food safety laws and regulations. Review of current issues in food safety and security, food protection, food production, and food processing as they relate to public health. 4 lecture discussions.

FST 332/332L Food Process Engineering II (2/1)

Process engineering principles including steady-state and unsteady-state heat transfer, mass transfer mechanisms, psychrometry, and refrigeration. 2 lectures/problem solving, and 1 three-hour laboratory. Prerequisite: FST 232/232L. Concurrent enrollment required.

FST 400 Special Study for Upper Division Students (1-2)

Individual or group investigation, research studies, or surveys of selected problems for upper division students. Total credits limited to 4 units, with a maximum of 2 units per quarter.

FST 417/417L Unit Operations in Food Processing I (2/1)

Study of raw materials preparation, size reduction, homogenization, pasteurization, canning, aseptic processing, freezing, and other unit operations in food processing technology that involve physical changes of raw materials and/or heat transfer. 2 lectures/problem solving, and 1 three-hour laboratory. Field trips and term group projects. Prerequisites: CHM 201/250L or 315 and 317L, MIC 201/201L, and FST 332/332L.

FST 420/420L Food Chemistry I (3/1)

Chemical characteristics of food and its main components. Chemical changes during food processing and storage. Functions of food additives and other ingredients. 3 lectures, 1 three-hour laboratory. Prerequisite: FN 121/121L or FST 125, CHM 201/250L or CHM 316 and CHM 317. Concurrent enrollment required.

FST 421/421L Food Product Development (2/2)

Application of food science and technology principles to research and development industrial practices. A course designed to implement critical thinking, decision-making, teamwork, and communication skills towards the design and development of new and improved food products. 2 lecture discussions, 2 three-hour laboratories. Prerequisites: FST 318 for food science and technology majors or FST 321 for non-majors. Concurrent enrollment required.

FST 422/422L Food Analysis (3/1)

Principles and application of physical and chemical methods to the separation, characterization and quantitative analysis of food constituents. 3 lectures, 1 three-hour laboratory. Prerequisites: FST 125 or FN 121/121L, CHM 201/250L, and STA 120.

FST 423/423A Principles of HACCP (3/1)

Basic principles of the Hazard Analysis Critical Control Point system and their application. Prerequisite programs for implementing HACCP plans. Preliminary steps to HACCP implementation. Regulations that require HACCP systems. 3 hours lecture discussion and 1 two-hour activity. Concurrent enrollment required. Prerequisite: FST 325.

FST 424 Food Systems in Developing Nations I (4)

Study of food systems in developing nations with an emphasis in food processing, food technology, food safety issues, and food laws and regulations. Discussion of background information on a specific country selected for study. This course is also the preparatory course for participation in FST 425 Food Systems in Developing Nations II (4), which includes a trip to a developing country during one of the university recesses.

FST 425 Food Systems in Developing Nations II (4)

Direct field observation and academic study of food systems in a developing nation. Site visits may include government, academia, production, processing and packaging facilities. Includes a field trip to a developing country during one of the university recesses. The field trip will be 8-10 days including transportation to the chosen country. Students must cover field trip cost. Prerequisites: FST 424 or concurrent enrollment in FST 424.

FST 426/426L Food Chemistry II (3/1)

Chemical characteristics of major food commodities. Chemical changes during processing and storage of specific food groups. Chemical changes associated to specific food processing methods. Chemistry of food spoilage. 3 lectures, 1 three-hour laboratory. Prerequisite: FST 420/420L.

FST 427/427L Unit Operations in Food Processing II (2/1)

Study of mechanical separations, separation and concentration using membranes, dehydration, evaporation, distillation, and other unit operations in food processing that involve mass transfer with or without heat transfer. 2 lectures/problem solving, and 1 three-hour laboratory. Field trips and term group projects. Prerequisites: FST417/417L. Concurrent enrollment required.

FST 441, 442 Internship in Food Science and Technology (1-4) (1-4)

On-the-job training in the professional field of food science and technology. Potential experiences include: quality control and assurance, food safety assurance, industrial production, research and development, product development, inspection and regulatory activities and sensory testing. Prerequisite: senior standing and consent of instructor.

FST 464 Food Science Colloquium (2)

Classroom interaction of students with selected food industry leaders focusing on technical, economic, regulatory and new product trends as they impact occupational opportunities in the food and beverage industries. Written reports. 2 lectures. Prerequisite: senior standing.

FST 499/499A/499L Special Topics for Upper Division Students (1-4)

Group study of a selected topic in food science and technology, the title to be specified in advance for upper division students. Total credit limited to 4 units. Instruction is by lecture, laboratory, activity, or a combination of both. Prerequisite: consent of instructor.