

# FOOD SCIENCE (BS)

Offered at: San Luis Obispo Campus

The program is designed to prepare students for employment in the food industry, government and for graduate study. Principal areas of instruction are food engineering, food processing, food safety and sanitation, quality assurance, food microbiology, food chemistry and analysis, Culinology, product development, and sensory evaluation. Employment opportunities are strong in each of these areas.

## Concentrations

### Culinology®

Offered at: San Luis Obispo Campus

Culinology® is designed for students who want to blend culinary arts and food science principles in ingredient development, food product development, or in entrepreneurial pursuits. Successful completion of courses in this concentration fulfill the requirements for the Research Chefs Association Culinology® program.

### Food Safety

Offered at: San Luis Obispo Campus

Food safety concentration delves deeper into the principles of food safety and is approved by the Institute of Food Technologists (<https://www.ift.org/>) (IFT). You are strongly advised to follow this concentration for graduate study or if you have a strong interest in working in the area of food safety. Students enrolled in this concentration are eligible for IFT scholarships (<http://www.ift.org/community/students/scholarships.aspx>).

### Sustainable Food Technology

Offered at: San Luis Obispo Campus

Sustainable food technology delves deeper into the principles of food science as well as sustainability in the food industry and is approved by the Institute of Food Technologists (<https://www.ift.org/>) (IFT). You are strongly advised to follow this concentration if you plan on graduate study. Students enrolled in this concentration are eligible for IFT scholarships (<http://www.ift.org/community/students/scholarships.aspx>).

## Program Learning Objectives

1. Employ critical thinking skills in addressing food science issues.
2. Implement discipline specific knowledge, ethics, and technical skills needed to succeed in food science fields and post-graduate studies.
3. Demonstrate effective written and oral communication skills to a nontechnical and technical audience related to food science.
4. Participate actively as part of a problem-solving team to address issues that arise in the production of food.
5. Demonstrate cultural competence in interactions with diverse populations within and outside the food industry.
6. Formulate solutions to practical problems in food safety, production, development, and sustainability.

## Degree Requirements and Curriculum

In addition to the program requirements listed on this page, students must also satisfy requirements outlined in more detail in the Minimum Requirements for Graduation (<https://catalog.calpoly.edu/academic-standards-policies/general-requirements-bachelors-degree/>) section of this catalog, including:

- 40 units of upper-division courses
- 2.0 GPA
- Graduation Writing Requirement (GWR)
- U.S. Cultural Pluralism (USCP)

Note: No Major, Support or Concentration courses may be selected as credit/no credit. In addition, no more than 12 units of cooperative or internship courses can count towards your degree requirements.

Code	Title	Units
<b>MAJOR COURSES</b>		
FDSC 1101	Orientation to the Food Science Major	1
FDSC 1110 or FSN 1111	Introduction to Food Science and Sustainability Elements of Food Processing	3
FSN 2202	Introduction to Human Nutrition	3
FSN 2250	Food and Nutrition: Culture and Customs (USCP)	3
FDSC 3310	Food Laws and Regulations	3

FDSC 3330	Food Processing and Engineering I	4
FDSC 3340	Food Quality Assurance and Prerequisite Programs	4
FDSC 3345	Food Safety and Sanitation	4
FDSC 3350	Food Chemistry	4
FDSC 3355	Food Analysis	3
FDSC 4420	Sensory Evaluation of Food	3
FDSC 4425 & FDSC 4426	Food Product Development and Food Science Exit Exam	3
<b>Concentrations</b>		
(See list of Concentrations below)		12
<b>SUPPORT COURSES</b>		
BIO 1111	General Biology (5B) <sup>1</sup>	3
CHEM 1120	Fundamentals of Chemical Structure and Properties (5A & 5C) <sup>1</sup>	4
CHEM 1122	Fundamentals of Chemical Reactivity	4
CHEM 2240	Organic Chemistry: Fundamentals and Applications	4
CHEM 3350	Biochemistry: Fundamentals and Applications (Upper-Division 2/5) <sup>1</sup>	4
MATH 1261	Calculus I (2) <sup>1</sup>	4
MCRO 2221	Introduction to Microbiology	4
MCRO 4421	Food Microbiology	3
PHYS 1121	College Physics I	4
STAT 1110	Applied Statistical Concepts and Methods	3
STAT 3320	Statistical Methods for Food Science	3
<b>GENERAL EDUCATION (GE)</b>		
(See GE program requirements below)		30
<b>FREE ELECTIVES</b>		
Free Electives		0
<b>Total Units</b>		<b>120</b>

<sup>1</sup> Required in Major or Support; also satisfies General Education (GE) requirement.

### Concentrations Culinology®

Code	Title	Units
<b>REQUIRED COURSES</b>		
FSN 1121	Fundamentals of Food	3
FSN 3304	Culinology	3
FSN 3323	Culinary Internship	1
FSN 3346	Institutional Food Service	3
FDSC 4462	Senior Project - Internship	2
<b>Total Units</b>		<b>12</b>

### Food Safety

Code	Title	Units
<b>REQUIRED COURSES</b>		
FDSC 4430	Food Processing and Engineering II	4
FDSC 4445	Food Safety Modernization Act: Human Food Safety and Produce Safety	3
Select from the following:		2
FDSC 4460	Senior Project - Scientific and Technical Writing Course	
FDSC 4461	Senior Project - Research	
FDSC 4462	Senior Project - Internship	

### Approved Electives

Select from the following:	3
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ASCI 4415	HACCP for Meat and Poultry Operations
DSCI 3344	Dairy Microbiology
DSCI 4402	Quality Assurance and Control of Dairy Products
FDSC 5545	Advanced Food Safety
MCRO 3342	Public Health Microbiology
PLSC 4421	Postharvest Technology

**Total Units** **12**

## Sustainable Food Technology

Code	Title	Units
<b>REQUIRED COURSES</b>		
FDSC 4430	Food Processing and Engineering II	4
Select from the following:		2
FDSC 4460	Senior Project - Scientific and Technical Writing Course	
FDSC 4461	Senior Project - Research	
FDSC 4462	Senior Project - Internship	
Select from the following:		6
BRAE 3348	Energy for a Sustainable Society	
BRAE 3349	Water for a Sustainable Society	
BRAE 5436	Food and Agriculture Process Water Engineering	
NR 3324	Social Dimensions of Sustainable Food Systems	

**Total Units** **12**

## General Education (GE) Requirements

- 43 units required, 13 of which are specified in Major and/or Support.
- If any of the remaining 30 Units is used to satisfy a Major or Support requirement, additional units of Free Electives may be needed to complete the total units required for the degree.
- See the complete GE course listing (<https://catalog.calpoly.edu/academic-standards-policies/general-requirements-bachelors-degree/#generaleducationtext>).
- A grade of C- or better is required in one course in each of the following GE Areas: 1A (English Composition), 1B (Critical Thinking), 1C (Oral Communication), and 2 (Mathematics and Quantitative Reasoning).

### Lower-Division General Education

<b>Area 1</b>	<b>English Communication and Critical Thinking</b>	
1A	Written Communication	3
1B	Critical Thinking	3
1C	Oral Communication	3
<b>Area 2</b>	<b>Mathematics and Quantitative Reasoning</b>	
2	Mathematics and Quantitative Reasoning (3 units in Support) <sup>1</sup>	0
<b>Area 3</b>	<b>Arts and Humanities</b>	
3A	Arts	3
3B	Humanities: Literature, Philosophy, Languages other than English	3
<b>Area 4</b>	<b>Social and Behavioral Sciences (Area 4 courses must come from at least two different course prefixes.)</b>	
4A	American Institutions (Title 5, Section 40404 Requirement)	3
4B	Social and Behavioral Sciences	3
<b>Area 5</b>	<b>Physical and Life Sciences</b>	
5A	Physical Sciences (3 units in Support) <sup>1</sup>	0
5B	Life Sciences (3 units in Support) <sup>1</sup>	0
5C	Laboratory (may be embedded in a 5A or 5B course) (1 units in Support) <sup>1</sup>	0
<b>Area 6</b>	<b>Ethnic Studies</b>	
6	Ethnic Studies	3

### Upper-Division General Education

Upper-Division 2/5	Mathematics and Quantitative Reasoning or Physical and Life Sciences (3 units in Support) <sup>1</sup>	0
Upper-Division 3	Arts and Humanities	3
Upper-Division 4	Social and Behavioral Sciences (Area 4 courses must come from at least two different course prefixes.)	3
<b>Total Units</b>		<b>30</b>

<sup>1</sup> Required in Major or Support; also satisfies General Education (GE) requirement.

**Coming soon**