BS FOOD SCIENCE

Program Learning Objectives
1. Graduates demonstrate critical thinking skills in addressing food science issues.
2. Graduates demonstrate the knowledge, ethics, and technical skills needed to succeed in food science fields and post-graduate studies.
3. Graduates demonstrate effective written and oral communication skills.
4. Graduates demonstrate the ability to work effectively as part of a problem-solving team.
5. Graduates demonstrate cultural competence with interacting diverse populations.

Program Educational Outcomes
• Food Science program graduates can integrate and apply principles of food chemistry, analysis, microbiology, processing, and engineering to assure food quality and safety.

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/generalrequirementsbachelorsdegree/#generaleducationtext) section of this catalog, including:
• 60 units of upper-division courses
• Graduation Writing Requirement (GWR)
• 2.0 GPA
• U.S. Cultural Pluralism (USCP)

Note: No Major, Support or Concentration courses may be selected as credit/no credit.

MAJOR COURSES
FSN 102 Orientation to the Food Science Major 1
FSN 125 Introduction to Food Science 4
or FSN 230 Elements of Food Processing
FSN 202 Introduction to Human Nutrition 4
FSN 204 Food Processing Operations 4
FSN 250 Food and Nutrition: Culture and Customs (USCP) (E) 4
FSN 311 Sensory Evaluation of Food 4
FSN 330 Principles of Food Engineering 4
FSN 334 Food Packaging 3
FSN 335 Food Quality Assurance 4
FSN 364 Food Chemistry 4
FSN 368 Food Analysis 4
FSN 370 Food Plant Sanitation and Prerequisite Programs 4
FSN 374 Food Laws and Regulations 4
FSN 375 Food Safety 4
FSN 407 Food Ingredient Functionality 3

FSN 408 & FSN 469 Food Product Development and Food Science Exit Exam 4

Concentration courses (see below) 23

SUPPORT COURSES
BIO 111 General Biology (B2 & B3) 1 4
CHEM 127 General Chemistry for Agriculture and Life Science I (B1 & B3) 1 4
CHEM 128 General Chemistry for Agriculture and Life Science II 4
CHEM 312 Organic Chemistry: Fundamentals and Applications 5
CHEM 314 Biochemistry: Fundamentals and Applications (Upper-Division B) 1 5
MATH 161 or MATH 141 Calculus for the Life Sciences I (B4) 1 4
MCRO 221 Microbiology 4
MCRO 421 Food Microbiology 4
PHYS 121 College Physics I 4
STAT 212 Applied Statistics for the Life Sciences (GE Electives) 4
STAT 314 Statistical Methods for Food Science 4

GENERAL EDUCATION (GE)
(See GE program requirements below.) 48

FREE ELECTIVES
Free Electives 4

Total units 180

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

Concentrations
• Advanced Food Science (https://catalog.calpoly.edu/collegesandprograms/collegeofagriculturefoodenvironmentalsciences/foodsciencenutrition/bsfoodscience/advancedfoodscienceconcentration/)
• Culinology (https://catalog.calpoly.edu/collegesandprograms/collegeofagriculturefoodenvironmentalsciences/foodsciencenutrition/bsfoodscience/culinologyconcentration/)

General Education (GE) Requirements
• 72 units required, 24 of which are specified in Major and/or Support.
• If any of the remaining 48 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/generalrequirementsbachelorsdegree/#generaleducationtext).
• A grade of C- or better is required in one course in each of the following GE Areas: A1 (Oral Communication), A2 (Written Communication), A3 (Critical Thinking), and B4 (Mathematics/Quantitative Reasoning).

Area A English Language Communication and Critical Thinking
A1 Oral Communication 4
A2 Written Communication 4
### Area B
**Scientific Inquiry and Quantitative Reasoning**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Science (4 units in Support)</td>
<td>0</td>
</tr>
<tr>
<td>Life Science (4 units in Support)</td>
<td>0</td>
</tr>
<tr>
<td>One lab taken with either a B1 or B2 course</td>
<td></td>
</tr>
<tr>
<td>Mathematics/Quantitative Reasoning (4 units in Support)</td>
<td>0</td>
</tr>
</tbody>
</table>

Upper-Division B (4 units in Support)

### Area C
**Arts and Humanities**

Lower-division courses in Area C must come from three different subject prefixes.

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts: Arts, Cinema, Dance, Music, Theater</td>
<td>4</td>
</tr>
<tr>
<td>Humanities: Literature, Philosophy, Languages other than English</td>
<td>4</td>
</tr>
<tr>
<td>Lower-Division C Elective - Select a course from either C1 or C2</td>
<td>4</td>
</tr>
</tbody>
</table>

Upper-Division C

### Area D
**Social Sciences - Select courses in Area D from at least two different prefixes**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Institutions (Title 5, Section 40404 Requirement)</td>
<td>4</td>
</tr>
<tr>
<td>Lower-Division D</td>
<td>4</td>
</tr>
</tbody>
</table>

Upper-Division D

### Area E
**Lifelong Learning and Self-Development**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower-Division E (4 units in Major)</td>
<td>0</td>
</tr>
</tbody>
</table>

### Area F
**Ethnic Studies**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethnic Studies</td>
<td>4</td>
</tr>
</tbody>
</table>

### GE Electives in Areas B, C, and D
Select courses from two different areas; may be lower-division or upper-division courses.

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE Electives (4 units in Support plus 4 units in GE)</td>
<td>4</td>
</tr>
</tbody>
</table>

### Total Units

48

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