BS DAIRY SCIENCE

Program Learning Objectives
1. Technical competency within the disciplines of Dairy Science (Dairy Husbandry and Dairy Products Technology), with particular emphasis on the science, industry and practice.
2. Effective communication skills and leadership.
3. An advanced level of critical thinking skills and problem solving capability.
4. The capability of maintaining consistent, professional behavior and performance in a rapidly changing work environment.
5. Strong awareness of society as a whole and of agriculture’s place in society.

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 or Support courses may be selected as credit/no credit.

MAJOR COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 101</td>
<td>Introduction to the Animal Sciences</td>
<td>2</td>
</tr>
<tr>
<td>ASCI 220</td>
<td>Introductory Animal Nutrition and Feeding</td>
<td>4</td>
</tr>
<tr>
<td>ASCI 340</td>
<td>Animal Welfare and Ethics</td>
<td>4</td>
</tr>
<tr>
<td>ASCI 363</td>
<td>Undergraduate Seminar</td>
<td>2</td>
</tr>
<tr>
<td>DSCI 102</td>
<td>Dairy Operations and Safety</td>
<td>2</td>
</tr>
<tr>
<td>or ASCI 339</td>
<td>Internship in Animal Science</td>
<td></td>
</tr>
<tr>
<td>DSCI 202</td>
<td>Dairy Promotion and Marketing</td>
<td>4</td>
</tr>
<tr>
<td>DSCI 229</td>
<td>General Dairy Manufacturing</td>
<td>4</td>
</tr>
<tr>
<td>DSCI 230</td>
<td>General Dairy Husbandry</td>
<td>4</td>
</tr>
<tr>
<td>DSCI 233</td>
<td>Milk Processing and Inspection</td>
<td>4</td>
</tr>
<tr>
<td>DSCI 241</td>
<td>Dairy Cattle Selection, Breeds, Fitting and Showing</td>
<td>4</td>
</tr>
<tr>
<td>DSCI 301</td>
<td>Dairy Cattle Nutrition</td>
<td>4</td>
</tr>
<tr>
<td>DSCI 321</td>
<td>Lactation Physiology</td>
<td>4</td>
</tr>
<tr>
<td>DSCI 330</td>
<td>Artificial Insemination and Embryo Biotechnology</td>
<td>4</td>
</tr>
<tr>
<td>DSCI 333</td>
<td>Dairy Animal Health, Safety and Applied Technology</td>
<td>4</td>
</tr>
<tr>
<td>DSCI 422</td>
<td>Breeding and Genetics of Dairy Cattle</td>
<td>4</td>
</tr>
<tr>
<td>DSCI 432</td>
<td>Advanced Dairy Herd Management</td>
<td>4</td>
</tr>
<tr>
<td>ASCI 477</td>
<td>Senior Project - Research Experience in Animal Science</td>
<td>3</td>
</tr>
<tr>
<td>or ASCI 479</td>
<td>Senior Project - Current Topics in Animal Science</td>
<td></td>
</tr>
</tbody>
</table>

Upper Division Designated Electives
Select from the following: 8

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSCI 401</td>
<td>Physical and Chemical Properties of Dairy Products</td>
</tr>
<tr>
<td>DSCI 402</td>
<td>Quality Assurance and Control of Dairy Products</td>
</tr>
<tr>
<td>DSCI 410</td>
<td>Advanced Dairy Nutrition</td>
</tr>
<tr>
<td>DSCI 412</td>
<td>Dairy Farm Consultation</td>
</tr>
<tr>
<td>DSCI 444</td>
<td>Dairy Microbiology</td>
</tr>
</tbody>
</table>

SUPPORT COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 111</td>
<td>General Biology (B2 &amp; B3) 1, 2</td>
<td>4</td>
</tr>
<tr>
<td>or BIO 161</td>
<td>Introduction to Cell and Molecular Biology</td>
<td></td>
</tr>
<tr>
<td>CHEM 127</td>
<td>General Chemistry for Agriculture and Life Science I (B1 &amp; B3)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 118</td>
<td>Precalculus Algebra (B4) 1, 3</td>
<td>4</td>
</tr>
<tr>
<td>MCRO 221</td>
<td>Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>STAT 218</td>
<td>Applied Statistics for the Life Sciences (GE Electives)</td>
<td>4</td>
</tr>
</tbody>
</table>

Approved Electives
At least 7 units must be 300-400 level
Consult with academic advisor regarding career tracks

Select from the following: 30

- AGB 212     Agricultural Economics
- AGB 214     Agribusiness Financial Accounting
- AGB 301     Food and Fiber Marketing
- AGB 310     Agribusiness Credit and Finance
- AGB 369     Agricultural Personnel Management
- AGC 102     Orientation to Agricultural Communication & Agricultural Science
- AGC 205     Agricultural Communications
- AGC 404     Foundations of Agricultural Leadership
- ASCI 112    Principles of Agricultural Science
- ASCI 221    Introduction to Beef Production
- ASCI 226    Livestock Evaluation
- ASCI 229    Anatomy and Physiology of Farm Animals
- ASCI 290    Animal Production and Management Enterprise
- ASCI 304    Animal Genomics
- ASCI 310    Technical Veterinary Skills
- ASCI 311    Advanced Beef Cattle System Management
- ASCI 312    Production Medicine
- ASCI 319    Physiological Chemistry of Animals
- ASCI 351    Reproductive Physiology
- ASCI 366    Veterinary Pharmacology
- ASCI 405    Domestic Livestock Endocrinology
- ASCI 406    Applied Animal Embryology and Assisted Reproduction
- ASCI 407    Assisted Reproduction Technologies of Gametes and Embryos Laboratory
- ASCI 410    Applied Animal Behavior Science
- ASCI 419    Animal Metabolism and Nutrition
- ASCI 438    Systemic Animal Physiology
ASCI 440  Immunology and Diseases of Animals
ASCI 490  Advanced Animal Production and Management Enterprise
BIO 150  Diversity and History of Life
BIO 162  Introduction to Organismal Form and Function
BIO 303  Survey of Genetics
BRAE 121  Agricultural Mechanics
BRAE 141  Agricultural Machinery Safety
BUS 212  Financial Accounting for Nonbusiness Majors
CHEM 128  General Chemistry for Agriculture and Life Science II
CHEM 129  General Chemistry for Agriculture and Life Science III
CHEM 216  Organic Chemistry I
CHEM 217  Organic Chemistry II
CHEM 218  Organic Chemistry III
CHEM 220  Organic Chemistry Laboratory For Life Sciences II
CHEM 223  Organic Chemistry Laboratory for Life Sciences III
CHEM 312  Organic Chemistry: Fundamentals and Applications
CHEM 314  Biochemistry: Fundamentals and Applications
CHEM 369  Biochemical Principles
COMS 301  Business and Professional Communication

Any DSCI course
FSN 125  Introduction to Food Science
FSN 204  Food Processing Operations
FSN 230  Elements of Food Processing
FSN 275  Elements of Food Safety
FSN 311  Sensory Evaluation of Food
FSN 330  Principles of Food Engineering
FSN 335  Food Quality Assurance
FSN 370  Food Plant Sanitation and Prerequisite Programs
JOUR 203  News Reporting and Writing
MCRO 342  Public Health Microbiology
MCRO 421  Food Microbiology
NR 141  Introduction to Forest Ecosystem Management
PHYS 121  College Physics I
PHYS 122  College Physics II
PHYS 125  College Physics I Laboratory
PLSC 150  Forage Crops
PLSC 230  Environmental Horticulture
STAT 313  Applied Experimental Design and Regression Models

Any courses used in the following minors:
Agribusiness
Agricultural Communication
Agricultural Education
Agricultural Leadership
Biotechnology
Crop Science
Environmental Soil Science
Equine Science
Food Science
Meat Science and Processing
Poultry Management
Rangeland Resources
Spanish
Water Science

GENERAL EDUCATION (GE)
(See GE program requirements below.)  56

FREE ELECTIVES
Free Electives  5

Total units  180

1  Required in Major or Support; also satisfies General Education (GE) requirement.
2  Students focusing on Dairy Foods should take BIO 161.
3  MATH 116 and MATH 117 substitute.
4  If a course is taken to meet a Major or Support requirement, it cannot be double-counted as an Approved Elective.
5  Consultation with advisor is recommended prior to selecting Approved Electives; bear in mind your selections may impact pursuit of post-baccalaureate studies and/or goals.

General Education (GE) Requirements

- 72 units required, 16 of which are specified in Major and/or Support.
- If any of the remaining 56 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
A3  Critical Thinking  4

Area B  Scientific Inquiry and Quantitative Reasoning

B1  Physical Science (4 units in Support)  1
B2  Life Science (4 units in Support)  1
B3  One lab taken with either a B1 or B2 course
B4  Mathematics/Quantitative Reasoning (4 units in Support)  1
<table>
<thead>
<tr>
<th>Area</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>Arts and Humanities</td>
</tr>
<tr>
<td></td>
<td>Lower-division courses in Area C must come from three different subject prefixes.</td>
</tr>
<tr>
<td>C1</td>
<td>Arts: Arts, Cinema, Dance, Music, Theater</td>
</tr>
<tr>
<td>C2</td>
<td>Humanities: Literature, Philosophy, Languages other than English</td>
</tr>
<tr>
<td></td>
<td>Lower-Division C Elective - Select a course from either C1 or C2</td>
</tr>
<tr>
<td>C</td>
<td>Social Sciences - Select courses in Area D from at least two different prefixes</td>
</tr>
<tr>
<td>D1</td>
<td>American Institutions (Title 5, Section 40404 Requirement)</td>
</tr>
<tr>
<td>D2</td>
<td>Lower-Division D</td>
</tr>
<tr>
<td></td>
<td>Lifelong Learning and Self-Development</td>
</tr>
<tr>
<td>E</td>
<td>Ethnic Studies</td>
</tr>
<tr>
<td></td>
<td>GE Electives in Areas B, C, and D</td>
</tr>
<tr>
<td></td>
<td>Select courses from two different areas; may be lower-division or upper-division courses.</td>
</tr>
<tr>
<td></td>
<td>GE Electives (4 units in Support plus 4 units in GE)</td>
</tr>
<tr>
<td></td>
<td>Total units 56</td>
</tr>
</tbody>
</table>

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