BS AGRICULTURAL SCIENCE

Program Learning Objectives
1. Achieve a high degree of agricultural literacy.
2. Lead and direct individuals and groups in thought and action.
3. Analyze and communicate effectively the major issues in agriculture.
4. Demonstrate cultural competencies in an increasingly global agricultural industry and society.
5. Demonstrate critical thinking and problem solving skills.
6. Seamlessly and professionally integrate technology into practices.

Degree Requirements and Curriculum
In addition to the program requirements listed on this page, student 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</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGC 102</td>
<td>Orientation to Agricultural Communication &amp; Agricultural Science</td>
<td>2</td>
</tr>
<tr>
<td>AGC 404</td>
<td>Foundations of Agricultural Leadership</td>
<td>3</td>
</tr>
<tr>
<td>AGC 452</td>
<td>Current Trends and Issues in Agricultural Communication</td>
<td>4</td>
</tr>
<tr>
<td>or AG 360</td>
<td>Holistic Management</td>
<td></td>
</tr>
<tr>
<td>or AG 452</td>
<td>Issues Affecting California Agriculture</td>
<td></td>
</tr>
<tr>
<td>AGC 463</td>
<td>Senior Project</td>
<td>3</td>
</tr>
<tr>
<td>AGED 410</td>
<td>Computer Applications in Agricultural Education</td>
<td>2-4</td>
</tr>
<tr>
<td>or AGC 314</td>
<td>California Fairgrounds and Expositions</td>
<td></td>
</tr>
</tbody>
</table>

Foundation in Agriculture Courses

Agribusiness
- AGB 202 Introduction to Sales 4
- AGB 212 Agricultural Economics 4
- AGB 301 Food and Fiber Marketing 4
- or WVIT 343 Branded Wine Marketing 4

Animal Science
- ASCI 112 Principles of Animal Science (B2) 1 4
- Select from the following 8
  - ASCI 221 Introduction to Beef Production
  - ASCI 222 Systems of Swine Production
  - ASCI 223 Systems of Small Ruminant Management
  - ASCI 224 Equine Science
  - ASCI 225 Introduction to Poultry Management
  - DSCI 230 General Dairy Husbandry

Ag Systems Technology
- BRAE 121 Agricultural Mechanics 2
- BRAE 141 Agricultural Machinery Safety 3
- BRAE 321 Agricultural Safety 3
- BRAE 340 Irrigation Water Management (Upper-Division B) 1 4

Plant Science
- PLSC 120 Principles of Horticulture and Crop Science 4
- PLSC 190 California Vegetable Production (Upper-Division D) 1 4
- or PLSC 230 Environmental Horticulture
- or PLSC 240 Commercial Seed Production
- or PLSC 245 Horticultural Production Techniques

Natural Resources
- NR/ES 308 Fire and Society (Upper-Division D) 1 4
- or NR 323 Human Dimensions in Natural Resources Management

Safe Practices in Handling Food Products
- DSCI 229 General Dairy Manufacturing 4
- or FSN 230 Elements of Food Processing 4
- FSN 275 Elements of Food Safety 4

Approved Electives in Emphasis Area
Select courses from the Guide to Approved Agricultural Electives - Emphasis Areas. At least 29 units in the combination of Approved Electives and Free Electives must be at the 300-400 level. 22-24

SUPPORT COURSES
Foundation Science and Mathematics
- BOT 121 General Botany 4
- or MCRO 221 Microbiology
- or PHYS 121 College Physics I
- CHEM 110 World of Chemistry (B1 & B3) 1 4
- or CHEM 127 General Chemistry for Agriculture and Life Science I
- MATH 118 Precalculus Algebra (B4) 1,2 4
- or MATH 119 Precalculus Trigonometry
- or MATH 141 Calculus I
- or MATH 161 Calculus for the Life Sciences I
- or MATH 221 Calculus for Business and Economics

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

FREE ELECTIVES
Free Electives 3 22

Total units 180

1 Required in Major or Support; also satisfies General Education (GE) requirement.
2 MATH 116 and MATH 117 substitute.
At least 29 units of Approved Electives and Free Electives must be at the 300-400 level. Students are encouraged to consult with the academic advisor in developing a plan for fulfilling degree requirements.

Guide to Approved Agricultural Electives - Emphasis Areas

Approved Agricultural Electives have been categorized by Emphasis Area to guide students. Advisor approval of Agricultural Electives is not required, but consultation with an advisor is recommended to ensure that the required number of upper-division units is met. Also, bear in mind that selection may impact pursuit of post-baccalaureate studies and/or goals. It is imperative for students seeking a teaching credential to select one Emphasis Area and adhere to the approved list of courses.

**Emphasis Areas**

Select Emphasis Area of choice: 22-24

**Agricultural Engineering Technology**

BRAE 142 Agricultural Power and Machinery Management
BRAE 150 Design Graphics and CAD for Agricultural Engineering
BRAE 152 3-D Solids Modeling
BRAE 240 Agricultural Engineering Laboratory
BRAE 244 Precision Farming
BRAE 333 Aquacultural Engineering
BRAE 335 Internal Combustion Engines
BRAE 337 Landscape Irrigation
BRAE 348 Energy for a Sustainable Society
BRAE 438 Drip/Micro Irrigation
BRAE 440 Agricultural Irrigation Systems
BRAE 481 Advanced Agricultural Mechanics

**Agribusiness**

AGB 214 Agribusiness Financial Accounting
AGB 260 Agribusiness Data Literacy
AGB 304 Innovation and Entrepreneurship in Agriculture
AGB 309 Advanced Sales Techniques
AGB 310 Agribusiness Credit and Finance
AGB 312 Agricultural Policy
AGB 313 Agriculture Economic Analysis
AGB 322 Principles of Agribusiness Management
AGB 323 Decision Making with Agribusiness Accounting Information
AGB 369 Agricultural Personnel Management
AGB 370 World Food Economy
AGB 404 Food Retail Management
AGB 440 Field Studies in Agribusiness
AGB 445 Produce Marketing
AGC 314 California Fairgrounds and Expositions
AGC 318 Fairgrounds and Facility Management

**Animal Science**

ASCI 211 Meat Science
ASCI 212 Livestock Show Management
ASCI 220 Introductory Animal Nutrition and Feeding
ASCI 221 Introduction to Beef Production
ASCI 222 Systems of Swine Production
ASCI 223 Systems of Small Ruminant Management
ASCI 225 Introduction to Poultry Management
ASCI 226 Livestock Evaluation
ASCI 232 General Animal Science Laboratory
ASCI 239 Principles of Rangeland Laboratory
ASCI 311 Advanced Beef Cattle System Management
ASCI 321 Zoonoses and Veterinary Public Health Concerns
ASCI 325 Egg Production, Processing and Distribution
ASCI 330 Poultry Meat Production and Processing
ASCI 342 Poultry Business Management
ASCI 350 Nonruminant Nutrition
ASCI 425 Meat Industry Study Tour
DSCI 230 General Dairy Husbandry
DSCI 241 Dairy Cattle Selection, Breeds, Fitting and Showing
DSCI 301 Dairy Cattle Nutrition
DSCI 321 Lactation Physiology
DSCI 330 Artificial Insemination and Embryo Biotechnology
DSCI 333 Dairy Animal Health, Safety and Applied Technology

**Crop and Soil Science**

PLSC 150 Forage Crops
PLSC 190 California Vegetable Production
PLSC 240 Commercial Seed Production
PLSC 245 Horticultural Production Techniques
PLSC 313 Agricultural Entomology
PLSC 321 Weed Biology and Management
PLSC 323 Plant Pathology
PLSC 327 Vertebrate Pest Management
PLSC 329 Plants, Biotechnology, and the Media
PLSC 355 Citrus and Avocado Fruit Production
PLSC 406 Advanced Weed Management
PLSC 421 Postharvest Technology of Horticultural Crops
SS 221 Soil Health and Plant Nutrition
SS 322 Soil Plant Relationships
**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).

<table>
<thead>
<tr>
<th>Area A</th>
<th>English Language Communication and Critical Thinking</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Oral Communication</td>
</tr>
<tr>
<td>A2</td>
<td>Written Communication</td>
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<tr>
<td>A3</td>
<td>Critical Thinking</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Area B</th>
<th>Scientific Inquiry and Quantitative Reasoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>Physical Science (4 units in Support)</td>
</tr>
<tr>
<td>B2</td>
<td>Life Science (4 units in Major)</td>
</tr>
<tr>
<td>B3</td>
<td>One lab taken with either a B1 or B2 course</td>
</tr>
<tr>
<td>B4</td>
<td>Mathematics/Quantitative Reasoning (4 units in Support)</td>
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</tbody>
</table>

Upper-Division B (4 units in Major) | 0

<table>
<thead>
<tr>
<th>Area C</th>
<th>Arts and Humanities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower-division courses in Area C must come from three different subject prefixes.</td>
<td></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>
</tbody>
</table>

Lower-Division C Elective - Select a course from either C1 or C2 | 4

<table>
<thead>
<tr>
<th>Area D</th>
<th>Social Sciences - Select courses in Area D from at least two different prefixes</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>American Institutions (Title 5, Section 40404 Requirement)</td>
</tr>
<tr>
<td>D2</td>
<td>Lower-Division D</td>
</tr>
</tbody>
</table>

Upper-Division D (4 units in Major) | 0

<table>
<thead>
<tr>
<th>Area E</th>
<th>Lifelong Learning and Self-Development</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lower-Division E</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Area F</th>
<th>Ethnic Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Ethnic Studies</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GE Electives in Areas B, C, and D</th>
<th>Select courses from two different areas; may be lower-division or upper-division courses.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GE Electives (4 units in Major 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.