

# 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

AGC 102	Orientation to Agricultural Communication & Agricultural Science	2
AGC 404	Foundations of Agricultural Leadership	3
AGC 452	Current Trends and Issues in Agricultural Communication	4
or AG 360	Holistic Management	
or AG 452	Issues Affecting California Agriculture	
AGC 463	Senior Project	3
AGED 410	Computer Applications in Agricultural Education	2-4
or AGC 314	California Fairgrounds and Expositions	

### 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	

#### Animal Science

ASCI 112	Principles of Animal Science (B2) <sup>1</sup>	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) <sup>1</sup>	4

### Plant Science

PLSC 120	Principles of Horticulture and Crop Science	4
PLSC 190	California Vegetable Production	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) <sup>1</sup>	4
or NR 323	Human Dimensions in Natural Resources Management	
SS 120	Introductory Soil Science (GE Electives) <sup>1</sup>	4
or SS 130	Soils in Environmental and Agricultural Systems	

### Safe Practices in Handling Food Products

DSCI 229	General Dairy Manufacturing	4
or FSN 230	Elements of Food Processing	
FSN 275	Elements of Food Safety	4
or FSN 250	Food and Nutrition: Culture and Customs	

### 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.

### 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) <sup>1</sup>	4
or CHEM 127	General Chemistry for Agriculture and Life Science I	
MATH 118	Precalculus Algebra (B4) <sup>1,2</sup>	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 <sup>3</sup> 22

**Total units 180**

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

<sup>2</sup> MATH 116 and MATH 117 substitute.

<sup>3</sup> 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

AGC 425	Multimedia Storytelling in Agriculture and Science
AGC 475	Crisis Communication in Food and Agriculture
ENGL 310	Corporate Communication
<b>Animal Science</b>	
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 Management
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
<b>Crop and Soil Science</b>	
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

SS 444	Soil Judging
WVIT 300	Survey of Grape Growing and Winemaking
<b>Forestry and Natural Resources</b>	
BIO 227	Wildlife Conservation Biology
NR 142	Environmental Management
NR 208	Dendrology
NR 306	Natural Resource Ecology and Habitat Management
NR/ES 308	Fire and Society
NR 312	Technology of Wildland Fire Management
NR/LA 317	The World of Spatial Data and Geographic Information Technology
NR 321	Water Resources Technology and Society
NR 323	Human Dimensions in Natural Resources Management
NR/ES 360	Ethnicity and the Land
NR 402	Forest Health
NR/CRP 404	Environmental Law
NR/CRP 408	Water Resource Law and Policy
<b>Ornamental Horticulture</b>	
BOT 121	General Botany
BRAE 337	Landscape Irrigation
PLSC 123	Landscape Installation and Maintenance
PLSC 124	Plant Propagation
PLSC 341	Cut Flower Production
PLSC 342	Potted Plant Production
PLSC 343	Turfgrass Management
PLSC 381	Native Plants for California Landscapes
PLSC 424	Nursery Crop Production
PLSC 432	Specialized Operations for Golf Courses and Athletic Fields
PLSC 437	Park and Public Space Management

## 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
A3	Critical Thinking	4

Area B	Scientific Inquiry and Quantitative Reasoning	
B1	Physical Science (4 units in Support) <sup>1</sup>	0
B2	Life Science (4 units in Major) <sup>1</sup>	0
B3	One lab taken with either a B1 or B2 course	
B4	Mathematics/Quantitative Reasoning (4 units in Support) <sup>1</sup>	0
Upper-Division B (4 units in Major) <sup>1</sup>		0
Area C	Arts and Humanities	
Lower-division courses in Area C must come from three different subject prefixes.		
C1	Arts: Arts, Cinema, Dance, Music, Theater	4
C2	Humanities: Literature, Philosophy, Languages other than English	4
Lower-Division C Elective - Select a course from either C1 or C2		4
Upper-Division C		4
Area D	Social Sciences - Select courses in Area D from at least two different prefixes	
D1	American Institutions (Title 5, Section 40404 Requirement)	4
D2	Lower-Division D	4
Upper-Division D (4 units in Major) <sup>1</sup>		0
Area E	Lifelong Learning and Self-Development	
Lower-Division E		4
Area F	Ethnic Studies	
F	Ethnic Studies	4
GE Electives in Areas B, C, and D		
Select courses from two different areas; may be lower-division or upper-division courses.		
GE Electives (4 units in Major plus 4 units in GE) <sup>1</sup>		4
<b>Total units</b>		<b>48</b>

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