BS AGRICULTURAL SCIENCE

Program Learning Objectives
1. Possess the well-rounded subject matter breadth and depth required to effectively teach subject matter in agriculture.
2. Professionally communicate and articulate knowledge to others in multi modal, succinct and creative teaching styles.
3. Lead and direct individuals and groups in thought and action.
4. Analyze and communicate effectively about major issues in agriculture.
5. Demonstrate cultural competencies in an increasingly global agricultural industry and society.
6. Develop a high degree of agricultural literacy.
7. Demonstrate critical thinking and problem solving skills.
8. Seamlessly and professionally integrate technology into instructional 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 (http://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
AGED 102 Introduction to Agricultural Education 2
or AGC 102 Orientation to Agricultural Communication
AGED 404 Agricultural Leadership 3
AGED 410 Computer Applications in Agricultural Education 2
AGED 460 Research Methodology in Agricultural Education and Communication 1
AGED 461 Senior Project I 1
or AGC 461 Senior Project I
AGED 462 Senior Project II 1
or AGC 462 Senior Project II
AGC 452 Current Trends and Issues in Agricultural Communication 4
or AG 360 Holistic Management
or AG 450 Applied Holistic Management
or AG 452 Issues Affecting California Agriculture
AEPS 120 Principles of Horticulture and Crop Science 4
or AEPS 230 Environmental Horticulture
AGB 202 Introduction to Sales 4
AGB 212 Agricultural Economics 4
AGB 301 Food and Fiber Marketing 4
Select one from the following:

AEPS 150 Forage Crops
AEPS 190 California Vegetable Production
AEPS 250 California Fruit Growing
AEPS 260 Introduction to Vegetable Science
ASCI 112 Principles of Animal Science (B2) 1 4
ASCI 225 Introduction to Poultry Management 4
BRAE 121 Agricultural Mechanics 2
BRAE 141 Agricultural Machinery Safety 3
DSCI 230 General Dairy Husbandry 4
DSCI 231 General Dairy Manufacturing 4
or FSN 230 Elements of Food Processing
SS 121 Introductory Soil Science 4
or SS 131 Soils in Environmental and Agricultural Systems

Approved Electives in Emphasis Area
Select courses from the below Guide to Approved Electives - Emphasis Area. At least 12-20 units must be at the 300-400 level.

SUPPORT COURSES
BRAE 340 Irrigation Water Management (Area F) 1 4
CHEM 110 World of Chemistry (B3 & B4) 1 4-5
or CHEM 111 Survey of Chemistry
MATH 118 Precalculus Algebra (B1) 1,2 4
or MATH 119 Precalculus Trigonometry
NR/ES 308 Fire and Society (D5) 1 4
or NR 323 Human Dimensions in Natural Resources Management

Approved Electives in Career Area
Select courses from the below Guide to Approved Electives - Career Areas. At least 12-20 units must be at the 300-400 level.

GENERAL EDUCATION (GE)
(See GE program requirements below.) 52

FREE ELECTIVES
Free Electives 3 0-1
Total units 180

Guide to Approved Electives - Emphasis Areas
Approved electives have been categorized by emphasis area to guide students in their selections. Advisor approval of 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 (At least 12 to 20 units must be at the 300-400 level):

Agricultural Engineering Technology
Core Courses:
BRAE 133 Introduction to Engineering Design Graphics

Guide to Approved Electives - Career Areas
Select courses from the below Guide to Approved Electives - Career Areas. At least 12-20 units must be at the 300-400 level.

Approved electives have been categorized by career area to guide students in their selections. Advisor approval of 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 Career Area and adhere to the approved list of courses.

Career Areas
Select Career Area of choice (At least 12-20 units must be at the 300-400 level):

Agricultural Engineering Technology
Core Courses:
BRAE 133 Introduction to Engineering Design Graphics
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BS Agricultural Science</td>
<td>BRAE 237 Introduction to Engineering Surveying</td>
</tr>
<tr>
<td></td>
<td>or BRAE 239 Engineering Surveying</td>
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<tr>
<td></td>
<td>BRAE 321 Agricultural Safety</td>
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<td></td>
<td>BRAE 335 Internal Combustion Engines</td>
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<td>Select from the following electives:</td>
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<tr>
<td></td>
<td>BRAE 142 Agricultural Power and Machinery</td>
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<td>Management</td>
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<td></td>
<td>BRAE 151 CAD for Agricultural Engineering</td>
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<td></td>
<td>BRAE 152 3-D Solids Modeling</td>
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<td></td>
<td>BRAE 240 Agricultural Engineering Laboratory</td>
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<td></td>
<td>BRAE 331 Irrigation Theory</td>
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<td></td>
<td>BRAE 337 Landscape Irrigation</td>
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<td>BRAE 348 Energy for a Sustainable Society</td>
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<td></td>
<td>BRAE 438 Drip/Micro Irrigation</td>
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<td></td>
<td>BRAE 481 Advanced Agricultural Mechanics</td>
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<td></td>
<td>BRAE 532 Water Wells and Pumps</td>
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<tr>
<td>PHYS 121</td>
<td>College Physics I</td>
</tr>
</tbody>
</table>

### Agricultural Supplies and Services

**Core Courses:**
- AGB 214 Agribusiness Financial Accounting
- AGB 309 Advanced Sales Techniques
- AGB 310 Agribusiness Credit and Finance

**Select from the following electives:**
- AGB 260 Agribusiness Data Literacy
- AGB 312 Agricultural Policy
- AGB 313 Agriculture Economic Analysis
- AGB 314 Fair and Fair Facility Management
- AGB 322 Principles of Agribusiness Management
- AGB 323 Agribusiness Managerial Accounting
- AGB 331 Farm Accounting
- AGB 369 Agricultural Personnel Management
- AGB 404 Food Retail Management
- AGB 440 Field Studies in Agribusiness
- AGB 445 Produce Marketing
- AGB 455 Advanced Fair Management Seminar
- WVIT 343 Branded Wine Marketing

### Animal Science

**Core Courses:**
- ASCI 220 Introductory Animal Nutrition and Feeding

**Select from the following:**
- ASCI 221 Introduction to Beef Production
- ASCI 222 Systems of Swine Production
- ASCI 223 Systems of Small Ruminant Management

**Select from the following:**
- DSCI 330 Artificial Insemination and Embryo Biotechnology
- ASCI 321 Zoonoses and Veterinary Public Health Concerns
- ASCI 350 Nonruminant Nutrition

**Select from the following electives:**
- ASCI 311 Advanced Beef Cattle System Management
- ASCI 325 Egg Production, Processing and Distribution
- ASCI 329 Principles of Range Management
- ASCI 330 Poultry Meat Production and Processing
- ASCI 342 Poultry Business Management
- ASCI 425 Meat Industry Study Tour
- DSCI 301 Dairy Cattle Nutrition
- DSCI 333 Dairy Animal Health, Safety and Applied Technology

### Crop and Soil Science

**Core Courses:**
- AEP 150 Forage Crops
- SS 221 Soil Health and Plant Nutrition

**Select from the following electives (must be a course not already taken in the major):**
- AEP 321 Weed Biology and Management
- AEP 355 Citrus and Avocado Fruit Production
- AEP 421 Postharvest Technology of Horticultural Crops
- AEP 423 Advanced Vegetable Science

### Forestry and Natural Resources

**Core Courses:**
- BIO 227 Wildlife Conservation Biology
- NR 142 Environmental Management
- NR 208 Dendrology
- NR 306 Natural Resource Ecology and Habitat Management

**Select from the following electives:**
- 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 Systems Technology, Issues and Impacts
- 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

### Ornamental Horticulture

**Core Courses:**
- BOT 121 General Botany
- AEP 123 Landscape Installation and Maintenance
- AEP 124 Plant Propagation

**Select from the following electives:**
- AEP 301 Principles of Landscape Design
- AEP 341 Cut Flower Production
- AEP 342 Potted Plant Production
Guide to Approved Electives - Career Areas

The following approved electives have been categorized by career area to guide students in their selections. Advisor approval of career area 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 follow the Teaching Agriculture Career Area and adhere to the approved list of courses. No more than 8 units total of BIO, BOT, CHEM, GEOL, MCRO, MSCI, PHYS can count towards the Teaching Agriculture Electives. If you are following the Individualized Career Area and need to count more than 8 units of the course prefixes listed above, consult with your advisor for approval.

Career Areas

Select Career Area of choice (At least 12-20 units must be at the 300-400 level):

Individualized

Any course with a prefix of AEPS, AG, AGC, AGED, AGB, ASCI, BRAE, DSCI, ERSC, FSN, NR, RPTA, SS, WVIT, COMS, GRC, JOUR (that is not already counting towards GE area), or any courses included as a required course within a minor at Cal Poly.

Teaching Agriculture

AGB 214 Agribusiness Financial Accounting
or BUS 212 Financial Accounting for Nonbusiness Majors
AGED 303 FFA and Supervised Agricultural Experience
AGED 350 Early Field Experience in Agriculture Education

Teaching Agriculture Electives

Restriction: No more than 8 units total of BIO, BOT, CHEM, GEOL, MCRO, MSCI, PHYS courses can count towards Teaching Agriculture Electives.

Select 4 units from the following electives:

AGED 220 Agricultural Youth Conferences
BUS 207 Legal Responsibilities of Business
ECON 222 Macroeconomics
IME 142 Manufacturing Processes: Materials Joining
KINE 305 Drugs in Society
or KINE 443 Health Education for Teachers

Any lower division or upper division course with a prefix of AEPS, AG, AGB, ASCI, BIO, BOT, BRAE, CHEM, DSCI, ERSC, FSN, GEOL, MSCI, MCRO, MSCI, NR, PHYS, RPTA, SS, WVIT.

Select 14 units from the following electives:

Any upper division courses with a prefix of AEPS, AG, AGB, ASCI, BIO, BOT, BRAE, CHEM, DSCI, ERSC, FSN, GEOL, MSCI, NR, PHYS, RPTA, SS, WVIT.

1 Required in Major or Support; also satisfies GE.
2 MATH 116 and MATH 117 substitute.
3 The teaching credential requires specific courses. Consult with an advisor prior to developing an academic plan.
4 Students in the teaching career area pathway may not double-count this course.

General Education (GE) Requirements

- 72 units required, 20 of which are specified in Major and/or Support.
- See the complete GE course listing (http://catalog.calpoly.edu/generalrequirementsbachelorsdegree/#generaleducationtext).
- Minimum of 12 units required at the 300 level.

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<thead>
<tr>
<th>Area</th>
<th>Communication</th>
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<tbody>
<tr>
<td>A1</td>
<td>Expository Writing</td>
</tr>
<tr>
<td>A2</td>
<td>Oral Communication</td>
</tr>
<tr>
<td>A3</td>
<td>Reasoning, Argumentation and Writing</td>
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<thead>
<tr>
<th>Area</th>
<th>Science and Mathematics</th>
</tr>
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<tbody>
<tr>
<td>B1</td>
<td>Mathematics/Statistics (4 units in Support plus 4 units in GE)</td>
</tr>
<tr>
<td>B2</td>
<td>Life Science (4 units in Major)</td>
</tr>
<tr>
<td>B3</td>
<td>Physical Science (4 units in Support)</td>
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<td>B4</td>
<td>One lab taken with either a B2 or B3 course</td>
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</tbody>
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<thead>
<tr>
<th>Area</th>
<th>Arts and Humanities</th>
</tr>
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<tbody>
<tr>
<td>C1</td>
<td>Literature</td>
</tr>
<tr>
<td>C2</td>
<td>Philosophy</td>
</tr>
<tr>
<td>C3</td>
<td>Fine/Performing Arts</td>
</tr>
<tr>
<td>C4</td>
<td>Upper-division elective</td>
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<tr>
<td>Area C elective</td>
<td>(Choose one course from C1-C5)</td>
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<thead>
<tr>
<th>Area</th>
<th>Society and the Individual</th>
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<tbody>
<tr>
<td>D1</td>
<td>The American Experience (Title 5, Section 40404 requirement)</td>
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<tr>
<td>D2</td>
<td>Political Economy</td>
</tr>
<tr>
<td>D3</td>
<td>Comparative Social Institutions</td>
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<tr>
<td>D4</td>
<td>Self Development (CSU Area E)</td>
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<td>D5</td>
<td>Upper-division elective (4 units in Support)</td>
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<tr>
<th>Area</th>
<th>Technology</th>
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<tr>
<td>F</td>
<td>Upper-division elective (4 units in Support)</td>
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</tbody>
</table>

Total units 52

1 Required in Major or Support; also satisfies GE.
Teaching candidates are advised to take KINE 250.