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) 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) 4
CHEM 110    World of Chemistry (B3 & B4) 4-5
or CHEM 111  Survey of Chemistry
MATH 118    Precalculus Algebra (B1) 4
or MATH 119  Precalculus Trigonometry
NR/ES 308    Fire and Society (D5) 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 Area. 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): 24

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

**Agricultural Supplies and Services**

**Core Courses:**
- AGB 214 | Agribusiness Financial Accounting 4
- 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 two from the following:
- ASCI 221 | Introduction to Beef Production
- ASCI 222 | Systems of Swine Production
- ASCI 223 | Systems of Small Ruminant Management

Select one 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:**
- AEPS 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):
- AEPS 321 | Weed Biology and Management
- AEPS 355 | Citrus and Avocado Fruit Production
- AEPS 421 | Postharvest Technology of Horticultural Crops
- AEPS 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
- AEPS 123 | Landscape Installation and Maintenance
- AEPS 124 | Plant Propagation

Select from the following electives:
- AEPS 301 | Principles of Landscape Design
- AEPS 341 | Cut Flower Production
- AEPS 342 | Potted Plant Production
BS Agricultural Science

AEPS 343 Turfgrass Management
AEPS 381 Native Plants for California Landscapes
AEPS 424 Nursery Crop Production
AEPS 432 Specialized Operations for Golf Courses and Athletic Fields
AEPS 437 Park and Public Space Management
BRAE 337 Landscape Irrigation

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, GEO, 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, GEO, 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.

Area A

Communication
A1 Expository Writing 4
A2 Oral Communication 4
A3 Reasoning, Argumentation and Writing 4

Area B

Science and Mathematics
B1 Mathematics/Statistics (4 units in Support plus 4 units in GE) 1 4
B2 Life Science (4 units in Major) 1 0
B3 Physical Science (4 units in Support) 1 0
B4 One lab taken with either a B2 or B3 course

Area C

Arts and Humanities
C1 Literature 4
C2 Philosophy 4
C3 Fine/Performing Arts 4
C4 Upper-division elective 4
Area C elective (Choose one course from C1-C5) 4

Area D/E

Society and the Individual
D1 The American Experience (Title 5, Section 40404 requirement) 4
D2 Political Economy 4
D3 Comparative Social Institutions 4
D4 Self Development (CSU Area E) 2 4
D5 Upper-division elective (4 units in Support) 1 0

Area F

Technology
F Upper-division elective (4 units in Support) 1 0

Total units 52

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