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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGED 102</td>
<td>Introduction to Agricultural Education</td>
<td>2</td>
</tr>
<tr>
<td>AGED 404</td>
<td>Agricultural Leadership</td>
<td>3</td>
</tr>
<tr>
<td>AGED 410</td>
<td>Computer Applications in Agricultural Education</td>
<td>2</td>
</tr>
<tr>
<td>AGED 460</td>
<td>Research Methodology in Agricultural Education</td>
<td>1</td>
</tr>
<tr>
<td>AGED 461</td>
<td>Senior Project I</td>
<td>1</td>
</tr>
<tr>
<td>AGED 462</td>
<td>Senior Project II</td>
<td>1</td>
</tr>
<tr>
<td>AGC 452</td>
<td>Current Trends and Issues in Agricultural Education</td>
<td>4</td>
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<tr>
<td>AGC 461</td>
<td>Senior Project I</td>
<td>1</td>
</tr>
<tr>
<td>AGC 462</td>
<td>Senior Project II</td>
<td>1</td>
</tr>
<tr>
<td>AEPS 120</td>
<td>Principles of Horticulture and Crop Science</td>
<td>4</td>
</tr>
<tr>
<td>AEPS 230</td>
<td>Environmental Horticulture</td>
<td>4</td>
</tr>
<tr>
<td>AGB 202</td>
<td>Introduction to Sales</td>
<td>4</td>
</tr>
<tr>
<td>AGB 212</td>
<td>Agricultural Economics</td>
<td>4</td>
</tr>
<tr>
<td>AGB 301</td>
<td>Food and Fiber Marketing</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one from the following:

### SUPPORT COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRAE 340</td>
<td>Irrigation Water Management (Area F)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>World of Chemistry (B3 &amp; B4)</td>
<td>4-5</td>
</tr>
<tr>
<td>CHEM 111</td>
<td>Survey of Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>MATH 118</td>
<td>Precalculus Algebra (B1)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 119</td>
<td>Precalculus Trigonometry</td>
<td>4</td>
</tr>
<tr>
<td>NR/ES 308</td>
<td>Fire and Society (D5)</td>
<td>4</td>
</tr>
<tr>
<td>NR 323</td>
<td>Human Dimensions in Natural Resources Management</td>
<td>4</td>
</tr>
<tr>
<td>ASCI 112</td>
<td>Principles of Animal Science (B2)</td>
<td>4</td>
</tr>
<tr>
<td>ASCI 225</td>
<td>Introduction to Poultry Management</td>
<td>4</td>
</tr>
<tr>
<td>BRAE 121</td>
<td>Agricultural Mechanics</td>
<td>2</td>
</tr>
<tr>
<td>BRAE 141</td>
<td>Agricultural Machinery Safety</td>
<td>3</td>
</tr>
<tr>
<td>DSCI 230</td>
<td>General Dairy Husbandry</td>
<td>4</td>
</tr>
<tr>
<td>DSCI 231</td>
<td>General Dairy Manufacturing</td>
<td>4</td>
</tr>
<tr>
<td>SS 121</td>
<td>Introductory Soil Science</td>
<td>4</td>
</tr>
<tr>
<td>SS 131</td>
<td>Soils in Environmental and Agricultural Systems</td>
<td>4</td>
</tr>
</tbody>
</table>

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

#### MAJOR COURSES

- 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)
- ASCI 225 Introduction to Poultry Management
- BRAE 121 Agricultural Mechanics
- BRAE 141 Agricultural Machinery Safety
- DSCI 230 General Dairy Husbandry
- DSCI 231 General Dairy Manufacturing
- SS 121 Introductory Soil Science
- SS 131 Soils in Environmental and Agricultural Systems

### 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.

#### MAJOR COURSES

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

#### FREE ELECTIVES
Free Electives

Total units

### 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
BRAE 237  Introduction to Engineering Surveying
or BRAE 239  Engineering Surveying
BRAE 321  Agricultural Safety
BRAE 335  Internal Combustion Engines

Select from the following electives:
BRAE 142  Agricultural Power and Machinery Management
BRAE 151  CAD for Agricultural Engineering
BRAE 152  3-D Solids Modeling
BRAE 240  Agricultural Engineering Laboratory
BRAE 331  Irrigation Theory
BRAE 337  Landscape Irrigation
BRAE 348  Energy for a Sustainable Society
BRAE 438  Drip/Micro Irrigation
BRAE 481  Advanced Agricultural Mechanics
BRAE 532  Water Wells and Pumps
PHYS 121  College Physics I

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 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:
AEP 310  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
Any lower division or upper division course with a prefix of AEPS, AG, AGB, ASCI, BIO, BOT, BRAE, CHEM, DSCI, ERSC, FSN, GEOL, 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, MCRO, 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.

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

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
B2 Life Science (4 units in Major) 1
B3 Physical Science (4 units in Support) 1
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
D5 Upper-division elective (4 units in Support) 1

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

Total units 52

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