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 2
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 1
AGED 462 Senior Project II 1
or AGC 462 Senior Project II 1
AGC 452 Current Trends and Issues in Agricultural Communication 4
or AG 360 Holistic Management 3
or AG 450 Applied Holistic Management 3
or AG 452 Issues Affecting California Agriculture 3
AEPS 120 Principles of Horticulture and Crop Science 4
or AEPS 230 Environmental Horticulture 4
AGB 202 Introduction to Sales 4
AGB 212 Agricultural Economics 4
AGB 301 Food and Fiber Marketing 4
Select one from the following: 4

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.

SUPPORT COURSES
BRAE 340 Irrigation Water Management (Area F) 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

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 4
BRAE 237 or BRAE 239  
Introduction to Engineering Surveying  
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 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 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
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):

<table>
<thead>
<tr>
<th>Individualized</th>
<th>Teaching Agriculture Electives</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGB 214 Agribusiness Financial Accounting or BUS 212 Financial Accounting for Nonbusiness Majors</td>
<td></td>
</tr>
<tr>
<td>AGED 303 FFA and Supervised Agricultural Experience</td>
<td></td>
</tr>
<tr>
<td>AGED 350 Early Field Experience in Agriculture Education</td>
<td></td>
</tr>
<tr>
<td>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:</td>
<td></td>
</tr>
<tr>
<td>AGED 220 Agricultural Youth Conferences</td>
<td></td>
</tr>
<tr>
<td>BUS 207 Legal Responsibilities of Business</td>
<td></td>
</tr>
<tr>
<td>ECON 222 Macroeconomics</td>
<td></td>
</tr>
<tr>
<td>IME 142 Manufacturing Processes: Materials Joining</td>
<td></td>
</tr>
<tr>
<td>KINE 305 Drugs in Society or KINE 443 Health Education for Teachers</td>
<td></td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Area A</th>
<th>Communication</th>
</tr>
</thead>
<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>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area B</th>
<th>Science and Mathematics</th>
</tr>
</thead>
<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>
</tr>
<tr>
<td>B4</td>
<td>One lab taken with either a B2 or B3 course</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area C</th>
<th>Arts and Humanities</th>
</tr>
</thead>
<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>
</tr>
<tr>
<td>Area C elective</td>
<td>(Choose one course from C1-C5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area D/E</th>
<th>Society and the Individual</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>The American Experience (Title 5, Section 40404 requirement)</td>
</tr>
<tr>
<td>D2</td>
<td>Political Economy</td>
</tr>
<tr>
<td>D3</td>
<td>Comparative Social Institutions</td>
</tr>
<tr>
<td>D4</td>
<td>Self Development (CSU Area E)</td>
</tr>
<tr>
<td>D5</td>
<td>Upper-division elective (4 units in Support)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area F</th>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Upper-division elective (4 units in Support)</td>
</tr>
</tbody>
</table>

Total units 52

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