BS AGRICULTURAL SYSTEMS MANAGEMENT

Program Learning Objectives
1. An ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly defined engineering problems appropriate to the discipline;
2. An ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline;
3. An ability to apply written, oral, and graphical communication in broadly defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;
4. An ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes; and
5. An ability to function effectively as a member or leader on a technical team.
6. An understanding of basic agricultural technologies and agribusiness principles necessary for technical operations and business management careers in agriculture and related industries.

Degree Requirements and Curriculum
In addition to the program requirements listed on this page, students 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.

<table>
<thead>
<tr>
<th>MAJOR COURSES</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRAE 128</td>
<td>Careers in Bioresource and Agricultural Engineering</td>
<td>2</td>
</tr>
<tr>
<td>BRAE 129</td>
<td>Laboratory Skills and Safety</td>
<td>1</td>
</tr>
<tr>
<td>BRAE 142</td>
<td>Agricultural Power and Machinery Management</td>
<td>4</td>
</tr>
<tr>
<td>BRAE 150</td>
<td>Design Graphics and CAD for Agricultural Engineering</td>
<td>2</td>
</tr>
<tr>
<td>BRAE 152</td>
<td>3-D Solids Modeling</td>
<td>1</td>
</tr>
<tr>
<td>BRAE 203</td>
<td>Agricultural Systems Analysis</td>
<td>4</td>
</tr>
<tr>
<td>BRAE 237</td>
<td>Introduction to Engineering Surveying</td>
<td>2-4</td>
</tr>
<tr>
<td></td>
<td>or BRAE 239</td>
<td>Engineering Surveying</td>
</tr>
<tr>
<td>BRAE 301</td>
<td>Hydraulic and Mechanical Power Systems</td>
<td>4</td>
</tr>
<tr>
<td>BRAE 317</td>
<td>Agricultural Systems Management Theory</td>
<td>4</td>
</tr>
<tr>
<td>BRAE 321</td>
<td>Agricultural Safety</td>
<td>3</td>
</tr>
<tr>
<td>BRAE 324</td>
<td>Principles of Agricultural Electrification</td>
<td>4</td>
</tr>
<tr>
<td>BRAE 340</td>
<td>Irrigation Water Management</td>
<td>4</td>
</tr>
<tr>
<td>BRAE 342</td>
<td>Agricultural Materials</td>
<td>4</td>
</tr>
<tr>
<td>BRAE 343</td>
<td>Mechanical Systems Analysis</td>
<td>4</td>
</tr>
<tr>
<td>BRAE 348</td>
<td>Energy for a Sustainable Society (B7)</td>
<td>4</td>
</tr>
<tr>
<td>BRAE 418</td>
<td>Agricultural Systems Management I</td>
<td>4</td>
</tr>
<tr>
<td>BRAE 419</td>
<td>Agricultural Systems Management II</td>
<td>4</td>
</tr>
<tr>
<td>BRAE 425</td>
<td>Computer Controls for Agriculture</td>
<td>3</td>
</tr>
<tr>
<td>BRAE 432</td>
<td>Agricultural Buildings</td>
<td>4</td>
</tr>
<tr>
<td>BRAE 438</td>
<td>Drip/Micro Irrigation</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>or BRAE 440</td>
<td>Agricultural Irrigation Systems</td>
</tr>
<tr>
<td>BRAE 460</td>
<td>Senior Project Organization</td>
<td>1</td>
</tr>
<tr>
<td>BRAE 461</td>
<td>Senior Project I</td>
<td>2</td>
</tr>
</tbody>
</table>

Approved Electives 2, 3
See Approved Electives below 16

<table>
<thead>
<tr>
<th>SUPPORT COURSES</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGB 212</td>
<td>Agricultural Economics</td>
<td>4</td>
</tr>
<tr>
<td>AGB 310</td>
<td>Agribusiness Credit and Finance</td>
<td>4</td>
</tr>
<tr>
<td>AGB 369</td>
<td>Agricultural Personnel Management</td>
<td>4</td>
</tr>
<tr>
<td>BUS 212</td>
<td>Financial Accounting for Nonbusiness Majors</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>or AGB 214</td>
<td>Agribusiness Financial Accounting</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>World of Chemistry (B3&amp;B4)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>or CHEM 127</td>
<td>General Chemistry for Agriculture and Life Science I</td>
</tr>
<tr>
<td>ENGL/COMS 145</td>
<td>Reasoning, Argumentation, and Writing (A3)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>or ENGL 148</td>
<td>Reasoning, Argumentation and Professional Writing</td>
</tr>
</tbody>
</table>

Select from the following: 4

| MATH 119       | Precalculus Trigonometry (B1) | 1     |
| STAT 217       | Introduction to Statistical Concepts and Methods (B1) | 1     |
| STAT 218       | Applied Statistics for the Life Sciences (B1) | 1     |
| MATH 221       | Calculus for Business and Economics (B1) | 4     |
| PHYS 121       | College Physics I | 4     |
| SS 120         | Introductory Soil Science | 4     |

Animal or Plant Production Course
Any AEPS, ASCI, DSCI course except for internship or enterprise courses.

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

FREE ELECTIVES
Free Electives 0
Total units 180-182

Approved Electives
Minimum of 9 units must be upper division
No more than 4 units of internship or enterprise may be used
Select from the following: 16

<table>
<thead>
<tr>
<th>Approved Electives</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any AGB course eligible for the Agribusiness minor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGED 102</td>
<td>Introduction to Agricultural Education</td>
<td></td>
</tr>
</tbody>
</table>

Note: No major or support courses may be selected as credit/no credit.
BRAE 200  Special Problems for Undergraduates (4 units maximum)  
BRAE 236  Principles of Irrigation  
BRAE 302  Servo Hydraulics  
BRAE 331  Irrigation Theory  
BRAE 333  Aquacultural Engineering  
BRAE 335  Internal Combustion Engines  
BRAE 337  Landscape Irrigation  
BRAE 344  Fabrication Systems  
BRAE 345  Aerial Photogrammetry and Remote Sensing  
BRAE 400  Special Problems (4 units maximum)  
BRAE 405  Chemigation  
BRAE/EE 434  Automotive Engineering for a Sustainable Future  
BRAE 435  Drainage  
BRAE 436  Food and Agriculture Process Water Engineering  
BRAE 438  Drip/Micro Irrigation  or BRAE 440  Agricultural Irrigation Systems  
BRAE 447  Advanced Surveying with GIS Applications  
BRAE 448  Bioconversion  
BRAE 450  Solar Photovoltaic System Engineering  
BRAE 532  Water Wells and Pumps  
CHEM 212  Introduction to Organic Chemistry  
FSN 125  Introduction to Food Science  
FSN 204  Food Processing Operations  
FSN 230  Elements of Food Processing  
FSN 275  Elements of Food Safety  
FSN 330  Introduction to Principles of Food Engineering  
FSN 334  Food Packaging  
FSN 341  Fermented Foods  
FSN 354  Packaging Function in Food Processing  
FSN 370  Food Plant Sanitation and Prerequisite Programs  
FSN 375  Food Safety  
FSN 444  Food Engineering  
IME 141  Manufacturing Processes: Net Shape  
IME 142  Manufacturing Processes: Materials Joining  
IME 143  Manufacturing Processes: Material Removal  
IME 144  Introduction to Design and Manufacturing  
IME 319  Human Factors Engineering  
IME 320  Human Factors and Technology  
ITP 330  Packaging Fundamentals  
ITP 341  Packaging Polymers and Processing  
NR/LA 218  Introduction to Geographic Information Systems (GIS)  
NR 306  Natural Resource Ecology and Habitat Management  
NR/CRP 408  Water Resource Law and Policy  
NR 416  Environmental Impact Analysis and Management  
SS 221  Soil Health and Plant Nutrition  
**Animal or Plant Production Course**  
Any AEPS, ASCI and DSCI course.

Total units: 16

1. Required in Major or Support; also satisfies GE.
2. if a course is taken to meet a major requirement, it cannot be double-counted as an approved elective.
3. Consultation with advisor is recommended prior to selecting approved electives; bear in mind your selections may impact pursuit of post-baccalaureate studies and/or goals.

**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 units in Support)  
Area B  Math, Science, and Quantitative Reasoning  
B1  Mathematics/Statistics (8 units in Support)  
B2  Life Science  4  
B3  Physical Science (4 units in Support)  
B4  One lab taken with either a B2 or B3 course  
B7  Upper-division elective (4 units in Major)  
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  Society and the Individual  
D1  The American Experience (Title 5, Section 40404 requirement)  4  
D2  Political Economy  4  
D3  Comparative Social Institutions  4  
D5  Upper-division elective  4  
Area E  Lifelong Learning and Self-Development  

E  
Lower-division elective  

4

Total units  

52

1 Required in Major or Support; also satisfies GE.