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.

MAJOR COURSES

<table>
<thead>
<tr>
<th>Course</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>or BRAE 239</td>
<td>Engineering Surveying</td>
<td></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 (Upper-Division B)</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>or BRAE 440</td>
<td>Agricultural Irrigation Systems</td>
<td></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

SUPPORT COURSES

<table>
<thead>
<tr>
<th>Course</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>or AGB 214</td>
<td>Agribusiness Financial Accounting</td>
<td></td>
</tr>
<tr>
<td>CHEM 110</td>
<td>World of Chemistry (B1 &amp; B3)</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 127</td>
<td>General Chemistry for Agriculture and Life Science I</td>
<td></td>
</tr>
<tr>
<td>ENGL/COMS 145</td>
<td>Reasoning, Argumentation, and Writing (A3)</td>
<td>4</td>
</tr>
<tr>
<td>or ENGL 148</td>
<td>Reasoning, Argumentation and Professional Writing</td>
<td></td>
</tr>
</tbody>
</table>

Select from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 119</td>
<td>Precalculus Trigonometry (B4)</td>
<td>1</td>
</tr>
<tr>
<td>STAT 217</td>
<td>Introduction to Statistical Concepts and Methods (B4)</td>
<td></td>
</tr>
<tr>
<td>STAT 218</td>
<td>Applied Statistics for the Life Sciences (B4)</td>
<td>1</td>
</tr>
<tr>
<td>MATH 221</td>
<td>Calculus for Business and Economics (GE Electives)</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 121</td>
<td>College Physics I</td>
<td>4</td>
</tr>
<tr>
<td>SS 120</td>
<td>Introductory Soil Science</td>
<td>4</td>
</tr>
</tbody>
</table>

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

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

FREE ELECTIVES

Free Electives

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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>any AGB course eligible for the Agribusiness minor</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>AGED 102</td>
<td>Introduction to Agricultural Education</td>
<td>1</td>
</tr>
</tbody>
</table>
**General Education (GE) Requirements**

- 72 units required, 20 of which are specified in Major and/or Support.
- If any of the remaining 52 units is used to satisfy a Major or Support requirement, additional units of Free Electives may be needed to complete the total units required for the degree.
- See the complete GE course listing (http://catalog.calpoly.edu/generalrequirementsbachelorsdegree/#generaleducationtext).
- A grade of C- or better is required in one course in each of the following GE Areas: A1 (Oral Communication), A2 (Written Communication), A3 (Critical Thinking), and B4 (Mathematics/Quantitative Reasoning).

### Area A

**English Language Communication and Critical Thinking**

<table>
<thead>
<tr>
<th>Area</th>
<th>Course Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Oral Communication</td>
<td>4</td>
</tr>
<tr>
<td>A2</td>
<td>Written Communication</td>
<td>4</td>
</tr>
<tr>
<td>A3</td>
<td>Critical Thinking (4 units in Support)</td>
<td>0</td>
</tr>
</tbody>
</table>

### Area B

**Scientific Inquiry and Quantitative Reasoning**

<table>
<thead>
<tr>
<th>Area</th>
<th>Course Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>Physical Science (4 units in Support)</td>
<td>1</td>
</tr>
<tr>
<td>B2</td>
<td>Life Science</td>
<td>4</td>
</tr>
<tr>
<td>B3</td>
<td>One lab taken with either a B1 or B2 course</td>
<td>0</td>
</tr>
<tr>
<td>B4</td>
<td>Mathematics/Quantitative Reasoning (4 units in Support)</td>
<td>1</td>
</tr>
</tbody>
</table>

### Area C

**Arts and Humanities**

Lower-division courses in Area C must come from three different subject prefixes.

<table>
<thead>
<tr>
<th>Area</th>
<th>Course Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>Arts: Arts, Cinema, Dance, Music, Theater</td>
<td>4</td>
</tr>
<tr>
<td>C2</td>
<td>Humanities: Literature, Philosophy, Languages other than English</td>
<td>4</td>
</tr>
</tbody>
</table>

Lower-Division C Elective - Select a course from either C1 or C2

<table>
<thead>
<tr>
<th>Area</th>
<th>Course Description</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2</td>
<td>lower-division elective</td>
<td>4</td>
</tr>
<tr>
<td>Area D</td>
<td>Social Sciences</td>
<td>Units</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>D1</td>
<td>American Institutions (Title 5, Section 40404 Requirement)</td>
<td>4</td>
</tr>
<tr>
<td>D2</td>
<td>Lower-Division D - Select courses from two different subject prefixes.</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Upper-Division D</td>
<td>4</td>
</tr>
<tr>
<td>Area E</td>
<td>Lifelong Learning and Self-Development</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lower-Division E</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>GE Electives in Areas B, C, and D</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select courses from two different areas; may be lower-division or upper-division courses.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GE Electives (4 units in Support plus 4 units in GE)</td>
<td>4</td>
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<tr>
<td></td>
<td>Total units</td>
<td>52</td>
</tr>
</tbody>
</table>

1 Required in Major or Support; also satisfies General Education (GE) requirement.