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

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

Approved Electives
See Approved Electives below

SUPPORT COURSES

AGB 212 Agricultural Economics 4
AGB 310 Agribusiness Credit and Finance 4
AGB 369 Agricultural Personnel Management 4
BUS 212 Financial Accounting for Nonbusiness Majors 4
or AGB 214 Agribusiness Financial Accounting
CHEM 110 World of Chemistry (B3&B4) 1 4
or CHEM 127 General Chemistry for Agriculture and Life Science I
ENGL/COMS 145 Reasoning, Argumentation, and Writing (A3) 1 4
or ENGL 148 Reasoning, Argumentation and Professional Writing
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
AGED 102 Introduction to Agricultural Education

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
Any AGB course eligible for the Agribusiness minor
AGED 102 Introduction to Agricultural Education
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.

<table>
<thead>
<tr>
<th>Area A</th>
<th>Communication</th>
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<tbody>
<tr>
<td>A1</td>
<td>Expository Writing</td>
</tr>
<tr>
<td>A2</td>
<td>Oral Communication</td>
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<tr>
<td>A3</td>
<td>Reasoning, Argumentation and Writing (4 units in Support)</td>
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<table>
<thead>
<tr>
<th>Area B</th>
<th>Math, Science, and Quantitative Reasoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>Mathematics/Statistics (8 units in Support)</td>
</tr>
<tr>
<td>B2</td>
<td>Life Science</td>
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<td>B3</td>
<td>Physical Science (4 units in Support)</td>
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<td>B4</td>
<td>One lab taken with either a B2 or B3 course</td>
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<tr>
<td>B7</td>
<td>Upper-division elective (4 units in Major)</td>
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<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>
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<tr>
<td>Area C elective</td>
<td>(Choose one course from C1-C5)</td>
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<thead>
<tr>
<th>Area D</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>
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<tr>
<td>D5</td>
<td>Upper-division elective</td>
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<thead>
<tr>
<th>Area E</th>
<th>Lifelong Learning and Self-Development</th>
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<tbody>
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<td>Lower-division elective</td>
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<td>Total units</td>
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1 Required in Major or Support; also satisfies GE.