AGRICULTURAL & ENVIRONMENTAL EDUCATION, BACHELOR OF SCIENCE

College of Agricultural & Environmental Sciences

The Major Program

The major serves those interested in teaching agricultural and environmental sciences in K-12 classrooms or in nonformal settings such as food production and distribution systems, nature preserves, environmental camps, or other venues. This major prepares graduates to direct programs in the agricultural and environmental sciences as well as provides them with a skill set necessary to work within social science careers related to these fields. This program of study meets state and federal requirements for entry into teacher preparation in agriculture and science, as well as requirements in Career Technical Education (CTE).

The Program

The program is designed to provide students with a broad background in various agricultural and environmental science disciplines, e.g., animal science, environmental science, plant and soil science, agricultural engineering, business management, agro ecology, and horticulture. The program also focuses on the social sciences related to human resource development. The program provides students with practical experiences through fieldwork, school, and non-formal learning sites placements, or placement in sites related to a student's focus of study. Through this major students will have the opportunity to explore and then incorporate agricultural and environmental issues into educational and development settings.

Career Alternatives

The need for scientists, technicians, and educators to assist in domestic and international agricultural development and environmental programs has created a continuing demand for qualified instructors and supervisory personnel. This major also provides general preparation for positions in banking, sales and service, rural recreation, related agricultural and environmental sectors. Students interested in obtaining breadth in both agricultural and environmental sciences will appreciate the scope and flexibility the major provides.

Lead Faculty Advisor

Deanne Meyer, Professor of Cooperative Extension/Lecturer

Major Advisors

Lynn Martindale, Lecturer/Supervisor School of Education

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIS 017A</td>
<td>History of the United States</td>
<td>4</td>
</tr>
<tr>
<td>or POL 001</td>
<td>American National Government</td>
<td></td>
</tr>
</tbody>
</table>

Preparatory Subject Matter

Choose a minimum of 8 units in each area of Animal Science, Applied Biological Systems Technology, Agricultural Business & Economics, Environmental Horticulture, Environmental Science & Natural Resources, and Plant & Soil Science:

Animal Science 8

Preparatory Subject Matter Subtotal 51

Science/Math Preparatory

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIS 002A</td>
<td>Introduction to Biology. Essentials of Life on Earth</td>
<td>10</td>
</tr>
<tr>
<td>BIS 002B</td>
<td>Introduction to Biology. Principles of Ecology &amp; Evolution</td>
<td></td>
</tr>
<tr>
<td>CHE 002A</td>
<td>General Chemistry</td>
<td>10</td>
</tr>
<tr>
<td>CHE 002B</td>
<td>General Chemistry</td>
<td></td>
</tr>
<tr>
<td>GEL 001</td>
<td>The Earth</td>
<td>6</td>
</tr>
<tr>
<td>GEL 020</td>
<td>Geology of California</td>
<td></td>
</tr>
</tbody>
</table>

Mathematics, choose a series:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 016A</td>
<td>Short Calculus</td>
<td>6-8</td>
</tr>
<tr>
<td>MAT 016B</td>
<td>Short Calculus</td>
<td></td>
</tr>
</tbody>
</table>

OR

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 017A</td>
<td>Calculus for Biology &amp; Medicine</td>
<td></td>
</tr>
<tr>
<td>MAT 017B</td>
<td>Calculus for Biology &amp; Medicine</td>
<td></td>
</tr>
</tbody>
</table>
Agricultural & Environmental Education, Bachelor of Science

OR
MAT 021A Calculus
MAT 021B Calculus

Physics
PHY 007A General Physics
PHY 007B General Physics

Soil Science
SSC 010 Soils in Our Environment

Science/Math Preparatory Subtotal 43-45

Depth Subject Matter
Agricultural Education 6
AED 100 Concepts in Agricultural & Environmental Education
AED 160 Vocational Education

Education 10
EDU 110 Educational Psychology: General
EDU 115 Educating Children with Disabilities
EDU 142 Introduction to Environmental Education

Environmental Science & Policy 4
ESP 110 Principles of Environmental Science

Depth Subject Matter Subtotal 20

Focused Depth Subject Matter 16
The specialized focus will consist of a minimum of 16 units in one of the six areas listed below:

Agricultural Business & Economics (p. 2)
Animal Science (p. 2)
Applied Biological Systems Technology (p. 2)
Environmental Horticulture (p. 2)
Environmental Science & Natural Resources (p. 2)
Plant & Soil Science (p. 3)

Subtotal 16

Restricted Electives 16
Choose at least four additional upper division courses (minimum 16 units; duplicate from Depth specialization courses not counted) selected with approval of an advisor to supplement or expand depth subject matter courses chosen from Animal Biology, Animal Genetics, Animal Science, Agricultural & Resource Economics, Avian Sciences, Environmental Horticulture, Environmental & Resource Sciences, Environmental Science & Policy, Food Science & Technology, International Agricultural Development, Nature and Culture, Neurobiology, Physiology, & Behavior, Nutrition, Plant Sciences, Plant Biology, or Viticulture & Enology.

Subtotal 16

Total Units 150-152

Agricultural Business & Economics
Code Title Units
ARE 100A Intermediate Microeconomics: Theory of Production & Consumption 4
ARE 100B Intermediate Microeconomics: Imperfect Competition, Markets & Welfare Economics 4
ARE 120 Agricultural Policy 4
ARE 130 Agricultural Markets 4
ARE 135 Agribusiness Marketing Plan Development 2
ARE 138 International Commodity & Resource Markets 4
ARE 140 Farm Management 4
ARE 150 Agricultural Labor 4
ARE/ESP 175 Natural Resource Economics 4
ARE 176 Environmental Economics 4

Animal Science
Code Title Units
Choose upper division units from any Animal Genetics, Animal Science, or Avian Sciences courses. Or choose from:

ABI 102 Animal Biochemistry & Metabolism 4
FST 109 Principles of Quality Assurance in Food Processing 4
NPB 101 Systemic Physiology 4
NPB 121 Physiology of Reproduction 4
NUT 115 Animal Nutrition 4
NUT 122 Ruminant Nutrition & Digestive Physiology 4
NUT 123 Comparative Animal Nutrition 4

Applied Biological Systems Technology
Code Title Units
ABT 121 Animal Housing & Environment Management 2
ABT/IAD 142 Equipment & Technology for Small Farms 2
ABT 161 Water Quality Management for Aquaculture 3
ABT/SAF 165 Irrigation Practices for an Urban Environment 3
ABT/HYD 182 Environmental Analysis Using GIS 4

Environmental Horticulture
Code Title Units
ENH 102 Physiological Principles in Environmental Horticulture 4
ENH 105 Taxonomy & Ecology of Environmental Plant Families 4
ENH 120 Management of Container Media 3
ENH 125 Greenhouse & Nursery Crop Production 5
ENH 133 Woody Plants in the Landscape: Growth, Ecology & Management 4
ENH 160 Restoration Ecology 4
PLS 150 Sustainability & Agroecosystem Management 4

Environmental Science & Natural Resources
Code Title Units
ESP 100 General Ecology 4
ESP/ANT 101 Ecology, Nature, & Society 4
ESP 110 Principles of Environmental Science 4
ESP 123 Introduction to Field & Laboratory Methods in Ecology 4
### ESP 151
Limnology 4

### ESP 161
Environmental Law 4

### ESP 170
Conservation Biology Policy 4

### EVE 101
Introduction to Ecology 4

### EVE 115
Marine Ecology 4

### PLS 101
Agriculture & the Environment 3

### PLS 105
Concepts in Pest Management 3

### WFC 110
Biology & Conservation of Wild Mammals 3

### WFC 111
Biology & Conservation of Wild Birds 3

### WFC 120
Biology & Conservation of Fishes 3

### WFC 154
Conservation Biology 4

## Plant & Soil Science

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLB/PLS 102</td>
<td>California Floristics</td>
<td>5</td>
</tr>
<tr>
<td>PLB 105</td>
<td>Developmental Plant Anatomy</td>
<td>5</td>
</tr>
<tr>
<td>PLB/PLS 116</td>
<td>Plant Morphology &amp; Evolution</td>
<td>5</td>
</tr>
<tr>
<td>PLB/EVE 117</td>
<td>Plant Ecology</td>
<td>4</td>
</tr>
<tr>
<td>PLS 150</td>
<td>Sustainability &amp; Agroecosystem Management</td>
<td>4</td>
</tr>
<tr>
<td>SSC 100</td>
<td>Principles of Soil Science</td>
<td>5</td>
</tr>
<tr>
<td>SSC 102</td>
<td>Environmental Soil Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>SSC 118</td>
<td>Soils in Land Use &amp; the Environment</td>
<td>4</td>
</tr>
<tr>
<td>VEN 101A</td>
<td>Viticultural Practices</td>
<td>3</td>
</tr>
<tr>
<td>VEN 101C</td>
<td>Viticultural Practices</td>
<td>3</td>
</tr>
</tbody>
</table>