

# 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

Code	Title	Units
<b>Government/U.S. Constitution</b>		
HIS 017A or POL 001	History of the United States American National Government	4
Subtotal		4
<b>Preparatory Subject Matter</b>		
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:		
<i>Animal Science</i>		8

ANS 001	Domestic Animals & People	
ANS 002	Introductory Animal Science	
ANS 021	Livestock & Dairy Cattle Judging	
ANS 041	Domestic Animal Production	
<i>Applied Biological Systems Technology</i>		9
ABT 016	Metal Properties & Fabrication	
ABT 049	Field Equipment Operation	
ABT 052	Field Equipment Welding	
ABT 101	Engine Technology	
<i>Agricultural Business &amp; Economics; choose ARE 015 and ECN 001A or 001B</i>		8
ARE 015	Population, Environment & World Agriculture	
ECN 001A or ECN 001AV or ECN 001AY or ECN 001B or ECN 001BV	Principles of Microeconomics Principles of Microeconomics Principles of Microeconomics Principles of Macroeconomics Principles of Macroeconomics	
<i>Environmental Horticulture</i>		9
ENH 001	Introduction to Environmental Horticulture/ Urban Forestry (Discontinued)	
ENH 006	Introduction to Environmental Plants	
PLS 005	(Discontinued)	
<i>Environmental Science &amp; Natural Resources</i>		9
ESP 010	Current Issues in the Environment	
ETX 010	Introduction to Environmental Toxicology	
HYD/SAS 010	Water, Power, Society	
<i>Plant &amp; Soil Science</i>		8
PLS 001	Agriculture, Nature & Society	
PLS 002	Botany & Physiology of Cultivated Plants	
PLS 015	Introduction to Sustainable Agriculture	
PLS 049	Organic Crop Production Practices	
VEN 002	Introduction to Viticulture	
VEN 003	Introduction to Winemaking	
Preparatory Subject Matter Subtotal		51
<b>Science/Math Preparatory</b>		
<i>Biological Science</i>		10
BIS 002A	Introduction to Biology: Essentials of Life on Earth	
BIS 002B	Introduction to Biology: Principles of Ecology & Evolution	
<i>Chemistry</i>		10
CHE 002A	General Chemistry	
CHE 002B	General Chemistry	
<i>Geology</i>		6
GEL 001	The Earth	
GEL 020	Geology of California	
<i>Mathematics, choose a series:</i>		6-8
MAT 016A	Short Calculus	
MAT 016B	Short Calculus	
<b>OR</b>		
MAT 017A	Calculus for Biology & Medicine	
MAT 017B	Calculus for Biology & Medicine	

<b>OR</b>		
MAT 021A	Calculus	
MAT 021B	Calculus	
<b>Physics</b>		<b>8</b>
PHY 007A	General Physics	
PHY 007B	General Physics	
<b>Soil Science</b>		<b>3</b>
SSC 010	Soils in Our Environment	
Science/Math Preparatory Subtotal		43-45
<b>Depth Subject Matter</b>		
<b>Agricultural Education</b>		<b>6</b>
AED 100	Concepts in Agricultural & Environmental Education	
AED 160	Vocational Education	
<b>Education</b>		<b>10</b>
EDU 110	Educational Psychology: General	
EDU 115	Educating Children with Disabilities	
EDU 142	Introduction to Environmental Education	
<b>Environmental Science &amp; Policy</b>		<b>4</b>
ESP 110	Principles of Environmental Science	
Depth Subject Matter Subtotal		20
<b>Focused Depth Subject Matter</b>		
The specialized focus will consist of a minimum of 16 units in one of the six areas listed below:		<b>16</b>
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
<b>Restricted Electives</b>		
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.		<b>16</b>
Subtotal		16
<b>Total Units</b>		<b>150-152</b>

## 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	
FST 109	Principles of Quality Assurance in Food Processing	
NPB 101	Systemic Physiology	
NPB 121	Physiology of Reproduction	
NUT 115	Animal Nutrition	
NUT 122	Ruminant Nutrition & Digestive Physiology (Discontinued)	
NUT 123	Comparative Animal Nutrition (Discontinued)	

## 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

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