

AGRICULTURAL & ENVIRONMENTAL EDUCATION, BACHELOR OF SCIENCE

College of Agricultural & Environmental Sciences

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, and 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

Kathryn Teixeira, Ph.D., Assistant Professor of Teaching

Major Advisors

Lynn Martindale, Ed.D., Lecturer/Supervisor School of Education

The major requirements below are in addition to meeting University Degree Requirements (<https://catalog.ucdavis.edu/undergraduate-education/university-degree-requirements/>) & College Degree Requirements (<https://catalog.ucdavis.edu/undergraduate-education/college-degree-requirements/>); unless otherwise noted. The minimum number of units required for the Agricultural & Environmental Education Bachelor of Science is 150.

Code	Title	Units
Government/U.S. Constitution		
HIS 017A	History of the United States	4
or POL 001	American National Government	
or POL 001Y	American National Government	

Subtotal	4
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:	
<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 & Economics; choose ARE 015 and ECN 001A or 001B</i>	8
ARE 015	Population, Environment & World Agriculture
ECN 001A	Principles of Microeconomics
or ECN 001AV	Principles of Microeconomics
or ECN 001AY	Principles of Microeconomics
or ECN 001B	Principles of Macroeconomics
or ECN 001BV	Principles of Macroeconomics
<i>Environmental Horticulture</i>	9
ENH 001	(Discontinued)
ENH 006	Introduction to Environmental Plants
PLS 005	(Discontinued)
PLS 006	Flower Power; Art & Science of Flowers & Their Uses
or PLS 006V	Flower Power; Art & Science of Flowers & Their Uses
<i>Environmental Science & 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 & Soil Science</i>	8
PLS 001	(Discontinued)
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
Science/Math Preparatory	
<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 (Discontinued)	
MAT 016B (Discontinued)	
OR	
MAT 017A Calculus for Biology & Medicine	
MAT 017B Calculus for Biology & Medicine	
OR	
MAT 021A Calculus	
MAT 021B Calculus	
<i>Physics</i>	8
PHY 007A General Physics	
PHY 007B General Physics	
<i>Soil Science</i>	3
SSC 010 Soils in Our Environment	
Science/Math Preparatory Subtotal	43-45
Depth Subject Matter	
<i>Agricultural Education</i>	6
AED 100 Concepts in Agricultural & Environmental Education	
AED 160 Vocational Education	
<i>Education</i>	10
EDU 110 Educational Psychology: General	
EDU 115 Educating Children with Disabilities	
EDU 142 Introduction to Environmental Education	
<i>Environmental Science & Policy</i>	4
ESP 110 Principles of Environmental Science	
Depth Subject Matter Subtotal	20
Focused Depth Subject Matter	
The specialized focus will consist of a minimum of 16 units in one of the six areas listed below:	16
Agricultural Business & Economics (p. 2)	
Animal Science (p. 2)	
Applied Biological Systems Technology (p. 2)	
Environmental Horticulture (p. 2)	
Environmental Science & Natural Resources (p. 3)	
Plant & Soil Science (p. 3)	
Subtotal	16
Restricted Electives	
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.	16

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:		16
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	(Discontinued)	
NUT 123	(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	(Discontinued)	4
ENH 105	Taxonomy & Ecology of Environmental Plant Families (Discontinued)	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	(Discontinued)	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