AGRICULTURE

Contact Information

Division
Sciences and Mathematics

Dean
Heather Roberts

Associate Dean
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Division Office
V 211, Rocklin Campus

Overview

Sustainable agriculture is an integrated system of plant and animal production practices having a site-specific application that will, over the long-term, satisfy human food and fiber needs; enhance environmental quality and the natural resource base upon which the agriculture economy depends; make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls; sustain the economic viability of farm operations and enhance the quality of life for farmers and society as a whole.

TRANSFER AND MAJOR REQUIREMENTS in Agriculture are available in the Counseling Center. In all cases, students should consult with a counselor for specific transfer requirements.

Faculty

Michelle S. Macfarlane
Professor, Agriculture
B.S., California State University, Chico
M.S., University of California, Davis

Agriculture Advisory Committee

- Cindy Fake, UCCE, Placer County
- Laura Goss, Agriculture Teacher, East Nicolaus High School
- John Inglett, Manager, Wester Tree Nursery, Oroville
- Roger Ingram, UCCE, Placer County
- Dan Kemp, Agriculture Teacher, Bear River High School, Grass Valley
- Dan Macon, Owner, Flying Mule Farms, Auburn
- John Nitta, Owner, High Ranch Nursery, Loomis
- Mike Trueblood, Agriculture Teacher, Lincoln High School
- Christine Turner, Retired Agriculture Commissioner, Placer County
- Josh Turner, Agriculture Commissioner, Placer County
- Barbara Vineyard, Former Sierra College Board Member, Rancher, Lincoln

Degrees/Certificates

Associate Degree

- Sustainable Agriculture (p. 1)

Certificate of Achievement

- Sustainable Agriculture (p. 1)

Skills Certificate

- Sustainable Agriculture Business (p. 1)

Sustainable Agriculture

AS Degree and/or Certificate of Achievement

(formerly Agriculture)

The Sustainable Agriculture major combines the skills and knowledge to incorporate economic viability, environmental stewardship and social responsibility in food and farming systems. This broad-based degree/certificate combines plant and soil science, animal science and business in a hands-on approach to prepare students for the workforce or for transfer to a four-year institution. In all cases, students should consult with a counselor for more information on university admission and transfer requirements. For the degree, students must fulfill the following major requirements with grades of "C" or better, complete a minimum of 60 degree-applicable semester units (12 of which must be completed at Sierra College) with a grade point average of at least 2.0 and complete one of the following three general education patterns:

- Sierra College Associate Degree Requirements (http://catalog.sierracollege.edu/archive/2016-2017/student-resources/general-education/associate-degree-requirements) ;
- California State University General Education Breadth (CSU GE) (http://catalog.sierracollege.edu/archive/2016-2017/student-resources/general-education/california-state-university-general-education-breadth-requirements) pattern;
- or Intersegmental General Education Transfer Curriculum (IGETC) (http://catalog.sierracollege.edu/archive/2016-2017/student-resources/general-education/intersegmental-general-education-transfer-curriculum-igetc) .

A certificate is designed to provide career technical skills; it is not equivalent to an associate degree.

Required Courses

AGRI 0156	Introduction to Plant Science (also BIOL 21)	4
AGRI 0196	Introduction to Sustainable Agriculture	3
AGRI 0200	Introduction to Animal Science	4
AGRI 0215	Introduction to Agricultural Business and Economics	3
AGRI 0221	Introduction to Soil Science	3
Select 6-8 units from the following:		6-8
AGRI 0095	Internship in Agriculture (up to 4 units)	
AGRI 0159	Integrated Pest Management	
AGRI 0160B	Methods of Propagation	
AGRI 0164	Sustainable Tree Care	
AGRI 0198	Food, Society and the Environment	
AGRI 0203	Animal Feeds and Nutrition	
AGRI 0212	Direct Farm Marketing	
Total Units		23-25

Sustainable Agriculture Business

Skills Certificate

Designed to give students the small sustainable farm business management knowledge and abilities to successfully enter the workforce

as a small farm owner or manager. This skills certificate focuses on skills and knowledge relative to the principles of agribusiness management, sustainable agriculture and direct farm marketing. This is a specialty certificate designed to provide career technical skills; it is not equivalent to an associate degree.

Required Courses

AGRI 0196	Introduction to Sustainable Agriculture	3
AGRI 0212	Direct Farm Marketing	2
AGRI 0215	Introduction to Agricultural Business and Economics	3
BUS 0140	Small Business Management	3
Total Units		11

Courses

Understanding course descriptions (http://catalog.sierracollege.edu/archive/2016-2017/student-resources/course-information/understanding-course-descriptions)

AGRI 0028. Independent Study
Units: 1-3
Designed for students interested in furthering their knowledge at an independent study level in an area where no specific curriculum offering is currently available. Independent study might include, but is not limited to, research papers, special subject area projects, and research projects. See Independent Study page in catalog. (CSU, UC-with unit limitation)

AGRI 0095. Internship in Agriculture
Units: 0.5-4
Designed for advanced students to work in an area related to their educational or occupational goal. Provides new on-the-job technical training under the direction of a worksite supervisor, allowing students to expand knowledge and skills in the chosen field. Mandatory orientation session and faculty approval to determine eligibility. Students may earn up to a total of 16 units in internship courses (any course numbered 95 and PDEV 94). (CSU-with unit limitation)

AGRI 0156. Introduction to Plant Science
Units: 4
Formerly known as HORT 2
Also known as BIOL 21
Advisory: Eligibility for ENGL 1A
Hours: 108 (54 lecture, 54 laboratory)
Emphasizes structure, growth, physiology and reproduction of flowering plants and their responses to modifications and environment; including propagation, media, soil and plant nutrition. Explores the interrelationship of plant science with other life sciences and technology. Applies principles of plant science to agricultural systems. (CSU, UC)

AGRI 0159. Integrated Pest Management
Units: 3
Formerly known as HORT 52
Hours: 54 lecture
Comprehensive study of integrated pest management with emphasis on sustainable management practices of landscape and small crop pests. Includes identification and study of insects, weeds, plant diseases, vertebrate pests, and beneficial organisms. Studies least toxic pest control strategies, labeling, formulations and safe handling of pesticides. (CSU)

AGRI 0160B. Methods of Propagation
Unit: 1
Formerly known as HORT 134B
Hours: 54 laboratory
Provides an advanced level of skill, technique and experience in spring plant production. In-depth studies of propagation materials, sexual and asexual reproduction, transplanting and planting. Preparation and use of propagation and planting media. (not transferable)

AGRI 0164. Sustainable Tree Care
Units: 3
Formerly known as HORT 40
Hours: 90 (36 lecture, 54 laboratory)
Sustainable horticultural principles and practices for management and care of trees in urban and landscape settings. Includes tree biology and culture, proper tree selection, maintenance, planting, staking, pruning techniques, tree hazard assessment, and risk management. Current issues in urban forestry and trees in the urban environment will be covered. (CSU)

AGRI 0196. Introduction to Sustainable Agriculture
Units: 3
Hours: 54 lecture
Introduction to the concepts and principles of agroecology as applied to the design and management of sustainable agricultural systems. Includes examination of case studies connecting sustainable agriculture principles to farming practices. (CSU)

AGRI 0198. Food, Society and the Environment
Units: 3
Advisory: Eligibility for ENGL 1A
Hours: 54 lecture
Multiple perspectives and global connections between the environment, society and food production. Emphasis on agriculture's central position between nature and society and its key role in humanity's search for a productive and sustainable environment. (CSU, UC)

AGRI 0200. Introduction to Animal Science
Units: 4
Advisory: Eligibility for ENGL 1A
Hours: 108 (54 lecture, 54 laboratory)
An overview of the principles of animal science and the interrelationships of domestic animals and mankind. Introduces various disciplines, including cell function, genetics, anatomy and physiology, reproduction, nutrition, animal health, animal products and animal behavior. (CSU, UC)

AGRI 0203. Animal Feeds and Nutrition
Units: 4
Formerly known as AGRI 12
Advisory: Eligibility for ENGL 1A
Hours: 108 (54 lecture, 54 laboratory)
An introduction to the feeds and nutrition of animals including basic digestive system anatomy and physiology; composition and selection of feeds; characteristics of nutrients; principles of nutrition; nutrient requirements of non-ruminant and ruminant animals; and formulating diets to meet these requirements. (CSU)

AGRI 0212. Direct Farm Marketing
Units: 2
Hours: 36 lecture
Overview of direct farm marketing. Includes innovative marketing alternatives for the small to medium size grower, proven methods of product development, promotion, pricing and distribution. (not transferable)

AGRI 0215. Introduction to Agricultural Business and Economics
Units: 3
Advisory: Eligibility for ENGL 1A
Hours: 54 lecture
An overview of the role agriculture business plays in United States and world economies. Production and supply, marketing and demand, resource allocation, commodity pricing under perfect and imperfect competition are some of the topics discussed as well as social and economic challenges of agriculture in urban and industrialized economies emphasizing California. (CSU, UC)

AGRI 0221. Introduction to Soil Science
Units: 3
Advisory: Eligibility for ENGL 1A
Hours: 90 (36 lecture, 54 laboratory)
Soils as natural bodies formed by interactive environmental processes, classification and characteristics. Soil response to use and management including erosion, moisture retention, structure, cultivation, organic matter and microbiology. Laboratory topics include soil type, classification, soil reaction, soil fertility and physical properties of soil. (CSU, UC)

Program Student Learning Outcomes (PSLOs)

- Assess the interdependence of relationships that exist between plants, animals, the environment and humans.
- Evaluate the economic importance of agriculture to various societies/cultures.
- Assess the impacts of agricultural production practices on the environment and society.
- Relate the biology of plants and or animals to agricultural management practices.