

Department of Agriculture, Agribusiness and Environmental Sciences

Contact Information

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The Department of Agriculture, Agribusiness and Environmental Sciences prepares students from both rural and urban backgrounds for employment in agribusiness, agricultural education, agricultural production and technology, agronomy, horticulture, soil and environmental science, or government service.

- a. The Department offers B.S. degrees in two majors:
 - i. Agribusiness (AGBU)
 - ii. Agriculture Science (AGSC)
- b. Agribusiness majors specialize in one of two concentration areas:
 - i. Agribusiness
 - ii. Agribusiness - Ranch Management
- c. Agriculture Science majors can specialize in one of four concentrations:
 - i. Agriculture Science - General Agriculture
 - ii. Agriculture Science - Environmental Science
 - iii. Agricultural Science and Technology with Teacher Certification
 - iv. Agricultural Science - Plant and Soil Science with three emphasis options:
 1. Agronomy
 2. Horticulture
 3. Soil Science

We provide students opportunities to study in classrooms, laboratories, greenhouses and on the university farm. In addition, we encourage students to gain career-related experience through research projects and off-campus internships. We sponsor student organizations in which students can enjoy associating with other students while learning and serving. We strive to develop abilities and values, and to create a nurturing environment for students.

Agribusiness (AGBU)

AGBU 2301 Prin of Agribusiness Mgmt **3 SCH (3-0)**

An introduction to agribusiness management focused around the four functions of management: planning, organizing, controlling and directing. Applications of budgeting and elementary economic analysis.

AGBU 2317 Introd to Agric Economics **3 SCH (3-0)**

An introduction to agricultural economics including consumer and producer theory, marginal analysis, the definition of supply and demand, their movements and role in price determination and market characteristics.

AGBU 3310 Food and Agric Supply Chain **3 SCH (3-0)**

Industrial organization and historical development of the grocery business. Examination of the food chain, perishable product storage and distribution and centralized purchasing functions. Management of the retail profit function with consideration of customer psychology and behavior. Retail food safety with Hazard Assessment and Critical Control Points (HACCP).

AGBU 3320 Intro Systems Thinking Ag **3 SCH (3-0)**

A multi-disciplinary introduction to agriculture, agribusiness, and environmental science with emphasis on a systems approach to natural resource problem solving.

AGBU 3330 Decision Support Tools for Ag **3 SCH (3-0)**

A dynamic approach to understand different systems of interest with emphasis given to decision support systems (DSS) and how different types of models are used to aid in management decision making. Prerequisites: AGBU 3320.

AGBU 3340 Agribus Organization and Mgmt **3 SCH (3-0)**

Management principles relevant to agribusiness firms, including integration of marketing, human resource management, managerial and leadership concepts, organizational structure, and the financial considerations managers face.

AGBU 3350 Agribusiness Marketing 3 SCH (3)

Estimating prospective demands for farm products in relation to supplies, improving the accuracy of the system that reflects consumers' demands to producers and reducing costs and increasing efficiency of marketing. Prerequisite: junior standing.

AGBU 3355 Intl Agribusiness Mktg 3 SCH (3-0)

Description of major markets and competition. Effects of U.S. agricultural trade policies and exchange rates on agriculture and firm rationalization. Topics include strategic alliance formation, market entry strategy, business ethics and corruption, pricing and terms of sale, payment methods, trade finance, cultural analysis, Foreign Trade Zones and Foreign Sales Corporations. Prerequisite: Junior or senior standing.

AGBU 3360 Agricultural Law 3 SCH (3-0)

Laws affecting the organization and decision of agricultural enterprises.

AGBU 3366 Agricultural Policy 3 SCH (3-0)

Agricultural and food policies studied from domestic and international perspectives with emphasis on the economic framework used to assess policies that improve the competitive structure, operation, and performance of U.S. food and agriculture. Prerequisite: AGBU 2317.

AGBU 3370 Agr. Sales and Consulting 3 SCH (3-0)

This course focuses on practical applications of skills needed to develop your own agri-business, agri-consulting or agri-sales business. This course focuses on financing your agribusiness, marketing your services, writing winning proposals, meeting legal requirements, setting fees, keeping the books, and much more.

AGBU 3371 Farm Management 3 SCH (3-0)

Types of farming, size of farms, capital requirements, methods of renting, farm equipment, cropping and marketing system, credit system and farm accounts. Prerequisite: junior standing.

AGBU 3375 Water Resources Policy & Mgmt 3 SCH (3-0)

Overview of water resources policy and management issues with specific focus to agricultural water use and the policy and management considerations for farming, ranching, industry, and conservation problems. Prerequisite: AGBU 2317.

AGBU 3380 Environmental Economics 3 SCH (3-0)

The human-environment relationship studied relative to economic issues of property rights, externalities and resource scarcity as they relate to markets, economies and sustainable development. Prerequisite: junior standing.

AGBU 3390 Special Topics in Agribus 3 SCH (3-0)

Selected topics not currently available in existing courses. May be repeated once under different topic. Prerequisite: junior standing.

AGBU 3995 Internship (WI) 1-9 SCH (1-9)

Supervised and planned work experience under college guidelines in an agriculture enterprise or agency setting. Practical application of knowledge and skills of major subject area without classroom consultation, but with formal evaluation. May be repeated for a maximum of six semester hours toward degree. Writing intensive. Prerequisite: Permission from department chair.

AGBU 4325 Rangeland Resource Econ 3 SCH (3-0)

Economics, management and planning of the ranching industry, range livestock and natural resources. Prerequisite: 3 semester hours of agribusiness.

AGBU 4340 Adv. Agribusiness Management 3 SCH (3-0)

Integration of agribusiness marketing and practices to solve contemporary problems faced by agribusiness marketers. Analyses of agribusiness marketing problems through the application of case studies and strategic planning projects. Prerequisites: AGBU 2301, AGBU 2317 and AGBU 3340.

AGBU 4350 Agricultural Finance 3 SCH (3-0)

Monetary affairs of farming and ranching emphasizing the Farm Credit Administration, credit policies, facilities, procurement, statement analysis, cost of capital, firm growth and management of financial resources.

AGBU 4360 Agricultural Price Analysis 3 SCH (3-0)

Investigation of market operations which determine prices in the agricultural industry. Types of markets that affect price, cycles and trends; relative government policy and techniques of price analysis. Prerequisite: AGBU 3350.

AGBU 4371 Strategic Management 3 SCH (3-0)

The systematic analysis of agribusiness strategic decision-making and management strategies with emphasis on the use of case studies to illustrate different strategic management concepts and the various issues and opportunities faced by today's agribusiness firms. Prerequisites: AGBU 2317 and AGBU 3310.

AGBU 4395 Problems in Agribusiness 1-3 SCH (1-3)

Literature review, laboratory field problem. May be repeated for a total of 6 semester hours, only 3 hours may count toward a minor. Prerequisite: approval of supervising professor and permission per advisor and department chair.

Agriculture Science (AGSC)

AGSC 1352 Welding 3 SCH (1-4)

Techniques of oxy-acetylene processes in fusion welding of mild steel, bronze welding, hard facing and oxy-acetylene cutting; skills of arc welding in level, horizontal, vertical and overhead position.

Fee: \$5.00

AGSC 1451 Introd to Agric Systems **4 SCH (3-2)**

A study and application of basic agricultural system processes. Includes design graphics, use of basic tools and machines, instrumentation and basic construction.

Fee: \$20.00

AGSC 3352 Agric Power and Machinery **3 SCH (2-2)**

Study of internal combustion engines; principles of operation, construction, ignition, carbureting, cooling systems, lubrication, transmission and diesel engines. Agricultural machinery design, construction and use. Prerequisite: AGSC 1451.

Fee: \$5.00

AGSC 3363 Prog Plan in Ag Sci and Tech **3 SCH (3-0)**

Planning, delivering and evaluating programs for agricultural service agencies such as the cooperative extension service, Natural Resources Conservation Service and any other public or private agency which is responsible for the dissemination of information. Time management, public relations, identification of program goals and industry needs, community needs.

AGSC 3367 Intro to Agric Sci and Tech **3 SCH (3-0)**

Philosophy, aims and objectives of agriculture science and technology; historical background of agricultural service agencies and organizations programs; career opportunities and qualifications of personnel as related to agricultural service agencies. Prerequisite: junior standing.

AGSC 3390 Special Topics in Ag Science **3 SCH (2-2)**

Selected topics not currently available in existing courses. May be repeated once under a different topic. Prerequisite: junior standing.

AGSC 3995 Internship (WI) **1-9 SCH (1-9)**

Supervised and planned work experience under college guidelines in an agriculture enterprise or agency setting. Practical application of knowledge and skills of major subject area without classroom consultation, but with formal evaluation. May be repeated for a maximum of six semester hours toward degree. Writing intensive. Prerequisite: written consent of adviser and dean.

AGSC 4353 Agric Building Requirements **3 SCH (2-2)**

Construction materials, costs, environment, arrangements and types of structures. Plans and drawings will be made for farmsteads, service buildings and dwellings. Prerequisite: AGSC 1451.

Fee: \$5.00

AGSC 4361 Meth Matls Tech Clrm Mgt (WI) **3 SCH (2-2)**

Methods, materials and techniques in teaching agricultural science; essential elements; daily and annual teaching plans; curriculum organization, planning and evaluation; instructional methods and strategies, adult and young farmer education; students with special needs; and basic principles and procedures of classroom management.

AGSC 4362 Designing Instruction in Ag Ed **3 SCH (3-0)**

Theory and practice in designing instruction for secondary agricultural science programs including effective planning and deliver methods; designed for students preparing to teach agricultural science in Texas public schools.

AGSC 4395 Probs in Agricultural Sci **1-3 SCH (1-3-0)**

Literature review, laboratory field problem. May be repeated for a total of 6 semester hours, only 3 hours may count toward a minor. Prerequisite: approval of supervising professor, and permission per advisor and department chair.

AGSC 4666 Studnt Teach in Ag Sci and Tec **6 SCH (6)**

Student teaching in agricultural science classes in selected secondary schools. Requires daily (Monday through Friday) laboratory experience of performing the duties of an agricultural science teacher for at least nine weeks. Prerequisites: overall grade point average of 2.5 or better; junior or senior standing; AGSC 3367, AGSC 4361.

Environmental Science (ENVS)**ENVS 2315** Intro Environmental Science **3 SCH (3-0)**

Fundamental principles of environmental systems including biological, chemical, social, political, cultural, and economic factors that affect the environment: scientific and social implications of climate change, including anthropogenic pollutants and human population on the environment.

ENVS 3310 Land-use Decisions **3 SCH (3-0)**

Impact of land use on natural resource conservation; land ownership and management issues; and development of environmental impact statements.

ENVS 3315 Environmental Health **1-9 SCH (1-9)**

Impact of natural occurring and anthropogenic environmental pollutants on human health.

ENVS 4310 Ecology Natural Environs **3 SCH (3-0)**

The principles and processes that determine the patterns of terrestrial ecosystems, ecosystem relationship with abiotic factors, and the return of biomass to the abiotic cycles. Emphasis on temperate ecosystems of North America, with review of global ecosystems. Prerequisite: Junior standing.

ENVS 4320 Aquatic and Marine Ecosystems **3 SCH (3-0)**

Inland wetlands, estuaries, nearshore, coral reefs and open ocean habitats; explores vegetation, hydrology, water chemistry, management strategies, flow alterations, nutrient enrichment, and chemical contamination of aquatic habitats. Prerequisite: Junior standing.

ENVS 4395 Research Environmental Science **3 SCH (3-0)**

Student experiential learning through research under direction of a faculty advisor. May be repeated for a total of six semester hours; only three may count toward a minor. Prerequisites: Junior standing and approval of instructor. Permission from advisor and department chair.

General Agriculture (AGRI)

AGRI 3372 Contemporary Issues (WI) **3 SCH (3-0)**

Current issues that impact agriculture that include: world food supply/security; the human diet, cultural, economic, and political consideration; environmental concerns; food safety; animal rights/ welfare, genetic engineering, etc., are presented and discussed to provide students with practical and technical knowledge to prepare them for their careers.

AGRI 3995 Internship (WI) **1-9 SCH (1-9)**

Supervised and planned work experience under college guidelines in an agriculture enterprise or agency setting. Practical application of knowledge and skills of major subject area without classroom consultation, but with formal evaluation. May be repeated for a maximum of six semester hours toward degree. Writing intensive. Prerequisite: Permission from department chair.

AGRI 4171 Seminar **1 SCH (0-1)**

A review of current literature on agricultural subjects. Assigned reading on selected topics with weekly conferences.

AGRI 4350 Collective Leadership in ANRHS **3 SCH (3-0)**

Through case studies, reflective analysis, scenario learning and service learning, students will develop leadership skills in a systems thinking approach to issues in agriculture, natural resources, and human sciences, by application of knowledge in real world contexts. Students will acquire an understanding of the inextricable relationship among agriculture, natural resources, human sciences, and society. Prerequisite: senior standing.

AGRI 4380 Advancing Leaders in Ag **3 SCH (3-0)**

A capstone exploration of the role of leadership and commitment to civic engagement with emphasis on the application of leadership development in order to become a socially responsible leader and an active, engaged citizen in agriculture. Prerequisite: AGRI 2380.

Plant and Soil Science (PLSS)

PLSS 1407 General Plant Sciences **4 SCH (3-2)**

Fundamental principles underlying the selection, growth, development, maintenance, improvement, utilization and harvesting of cultivated plants.

Fee: \$5.00

PLSS 2316 Describing Soils in the Field **3 SCH (3-0)**

Art and science of soil description using Soil Taxonomy of the United States Department of Agriculture and Intercollegiate Soil Judging. Provides essential experience for those in soil-related careers. Open to all university students.

PLSS 3318 General Entomology **3 SCH (3-0)**

Classification, life histories, habits, and management practices of common local insects and insect pests of plants and animals. Collect, preserve and identify arthropods with emphasis on insects.

PLSS 3319 Landscape Design **3 SCH (2-2)**

Fundamentals of landscape design including historical survey of garden designs, site analysis, development and evaluation of exterior and interior environments of residential, school, commercial and public park areas. Open to all university students.

Fee: \$5.00

PLSS 3320 Soil Formation and Class **3 SCH (2-2)**

The genesis and evolution of soil profiles as influenced by soil forming agencies, classification schemes, soil survey techniques and utilization of soil maps in management of the soil. Prerequisite: PLSS 3410.

Fee: \$5.00

PLSS 3321 Agroecology Sustain Soil Mgnt **3 SCH (3)**

Methods of reclamation, conservation and management of soils based on the kinds of soils and adapted crops.

PLSS 3325 Field Crop Production **3 SCH (3)**

Production practices, produce quality, environmental considerations in the production of field crops and forage crops. Prerequisite: PLSS 1407.

PLSS 3331 Turf and Urban Plants **3 SCH (3)**

Characteristics, description, identification and landscape uses of ornamental trees, shrubs, vines, flowers, ground-covers and grasses adapted to tropic and subtropical zones of the world. Prerequisite: Junior standing.

PLSS 3332 Hort Plant Propagation **3 SCH (2-2)**

A study of principles and practices of asexual and sexual propagation of horticultural crops. Prerequisite: PLSS 1407.

Fee: \$5.00

PLSS 3334 Weed Management in Crops **3 SCH (2-2)**

Proper selection, mode of action and application of chemicals for proper weed control and management. Prerequisite: PLSS 1407.

Fee: \$5.00

PLSS 3344 Vegetable Crop Production 3 SCH (2-2)

A study of principles and practices used in commercial production, harvesting, storage and processing of fruit and vegetable crops. Prerequisite: PLSS 1407.
Fee: \$5.00

PLSS 3381 Crop Physiology 3 SCH (3)

Physiological concepts underlying the practices utilized in crop production systems as related to growth processes and their mechanisms. Prerequisite: 3 semester credit hours of biology.

PLSS 3410 Principles of Soil Science 4 SCH (3-2)

Fundamental principles underlying the formation, characteristics and management of soil.
Fee: \$5.00

PLSS 3995 Internship (WI) 1-9 SCH (1-9)

Supervised and planned work experience under college guidelines in an agriculture enterprise or agency setting. Practical application of knowledge and skills of major subject area without classroom consultation, but with formal evaluation. May be repeated for a maximum of six semester hours toward degree. Writing intensive. Prerequisite: Permission from department chair.

PLSS 4312 Integrated Pest Management 3 SCH (3-0)

Current Management practices used to control agriculture, horticulture, wildlife and animal pests. This includes insects, weeds, plant diseases and nematodes as they affect crop and animal production. Introduction to pesticide groups and their ecological effects. Prerequisite: Junior or Senior standing.

PLSS 4313 Landscape Maint and Constr 3 SCH (2-2)

Grading, drainage and construction of landscaped areas to include cost and bid estimation, soil preparation, transplanting operations, arboriculture, turf management, pest and disease control and general maintenance of landscaped areas. Prerequisite: Junior or Senior standing.
Fee: \$3.00

PLSS 4326 Hort Fruit Crop Production 3 SCH (3-0)

Tropical and subtropical climates and physiography related to production and management of tropical and subtropical crops including fruits and vegetables, root and tuber crops, beverage crops, oil and industrial crops, legumes, spices, herbs and medicinal plants. Recent significant development in production technology will be presented. Prerequisite: Junior or Senior standing.

PLSS 4327 Soil Water Movement 3 SCH (3-0)

The water-related properties of plants and soil, the properties of water and the natural processes that affect the behavior of water in plants. Prerequisite: PLLS 3410.

PLSS 4328 Intro Plant Pathology 3 SCH (3-0)

Comprehensive study of diseases and arthropod pests of cultivated crop plants with emphasis on symptoms identification, economic importance and control measures. The concept of integrated pest management is discussed. Prerequisite: Introductory Biology and junior or senior standing.

PLSS 4329 Soil Health and Productivity 3 SCH (2-2)

The principles of soil fertility, mechanisms of plant nutrient uptake and plant nutrient requirements. Includes a study of soil fertility management. Prerequisite: PLSS 3410.
Fee: \$5.00

PLSS 4331 Greenhouse Crop Production 3 SCH (2-2)

Commercial production and management of floricultural crops in greenhouses, modern nurseries and other forcing structures. Prerequisite: PLSS 1407.
Fee: \$5.00

PLSS 4390 Special Topics Plant Soil Sci 3 SCH (3-0)

Material offered to be determined by the needs of the students. Lecture will vary according to the subject needs with each course having three hour credit. May be repeated for credit when the topic changes. Prerequisites: junior or senior standing.

PLSS 4395 Probs in Plant and Soil Sci 1-3 SCH (1-3)

Literature review, laboratory field problem or undergraduate research under direction of a faculty advisor. May be repeated for a total of six semester hours, only three hours may count toward a minor in PLSS. Prerequisite: approval of supervising professor.

Majors

- Agriculture - Agribusiness - Ranch Management Option, B.S.
- Agriculture - Agribusiness, B.S.
- Agriculture - Agriculture Science - Agricultural Science and Technology with Teaching Certification, B.S.
- Agriculture - Agriculture Science - Environmental Science, B.S.
- Agriculture - Agriculture Science - General Agriculture, B.S.
- Agriculture - Agriculture Science - Plant and Soil Science - Agronomy, B.S.
- Agriculture - Agriculture Science - Plant and Soil Science - Environmental Soil Science, B.S.
- Agriculture - Agriculture Science - Plant and Soil Science - Horticulture, B.S.

Minors

- Agriculture Science, Agribusiness or Plant and Soil Science, Minor
- Environmental Science, Minor