

DEPARTMENT OF AGRICULTURAL SCIENCES AND ENGINEERING TECHNOLOGY

About

Chair

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Highlights

The graduate program in agricultural sciences is designed to further the professional competence of those individuals engaged in production agriculture, careers in agricultural and related agencies, businesses and industries, and/or agricultural education and extension.

The Agricultural Sciences program maintains four locations with working laboratories. The Agriculture Center is home to the Indoor Arena, Meat Science Lab, Equine Science Facilities, and a greenhouse. Nearby is the Horticulture Center with two greenhouses and a classroom. The William R. Harrell Engineering Technology Center provides excellent advanced teaching and research opportunities in the areas of power and machinery, electrification, geometrics, soil and water conservation, irrigation, drainage, landscaping, bio-fuels, and wood/metal construction and fabrication. The 1740-acre Gibbs Ranch is home to purebred and crossbred beef cattle herds and a meat goat flock, along with additional plant, soil and animal resources used for instructional and research purposes.

Career Opportunities

Approximately twenty percent of our population is involved in occupations directly related to agriculture. Sectors such as production, banking, marketing, teaching, processing, and service in governmental agencies rely on the productivity of modern agriculture in meeting the daily needs of society.

Scholarships

The department is pleased to have various scholarships available to graduate students. Scholarships are usually one-time awards and are not automatically renewable. A student may reapply in subsequent years if eligibility requirements are met. Students MUST be registered for six or more hours in Agriculture or related courses each semester or forfeit the scholarship for that semester.

The Scholarship4Kats (<http://www.shsu.edu/dept/financial-aid/scholarships>) program must be used to apply for departmental scholarships. Please note that application and admittance to the University is required prior to being able to access Scholarship4Kats. The program enables you to apply for all scholarships for which you are eligible, including those outside the Department of Agricultural and Industrial Sciences. The deadline for departmental scholarships is February 1; non-departmental scholarship deadlines vary.

Contact

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- Master of Science in Agriculture (catalog.shsu.edu/archives/2016-2017/graduate/college-departments/sciences/agricultural-sciences-engineering-technology/agriculture-ms)
- Master of Agriculture in Sustainable Agriculture and Food Environment (catalog.shsu.edu/archives/2016-2017/graduate/college-departments/sciences/agricultural-sciences-engineering-technology/mag-sustainable-agriculture-food-environemtn)
- Graduate Certificate in Sustainable Agriculture (catalog.shsu.edu/archives/2016-2017/graduate/college-departments/sciences/agricultural-sciences-engineering-technology/certificate-sustainable-agriculture)

Interdisciplinary Agriculture

AGRI 5300. Adv Fusng& Joinng Met& Non-Met. 3 Hours.

Principles and techniques of bonding and fusing metallic materials by the electric and oxyacetylene processes. Study of fluxes, chemicals, and oxidants used in joining metal. Joining of non-metallic materials by mechanical and chemical means.

AGRI 5310. Mchnzd Harvest & Hand Ag Prods. 3 Hours.

Fundamentals of selection, service, and operation of agricultural harvesting machines. Analysis and development of mechanical systems to feed and care for livestock. Storage and handling facilities for agricultural products.

AGRI 5330. Advanced Rural Utilities. 3 Hours.

Selection and use of electrical equipment as related to efficiency and economy in agricultural production, processing and storage of feeds, forage crops and grain in connection with livestock enterprises.

AGRI 5340. Adv Animal Growth & Performnce. 3 Hours.

This course is an advanced study of physiological and endocrine factors affecting growth and performance of domestic animals. The course includes the study of meat animal growth and developmental processes as they affect body and carcass composition, carcass quality and retail value.

Prerequisite: Graduate standing.

AGRI 5341. Contemporary Animal Ag Issues. 3 Hours.

This course will investigate contemporary issues in animal agriculture and the food/meat industry. Primarily using in-depth discussion and debates, students will analyze issues from the standpoint of producers, consumers, processors, and societal forces. This course will allow students to explore differing viewpoints on an issue and prepare them to encounter these issues in their professional career.

AGRI 5350. Adv Princ Livestock Mngt. 3 Hours.

Survey of current knowledge and concepts of beef production with emphasis on the stocker/feedlot segment. Includes feeding, management, marketing and disease control of stocker and feedlot cattle.

AGRI 5360. Contemporary Issues In Agr Bus. 3 Hours.

Analysis and discussion of current issues in agricultural business with appropriate principles and theories. Issues may include marketing, management, finance, policy, international, legal and ethical topics. Student participation is expected via reports throughout the semester or term reports.

AGRI 5361. Agricultural Policy. 3 Hours.

Advanced analysis of government policies and programs important to agriculture. Topics include: the policy making process and leaders, interest groups, organization and functions of federal and state agencies, policies relevant to production agriculture and natural resources, rural development, consumer and food safety, international marketing and food distribution.

AGRI 5362. Principles Of Crop Protection. 3 Hours.

Diagnosis, epidemiology, and control of plant pests. Causative and limiting factors are stressed. Designed for prospective or practicing teachers and technicians in the agro-chemical industry or in federal or state plant pest control agencies.

AGRI 5364. Agricultural Internship. 3 Hours.

A directed study utilizing industry to develop an understanding of agricultural production and management principles.

AGRI 5369. Spcl Topics In Adv Agriculture. 3 Hours.

This course will examine advanced special topics/issues and (or) subject matter in the field of Agricultural Science. The sub-divisional fields offered are: Agriculture, Animal Science, Agricultural Business, Horticulture and Crop Science, and Agricultural Mechanization. This course may be repeated as topics and subject matter change.

AGRI 5370. Food And Fiber Crops. 3 Hours.

A study of traditional plant breeding techniques and an overview of contemporary crop improvement methods. The physiology, adaptation, classification, taxonomy, and utilization of major crop species used for production of food and fiber are covered. Genetic and environmental influences on crop quality are discussed.

AGRI 5379. Advanced Equine Nutrition. 3 Hours.

This course is an advanced review of the equine digestive system regarding anatomy, physiology, digestive processes, nutrient requirements, feedstuffs, management, and health care.

AGRI 5386. Capital Mgt In Agr Business. 3 Hours.

This course provides an in-depth understanding of capital marketing, capital budgeting, financial planning, and appraisal principles important in the field of agribusiness.

AGRI 5394. Applied Horticultural Science. 3 Hours.

AGRI 5398. Economics Of Agricultural Prod. 3 Hours.

Agricultural production principles applied to the use of resources; cost analyses of production enterprises; linear programming of enterprises for maximizing returns; elements of depreciation schedules; evaluation for income tax purposes.

AGRI 6099. Thesis. 1-3 Hours.

In addition to the preliminary study of the techniques of research, these courses involve completion of a bibliography, organization of material, selection of a suitable problem, a digest of related literature, selection of appropriate procedures, formulation of a plan of investigating and reporting, collection and organization of data, and the writing of the thesis. Variable Credit (3 hrs first semester; 1 hour subsequent semesters).

AGRI 6140. Graduate Seminar. 1 Hour.

This course is designed to provide students a forum for presentation of their graduate project and to provide an opportunity for faculty to present seminars relative to contemporary issues in agriculture. The project is an agreement between student and his/her committee. Course cannot be repeated.

Prerequisite: AGRI 5375 or STAT 5360.

AGRI 6350. Tchnqs & Interpretatn Research. 3 Hours.

A course designed to develop the competencies needed to interpret and utilize agricultural research. Topics will include: the philosophy of the scientific method, formats for agricultural research data, interpretation of data, and application of information to specific situations.

Prerequisite: AGRI 5375 or STAT 5360.

AGRI 6398. Thesis. 3 Hours.

In addition to the preliminary study of the techniques of research, these courses involve completion of a bibliography, organization of material, selection of a suitable problem, a digest of related literature, selection of appropriate procedures, formulation of a plan of investigating and reporting, collection and organization of data, and the writing of the thesis. Grade is either Credit or No Credit.

Agriculture Education

AGED 5364. Advanced Problems in Ag. Ed.. 3 Hours.

A directed individual investigation of advanced problems in Career and Technology Education.

AGED 5376. Personal Ldrshp & Org Dynamics. 3 Hours.

(SH Prior Course ID: AED 576); Concepts and practices in planning and presenting materials to agricultural groups. Includes leadership skills, concepts of community development, and dynamics of technological change.

Career and Technology

CATM 5364. Adv Prblms In Career & Tech Ed. 3 Hours.

Engineering Technology

ETEC 5369. Spcl Tpcs In Adv Indstrl Tech. 3 Hours.

This course will examine advanced special topics/issues and (or) subject matter in the field of Industrial Technology. The sub-divisional fields offered are: Industrial Technology, Industrial Management, Design and Development, and Construction. This course may be repeated as topics and subject matter change.

ETEC 5390. Directed Studies. 3 Hours.

This course is designed to provide students with the opportunity to gain specialized experience in one or more of the following areas: Internship, Laboratory Procedures, Individualized Study, Innovative Curriculum, Workshops, Specialized Training Schools, Seminar. In the internship and laboratory procedures segment, the student will gain organization and management techniques through observation and participation in conducting classroom activities and associated laboratory experience. The student may gain experience in a maximum of two areas of competency. In the individualized studies segment, the student will select a problem and work under the direction of a major professor. 1-6 hours, may be repeated or taken concurrently for a maximum of six hours. (Area of study to be indicated on transcript.)

ETEC 5398. Hist & Phil Industrial Edu. 3 Hours.

This course is designed to provide the opportunities for in-depth study of the historical background of the industrial education movement.

ETEC 6099. Thesis. 1-3 Hours.**ETEC 6331. Plant Layout And Materials Handling. 3 Hours.**

A study of the methods in planning and control of production; operation analysis; routing; scheduling and dispatching; production charts and boards; inventory control; accumulation of material requirements; and use of critical path techniques used in industry.

ETEC 6334. Materials Test Technology. 3 Hours.

A study of internal stresses and deformation of bodies resulting from the action of external forces; concepts and techniques of testing tensile, compression, shear, transverse, hardness and the elasticity on various materials and fasteners.

ETEC 6335. Principles And Techniques Of Research In Industrial Education. 3 Hours.

A study of the basic principles of research and the techniques of application as related to Industrial Education.

ETEC 6398. Thesis. 3 Hours.

In addition to the preliminary study of the techniques of research, these course involve completion of a bibliography, organization of material, selection of a suitable problem, a digest of related literature, selection of appropriate procedures, formulation of a plan of investigating and reporting, collection and organization of data, and the writing of the thesis.

ETEC 6399. Thesis. 3 Hours.

In addition to the preliminary study of the techniques of research, these course involve completion of a bibliography, organization of material, selection of a suitable problem, a digest of related literature, selection of appropriate procedures, formulation of a plan of investigating and reporting, collection and organization of data, and the writing of the thesis.

Industrial Education

INED 5310. Adv. Human Relations in CTE. 3 Hours.

This course is designed to meet the needs of the competent tradesman in understanding and working with students. Parallel course to INED 4310.

INED 5365. Adv. Teaching in CTE Industry. 3 Hours.

Success in most professional areas is dependent in part on the ability of an individual to communicate effectively with others. An inventory of media used in communications will be made. Various means and equipment for aiding the communication of ideas will be studied and evaluated.

INED 5379. Instruction/Product Analysis. 3 Hours.

This course is a study of the inventory and analysis procedure by which the essential elements of an occupation or production scheduling activity are identified and listed for instruction or production purposes. The analysis determines the instructional or production format necessary for a smooth and orderly process from the simple to the complex order of tasks, operation and jobs required in the industrial environment.

INED 5382. Managing CTE Work Programs. 3 Hours.

.Techniques for identifying students for vocational training; sources and means of job placement for co-operative part-time students and graduates of vocational programs; and methods of making student follow-up studies are included.

INED 5386. CTE Instructional Technology. 3 Hours.

This course is designed to aid teachers of industrial subjects in the design and construction of teaching aids. The study of multi-media is an integral and important phase of this course.

INED 5391. Lab Organization & Management. 3 Hours.

This course is designed for graduates who are going to teach Industrial Education or manage equipment and supplies in industry. It is to prepare students to successfully manage laboratory activities, organize laboratories in accordance with contemporary concepts, and to control materials/supplies within their laboratories. Parallel course to INED 4391.

Sustainable Agriculture & Food Environment

SAFE 5311. Advanced Agriculture & Food Entrepreneurship. 3 Hours.

This course will examine the initiation of new ventures and growth of existing firms in sustainable agriculture and food production through opportunity recognition, innovation, and change. An emphasis will be placed on developing effective entrepreneurial skills and behaviors, and risk management for start-ups. The preparation of a structured business plan will be required.

SAFE 5312. Ag Sales and Communication. 3 Hours.

This course will include the application of economic, marketing, sales, and communication principles to small-scale, intensive agriculture including organics and natural products. A focus will be placed on finding a competitive niche through market segmentation/demography, market research, product choice and differentiation, product positioning and pricing, product outlets and advertising, selling strategies, and the use of current and emerging communication tools.

SAFE 5313. Agritourism. 3 Hours.

This course will present the variety and depth of agritourism/ecotourism practiced globally and cover aspects of the economics and organization of agritourism. Topics include agricultural economics, rural development, marketing, rural policy, products and services, and characteristics of agritourists.

SAFE 5331. Sustainable Energy & Resources. 3 Hours.

This course will focus on determining energy requirements of various sustainable agricultural operations. Available energy sources will be examined as alternatives for traditional sources provided by fossil fuel. Innovative and emerging on-site production technologies for environmentally sensitive energy will be investigated.

SAFE 5351. Agricultural Advocacy. 3 Hours.

This course will examine common issues facing agriculturists in relation to the production of a safe and abundant food supply. A primary focus will include small-scale and direct-marketing producers and the challenges they frequently encounter from industry opponents. Positive and factual promotional strategies will be explored. Social issues, political influences, and topics such as food safety and ethics, biotechnology, genetically-modified organisms, and animal welfare will be addressed.

SAFE 5371. Alternative Ag Enterprises. 3 Hours.

This course will evaluate various alternative agricultural enterprises available to producers, including an examination of the resources necessary to establish a successful production enterprise. Alternative enterprises to be discussed include forage crops, grains, fruits, vegetables, nuts, horticultural and forestry products, animals, and enterprises that promote education, recreation, and tourism. On-farm processing of products and methods of adding value to products before they leave the farm will also be explored.

SAFE 5372. Diversified Animal Production. 3 Hours.

This course examines various animal production systems in relation to alternative animal agriculture and integrated ranch and farm management strategies. Various livestock production and management strategies for small land owners and urban food production will be studied. Livestock species and breed choices for sustainable production regimens and organic food systems will be explored.

SAFE 5391. Soil Ecology. 3 Hours.

This course examines living organisms in the soil and their influences on each other, plant health, nutrient cycling, soil organic matter, and other important soil properties. The role of soil biodiversity and its importance in agricultural systems will be addressed along with strategies for enhancing soil productivity under human management activities.

Chair: **Stanley F. Kelley**

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