applications of the concepts. The course emphasizes communication skills used by officers in the AF. Co-requisite: A S 1000.

4311 National Security Forces in Contemporary American Society I. (3-0) Part 1 of the study of professional Air Force (AF) officers in a democratic society; societal attitudes toward the armed forces; national defense structure, policy development; and military law. AFROTC cadets study topics that prepare them for duty as AF officers. The course emphasizes AF communication skills. Co-requisite: A S 1000.

4312 National Security Forces in Contemporary American Society II. (3-0) Part 2 of the study of professional Air Force (AF) officers in a democratic society; societal attitudes toward the armed forces; national defense structure, policy development; and military law. AFROTC cadets study topics that prepare them for duty as AF officers. The course emphasizes AF communication skills. Co-requisite: A S 1000.

Department of Agriculture

Agriculture Building 206
T: 512.245.2130 F: 512.245.3320
www.ag.txstate.edu

Degree Programs Offered

Bachelor of Science in Agriculture (BSAG), major in Agriculture
Bachelor of Science in Agriculture (BSAG), major in Agriculture-(Teacher Certification)
Bachelor of Science in Agriculture (BSAG), major in Agriculture-Animal Science (Integrated Ranch and Natural Resources Management Specialization)
Bachelor of Science in Agriculture (BSAG), major in Agriculture-Animal Science (Basic Science and Pre-Vet Specialization)
Bachelor of Science in Agriculture (BSAG), major in Agriculture-Business and Management (Agribusiness Management Specialization)
Bachelor of Science in Agriculture (BSAG), major in Agriculture-Business and Management (Agricultural Systems Management Specialization)
Bachelor of Science in Agriculture (BSAG), major in Agriculture-Business and Management (Horticultural Business Specialization)

Minors Offered

Agriculture
Animal Science
Horticulture
Plant and Soil Science

Agriculture majors have a choice of four different degree tracks: Agriculture, Agriculture-Teacher Certification, Agriculture-Animal Science, and Agriculture-Business and Management. The Department of Agriculture offers programs reflecting the diversity of choices available and skills required in modern agriculture and its related professions. This dynamic, global industry uses new technologies to improve the production, management, manufacture, and distribution of food and agricultural products.

Major in Agriculture

Agriculture majors are provided a broad exposure to agriculture. With this curriculum, students may expect to manage a ranch or a farm, or work in any career that requires a general agriculture education such as county extension agents, banking or government service.

Major in Agriculture with Teacher Certification

A comprehensive educational program concerned with the broad field of agriculture. Emphasis in the major is on production techniques, managerial skills and competencies necessary to function as agricultural scientists, educators, or agricultural managers in today's complex agricultural industry. Agricultural science teachers are certified to teach in grades nine through twelve in the public schools of Texas.

Major in Agriculture-Animal Science

The study of all aspects of the livestock and poultry industries including commercial production and management; food processing; and animal feed/animal health including nutrition, biotechnology and veterinary medicine. Involvement of students in ongoing faculty research prepares graduates for careers in research and industry; and for further education in veterinary schools or graduate schools.

Major in Agriculture-Business and Management

This major reaches far beyond the farm to encompass the activities involved in bringing food and fiber to consumers. Students may pursue three specializations with this major: Agribusiness Management, Agricultural Systems Management, or Horticultural Business.

Major in Agribusiness Management

In this specialization students learn about the acquisition and use of capital, the working of the marketplace, financial institutions, and the effect of government policies on agriculture. Therefore, the Agribusiness Management specialization includes courses in agricultural finance, marketing and policies dealing with resource use as well as courses in technical agriculture and general education.

Major in Agricultural Systems Management

This specialization integrates and applies engineering technology, agricultural sciences, and business. It prepares graduates for careers in technical fields and engineering such as agricultural machinery and power systems, electrical energy systems including sensors and controls, agricultural structures, surveying, and environmental systems including water utilization and quality. Students are involved with ongoing research, farm power and machinery, and precision farming and global positioning systems. Graduates are expected to assume positions of leadership and responsibility in careers such as product testing and service management, agricultural sales and services, and agricultural production systems.

Major in Horticultural Business

This specialization teaches management of commercial establishments and institutions that produce ornamental plants such as greenhouses and nurseries, floral shops and plant therapy businesses. The major also contains specialized courses in horticulture

that utilize rooftop greenhouses at the Agriculture Building and the laboratory facilities at the 17-acre Horticulture Center near campus.

Pre-Professional Program in Pre-Veterinary Science

The department supervises the Pre-Veterinary Science program, which provides two years of specialized course work for students planning to enter veterinary school. Specific course requirements and additional information are listed in the Degrees and Programs section of this catalog.

Internship

Students are encouraged to apply for internships and enroll in AG 4310 after their junior year. The department will assist students in securing internships in agriculturally related businesses or agencies. For specific information and requirements about internships, contact the Department Chair.

Special Requirements

1. Students cannot enroll in upper-level (3000 or 4000) agriculture courses until they have successfully completed MATH 1315 or 1319 and CHEM 1341, 1141.
2. AG 1110, AG 2373, and AG 2390 must be successfully completed in the first 45 college credit hours at Texas State.

Bachelor of Science in Agriculture (BSAG)
Major in Agriculture
Minimum required: 120 semester hours

Note: If two years of the same foreign language were taken in high school, then enough additional hours to total the minimum 120 hours required for the degree will fulfill this requirement. In the absence of such high school language, two semesters of the same modern language must be taken at the college level.

Freshman Year		Sophomore Year		Junior Year		Senior Year	
Course	Hr	Course	Hr	Course	Hr	Course	Hr
AG 1110	1	AG 2313 or 2379	3	AG 3310	3	AG 3317 or 3318	3
AG 1445	4	AG 2373	3	AG 3426	4	AG 3319	3
AG 2390	3	AG 2374	3	AG 3427	4	AG 3353 or 4361	3
BIO 1430	4	AG 2383	3	AG Electives*	12	AG 4310	3
MATH 1315 or 1319	3	ENG 3303	3	HIST 1320	3	AG 4325	3
COMM 1310	3	ENG 2310, 2320, 2330, 2340, 2359, or 2360	3	POSI 2320	3	AG 4326	3
ENG 1310, 1320	6	CHEM 1341, 1141	4			AG Electives **	6
US 1100	1	PHIL 1305 or 1320	3			AG 4307 (Capstone Course)	3
HIST 1310	3	ANTH 1312, GEO 1310, PSY 1300 or SOCI 1310	3				
POSI 2310	3	ART, DAN, MU, or TH 2313	3				
PFW, two courses	2						
Total	33	Total	31-32	Total	29	Total	27

* Select 12 hrs from the following: AG 2345, AG 2367, AG 3301, AG 3302, AG 3303, AG 3304, AG 3305, AG 3306, AG 3308, AG 3314, AG 3325, AG 3330, AG 3331, AG 3345, AG 4328. AG 4330,

** Select 6 hours from the following: AG 3321, AG 3329, AG 3351, AG 3352, AG 3455, AG 4185 (3 hour maximum), AG 4300, AG 4302, AG 4304, AG 4305, AG 4381, AG 4383

Bachelor of Science in Agriculture (BSAG)
Major in Agriculture
(Teacher Certification)
Minimum required: 120 semester hours

Note: If two years of the same foreign language were taken in high school, then enough additional hours to total the minimum 120 hours required for the degree will fulfill this requirement. In the absence of such high school language, two semesters of the same modern language must be taken at the college level.

Freshman Year		Sophomore Year		Junior Year		Senior Year	
Course	Hr	Course	Hr	Course	Hr	Course	Hr
AG 1110	1	AG 2313 or 2379	3	AG 3426	4	AG 3345	3
AG 1445	4	AG 2373	3	AG 3319	3	AG 4185 (taken two times)	2
AG 2390	3	AG 2383	3	AG 3317 or 3318	3	AG 4343	3
BIO 1330/1130	4	AG 2374	3	AG 4325	3	AG 4212	2
MATH 1315 or 1319	3	ENG 2310, 2320, 2330, 2340, 2359, or 2360	3	CATE 3313D or AG 2310	3	AG 4307	3
COMM 1310	3	CHEM 1341, 1141	4	AG 3310, 3353, or 4361	3	AG 4311	3
ENG 1310, 1320	6	PHIL 1305 or 1320	3	CI 4332	3	AG 4681	6
US 1100	1	ANTH 1312, GEO 1310, PSY 1300 or SOCI 1310	3	HIST 1320	3	RDG 3323	3
HIST 1310	3	ART, DAN, MU, or TH 2313	3	POSI 2320	3	CI 4370	3
POSI 2310	3					CI 3325	3
PFW, two courses	2						
Total	33	Total	28	Total	28	Total	31

Bachelor of Science in Agriculture (BSAG)
Major in Agriculture-Animal Science
(Basic Science and Pre-Vet Specialization)
Minimum required: 120 semester hours

General Requirement:
1. Program requires completion of Biochemistry minor.

Freshman Year		Sophomore Year		Junior Year		Senior Year	
Course	Hr	Course	Hr	Course	Hr	Course	Hr
AG 1110	1	PHYS 1325/1125	4	ANTH 1312, GEO 1310, ECO 2301,		ENG 3303	3
AG 1445	4	ENG 1320	3	ECO 2314, PSY 1300, or SOCI 1310	3	AG 4330	3
PHYS 1315/1115	4	ENG 2310, 2320, 2330, 2340,		ART, DAN, MU, or TH 2313	3	AG 4325	3
BIO 1330/1130	4	2359, or 2360	3	AG 3301	3	AG 3331	3
CHEM 1341/1141	4	COMM 1310	3	AG 3314	3	CHEM 4360	3
CHEM 1342/1142	4	MATH 2321	3	BIO 2400	4	CHEM 4385	3
US 1100 (PACE only)	1	PHIL 1305 or 1320	3	AG 3325	3	AG 4307	3
ENG 1310	3	CHEM 2341/2141	4	CHEM 3375 or 4375	3	AG 4185 (3x) or AG 4326 or AG 4328	3
PFW	2	CHEM 2342/2142	4	CHEM 3276	2	COMM 2330 or 2338	3
POSI 2310, 2320	6	HIST 1310, 1320	6	AG 3319	3		
Total	33	Total	33	Total	27	Total	27

Bachelor of Science in Agriculture (BSAG)
Major in Agriculture-Animal Science
(Integrated Ranch and Natural Resources Management Specialization)
Minimum required: 120 semester hours

Freshman Year		Sophomore Year		Junior Year		Senior Year	
Course	Hr	Course	Hr	Course	Hr	Course	Hr
AG 1110	1	AG 2383	3	AG 3301	3	AG 3317	3
AG 1445	4	AG 2373	3	AG 3314	3	AG 3319	3
AG 2390	3	ENG 2310, 2320, 2330, 2340, 2359, or 2360	3	AG 3321	3	AG 3331	3
BIO 1330, 1130	4	MATH 1315 or 1319	3	AG 3325	3	AG 3352	3
CHEM 1341, 1141	4	COMM 1310	3	AG 3351	3	AG 4325	3
US 1100 (PACE only)	1	PHIL 1305 or 1320	3	ACC 2361	3	AG 4326	3
ENG 1310, 1320	6	ANTH 1312, GEO 1310, ECO 2301, ECO 2314,		AG 3353	3	AG 4330	3
PFW	2	PSY 1300, or SOCI 1310	3	AG 3426	4	Advanced Elective	3
POSI 2310, 2320	6	ART, DAN, MU, or TH 2313	3	ENG 3303	3	AG 4307	3
		HIST 1310, 1320	6	GEO 2426	4		
Total	31	Total	30	Total	32	Total	27

Bachelor of Science in Agriculture (BSAG)
Major in Agriculture-Business and Management
(Agribusiness Management Specialization)
Minimum required: 120 semester hours

Note: If two years of the same foreign language were taken in high school, then enough additional hours to total the minimum 120 hours required for the degree will fulfill this requirement. In the absence of such high school language, two semesters of the same modern language must be taken at the college level.

Freshman Year		Sophomore Year		Junior Year		Senior Year	
Course	Hr	Course	Hr	Course	Hr	Course	Hr
AG 1110	1	AG 2313 or 2379	3	ACC 2362	3	AG 3317 or 3318	3
AG 1445	4	AG 2373	3	AG 3351	3	AG 3319	3
AG 2390	3	AG 2383	3	AG 3352	3	AG 3353 or 3375	3
BIO 1330/1130	4	AG 2361	3	AG 3426	4	AG 4380	3
MATH 1315 or 1319	3	ENG 3303	3	ECO 2315	3	AG 4381	3
COMM 1310	3	ENG 2310, 2320, 2330, 2340, 2359, or 2360	3	ECO 3314	3	AG 4383	3
ENG 1310, 1320	6	CHEM 1341, 1141	4	HIST 1320	3	AG 4307 (Capstone Course)	3
US 1100	1	PHIL 1305 or 1320	3	POSI 2320	3	Department Electives*	4
HIST 1310	3	ANTH 1312, GEO 1310, PSY 1300 or SOCI 1310	3	Department Electives*	3		
POSI 2310	3	MATH 1329 or MATH 2321 or MATH 2417	3-4				
PFW, two courses	2	ART, DAN, MU, or TH 2313	3				
Total	33	Total	34-35	Total	28	Total	25

* Select 7 hrs from the following: AG 3301, AG 3302, AG 3303, AG 3304, AG 3305, AG 3306, AG 3308, AG 3310, AG 3314, AG 3321, AG 3325, AG 3329, AG 3331, AG 3345, AG 3427, AG 3455, AG 4185 (3 hour maximum), AG 4300, AG 4302, AG 4304, AG 4305, AG 4306, AG 4310, AG 4325, AG 4326, AG 4328, AG 4330, AG 4361, BLAW 3363

Bachelor of Science in Agriculture (BSAG)
Major in Agriculture-Business and Management
(Agricultural Systems Management Specialization)
Minimum required: 120 semester hours

Note: If two years of the same foreign language were taken in high school, then enough additional hours to total the minimum 120 hours required for the degree will fulfill this requirement. In the absence of such high school language, two semesters of the same modern language must be taken at the college level.

Freshman Year		Sophomore Year		Junior Year		Senior Year	
Course	Hr	Course	Hr	Course	Hr	Course	Hr
AG 1110	1	AG 2313 or 2379	3	ACC 2361	3	AG 3317 or 3318	3
AG 1445	4	AG 2373	3	AG 2374	3	AG 3319	3
AG 2390	3	AG 2383	3	AG 3310	3	AG 3353 or 3375	3
BIO 1330/1130 or PHYS 1315/1115	4	PHYS 1325/1125	4	AG 3351	3	AG 3455	4
MATH 1315 or 1319	3	ENG 3303	3	AG 3352	3	AG 4361	3
COMM 1310	3	ENG 2310, 2320, 2330, 2340, 2359, or 2360	3	AG 3426	4	AG 4380	3
ENG 1310, 1320	6	CHEM 1341, 1141	4	HIST 1320	3	AG Electives*	5
US 1100	1	PHIL 1305 or 1320	3	POSI 2320	3	AG 4307 (Capstone Course)	3
HIST 1310	3	ANTH 1312, GEO 1310, PSY 1300 or SOCI 1310	3				
POSI 2310	3	MATH 1329 or 2321 or 2417	3-4				
PFW, two courses	2	ART, DAN, MU, or TH 2313	3				
Total	33	Total	35-36	Total	25	Total	27

* Select 5 hrs from the following: AG 3301, AG 3302, AG 3303, AG 3304, AG 3305, AG 3306, AG 3308, AG 3314, AG 3321, AG 3325, AG 3329, AG 3331, AG 3345, AG 3427, AG 4185 (3 hour maximum), AG 4304, AG 4305, AG 4306, AG 4310, AG 4325, AG 4326, AG 4328, AG 4330, AG 4371A, AG 4371B, AG 4371C, AG 4371D, AG 4381, AG 4383

Bachelor of Science in Agriculture (BSAG)
Major in Agriculture-Business and Management
(Horticultural Business Specialization)
Minimum required: 120 semester hours

Note: If two years of the same foreign language were taken in high school, then enough additional hours to total the minimum 120 hours required for the degree will fulfill this requirement. In the absence of such high school language, two semesters of the same modern language must be taken at the college level.

Freshman Year		Sophomore Year		Junior Year		Senior Year	
Course	Hr	Course	Hr	Course	Hr	Course	Hr
AG 1110	1	AG 2313 or 2379	3	AG 3305	3	AG 3302	3
AG 2390	3	AG 2373	3	AG 3306	3	AG 3311 or AG 3427	3-4
BIO 1330/1130	4	AG 2383	3	AG 3329	3	AG 3317 or AG 3318	3
MATH 1315 or 1319	3	ACC 2361	3	AG 3351	3	AG 3308	4
COMM 1310	3	AG 3304	3	AG 3352	3	AG 4380	3
ENG 1310, 1320	6	ENG 3303	3	AG 3426	4	AG 4307 (Capstone Course)	3
US 1100	1	ENG 2310, 2320, 2330, 2340, 2359, or 2360	3	AG Electives*	4	AG 3319	3
HIST 1310	3	CHEM 1341, 1141	4	HIST 1320	3	AG Electives*	7
POSI 2310	3	PHIL 1305 or 1320	3	POSI 2320	3		
PFW, two courses	2	ANTH 1312, GEO 1310, PSY 1300 or SOCI 1310	3				
		ART, DAN, MU, or TH 2313	3				
Total	29	Total	34	Total	29	Total	28-29

* Select 11 hrs from the following: AG 3301, AG 3303, AG 4300, AG 3310, AG 3314, AG 3321, AG 3353, AG 3455, AG 4185 (3 hour maximum), AG 4302, AG 4304, AG 4305, AG 4306, AG 4310, AG 4361, AG 4371, AG 4381, AG 4383.

Minor in Agriculture

A minor in Agriculture requires 19 hours, which includes AG 1445, AG 2313, AG 2373, and 9 hours of advanced AG classes. A minor in agriculture is ideal for someone majoring in the life sciences, family and consumer sciences, or in any discipline where knowledge of the food and fiber industry would be beneficial. *Agriculture majors may not select a minor in Agriculture due to course duplication.

Minor in Animal Science

A minor in Animal Science requires 19 hours, which includes AG 1445, AG 3325, AG 3331, and 9 hours selected from AG 3301, AG 3314, AG 3321, AG 4326, or AG 4330.

Minor in Horticulture

A minor in Horticulture requires 18 hours, which includes AG 2379, AG 3304, AG 3305, and 9 hours selected from AG 3306, AG 3455, AG 4300, or AG 4302.

Minor in Plant and Soil Science

A minor in Plant and Soil Science requires 20 hours, which includes AG 2313, AG 2421, AG 3426, and 9 hours selected from AG 3301, AG 3321, AG 3427, or AG 3455.

Second Teaching Field in Agriculture

A second teaching field in Agriculture requires 29-30 hours, which include AG 2373, AG 2374, AG 2383, AG 3310 or AG 3353 or AG 4361, AG 3345, AG 4325, AG 4343, AG 2313 or AG 2379, AG 2421 or AG 3305 or AG 3306 or AG 3426, and AG 4212. Students seeking teacher certification in Agriculture must maintain a Texas State GPA of 2.50 in all agriculture and education courses with no grade lower than a "C".

Courses in Agriculture (AG)

1110 Careers in Agri-Business and Industry. (1-0) Career information and opportunities in the Agricultural World of Work will be emphasized. Qualifications and employment opportunities will be stressed.

1445 (AGRI 1419) Basic Animal Science. (3-2) An introductory course designed to acquaint students with the importance of the livestock industry. A study of the types and breeds; market classes and grades of beef cattle, swine, sheep, goats, horses, and poultry; attention will be given to breeding, judging, care, and management.

2310 Applied Leadership Principles. (2-2) Preparation for professional leadership and service, with emphasis on application of leadership principles. The course will focus on guiding students in developing enhanced leadership skills through group and individual leadership enhancement projects and topic research. Prerequisites: AG 1110.

2313 (AGRI 1307) Agronomic Crops. (2-2) A study of the production, harvest practices, storage, and use of cereal and feed grains, fiber crops, forages, and other related crops requiring special technology.

2345 Horse Management. (2-2) A course designed as a broad but thorough coverage of most areas of horse husbandry and production, including anatomy, physiology, breeding, feeding, training, and health care. Laboratory sessions are designed to acquaint the student with modern methods of breeding, training, and care of the horse.

2367 Animal Ultrasonography. (2-2) A study of current developments and utilization of animal ultrasonography technology in agriculture. Hands-on training in animal growth and development, animal breeding, animal handling and management, animal reproduction, computer technology and data interpretation.

2373 (AGRI 2303) Introduction to Agricultural Engineering. (2-2) An introductory course designed to acquaint students with a wide range of concepts, principles and applied technologies in agricultural engineering. A problem solving course.

2374 Metal Fabrication and Welding Technology for Agriculture. (2-2) This course covers the principles and practices of applied metallurgy and welding. Emphasis is given to the management of the technologies and techniques associated with oxy-fuel cutting, shielded metal arc welding (SMAW), Gas Metal Arc Welding (GMAW), Gas Tungsten Arc Welding (GTAW), and Plasma Arc Cutting (PAC). Prerequisites: AG 2373.

2379 (AGRI 1315; HORT 1301) General Horticulture. (2-2) A survey of the general field of horticulture including general areas of employment.

2383 (AGRI 2317) Introduction to Agricultural Economics. (3-0) The role of agriculture in the general economy; the study of basic economic concepts with their application to the agricultural firm; the structure and operation of the marketing system; the functional and institutional aspects of agricultural finance; international trade; and government farm programs.

2390 (AGRI 1309) Computer Applications in Agriculture. (2-2) Introduction to computers and computer technology; operation and application of the computer in production agriculture and agricultural business, services and industries. Includes characteristics of computer hardware and software, accessing and using the computer in agriculture.

2421 Range Forage and Pasture Crops. (3-2) Production, utilization and management of major range and forage plants in production systems that will meet the nutritional needs of both wild and domestic animals on a sustained basis. Prerequisite: AG 1445.

3301 Genetics of Livestock and Plant Improvement. (3-0) Fundamental principles of genetics and their application to higher plants and animals. The physical basis of Mendelian inheritance, expression and interaction of genes, gene frequency, linkage, sex linkage, inbreeding, line breeding, and crossbreeding as applied to selection indices for livestock and plants. Prerequisites: AG 1445; BIO 1330, 1130. (WI)

3302 Herbaceous Plant Materials. (2-2) This course will include the identification, selection, use, and management of annuals, perennials, herbs, and ornamental grasses in the landscape. Each student will learn irrigation, fertilization, pruning, and other cultural needs of such plants. The laboratory will complement lecture.

3304 Propagation of Horticultural Plants. (2-2) Principles and practices of propagating ornamental plants, vegetables, and fruits by sexual and asexual methods including germination of seed, layerage, graftage, division, cuttage, bulbs, corms, and other vegetative plant structures. Study of physical,

physiological and environmental factors affecting propagation of ornamental plants.

3305 Woody Plant Materials for Outdoor Landscapes. (2-2) Study of woody plant material including fruit and ornamental trees, shrubs, and ground covers and their identification, nomenclature, and use in the planting and development of home landscapes.

3306 Flowers and Plants for Interior Design. (2-2) Study of flowers, cut flowers, foliage and blooming pot plants to enhance the interior design of homes and businesses including their identification, cultural requirements, uses, diagnoses and corrective measures of disorders. Basic principles of flower arrangement and the preparation of floral and plant decoration as used in interior design. (WI)

3308 Organic Gardening. (3-0) Study of principles and practices that involve the production of vegetables by organic methods. Fertility and irrigation; as well as weed, insect and disease control by practices will be covered.

3310 Agricultural Power and Machinery Technology. (2-2) This course covers the principles of 2 stroke and 4-stroke cycle engines, ignition, and combustion types including injection systems. Components including power and power transmissions and hydraulic systems will also be addressed. Prerequisites: Math 1315 and AG 2373.

3311 Agricultural Practices and Pollution Control. (2-2) Principles and practices of applied physical, chemical, and biological control of air, soil, and water pollution arising from production and processing of agricultural products. Prerequisites: CHEM 1341 and 1141, MATH 1315, AG 2373 and 2390.

3314 Animal Health and Disease Control. (3-0) A course designed to enable the animal science student to understand basic veterinary principles as applied to prevention of disease in domestic livestock. Common diseases of livestock are considered, with emphasis on sanitation and modern preventative methods concerned with keeping livestock healthy. Prerequisite: AG 1445.

3317 Farm Management. (2-2) Tools and techniques which are basic to the study of farm organization and decision making, the wise allocation of factors of production, the keeping of records, and income tax management. Prerequisites: AG 2383, AG 2390; MATH 1315 or MATH 1319.

3318 Agricultural Business Management. (3-0) Introduction to the institutions and functions in agribusiness. The institutional structure of the agribusiness sector such as the feed, farm machinery and equipment, farm chemicals, financial institutions and private and public agri-services will be delineated. The second part of the course will introduce and develop the various functions such as organizational behavior, financial management, market management and human resource management. Prerequisites: AG 2383, AG 2390; MATH 1315 or MATH 1319.

3319 International Food and Fiber Systems. (3-0) Presents the food and fiber system from an international Component. Analysis of food production and consumption patterns under different world economic systems, causes of surpluses and shortages throughout the world; the role of trade in solving food and agricultural problems. Outlook and situation for food and fiber is discussed for both developed and developing nations, and impact of U.S. food policy on world trade flows is presented. (MC)

3321 Range Management. (3-0) Practical problems met in managing native pastures and rangelands. Attention to determining range condition and proper stocking rates, methods of handling livestock on the range, range reseeding, brush control, and poisonous plants. The ecological and physiological response of range vegetation to grazing. Prerequisite: AG 1445.

3325 Animal Nutrition. (3-0) Principles of animal nutrition with emphasis on digestion, absorption, metabolism, and function of nutrients; estimation of feedstuff nutritive value; and requirements of animals. Prerequisites: CHEM 1341, 1141; BIO 1330, 1130. (WI)

3329 Economic Entomology. (3-0) A study of the most common insects of field crops, fruits, and vegetables; life history, methods of attack, damage, and means of preventing and controlling. Collection and mounts of insects will be made.

3330 Applied Wildlife Nutrition. (1-4) Basic and fundamental principles of nutrition for ruminant and non-ruminant wildlife with emphasis in North American and African wildlife. Attention will be given to digestive physiology and anatomy, feed sources, forage resources, and nutrient requirements. Prerequisite: AG 1445 or BIO 1330, 1130.

3331 Reproduction in Farm Animals. (2-2) An examination of the anatomy and physiology of reproductive systems of livestock of economic importance. Attention is given to reproductive failure and disease. The laboratory includes pregnancy testing, semen collection and evaluation, artificial insemination techniques, and evaluation of breeding records. Prerequisites: AG 1445 and 3301, or BIO 2450.

3345 Livestock Selection and Evaluation. (2-2) Detailed consideration of the factors involved in the selection and evaluation of beef cattle, sheep, swine, rabbits, goats, and chickens. Emphasis will be placed on the care, grooming and exhibition of livestock projects. Prerequisite: AG 1445; junior classification.

3351 Agricultural Marketing and Sales. (3-0) A study of the food marketing system and farm input sales; includes the functional systems approach that integrates the agricultural input industries into a discussion of food marketing; takes a micro approach to the development of marketing management skills needed in agribusiness; and provides a critical outlook on issues ranging from inputs to final food products. Prerequisites: AG 2383; MATH 1315 or MATH 1319. (WI)

3352 Quantitative Methods in Agricultural Economics. (3-0) Principles involved in collection, tabulating and analyzing agricultural data. Topics include sampling procedures, questionnaire development, descriptive analysis of data, correlation, prediction and forecasting and tests of significance. Simple computer programs will be stressed for class exercises during the course. Prerequisites: AG 2383, AG 2390; MATH 1315 or MATH 1319.

3353 Agricultural Structures and Environment. (2-2) Principles and practices associated with structural components, selection, materials of construction, heat and moisture control, and the environmental issues of waste management systems; a problem solving course. Prerequisites: MATH 1315, AG 2373 and 2390. Recommended: TECH 1413 and 2310.

3375 Management of Agricultural Machinery and Equipment.

(2-2) This course addresses the optimization of the equipment phases of agricultural production and processing. Emphasis will be placed on management and decision making principles concerned with the efficient selection, operation, repair, maintenance, and replacement of machinery and equipment. Prerequisites: AG 2373, MATH 1315, CHEM 1341, 1141, and AG 2390.

3426 Soil Science I. (3-2) The fundamental principles of soil science to acquaint the student with some physical, chemical, and biological properties of the soil. Prerequisite: CHEM 1341 and 1141.

3427 Soil Science II. (3-2) Management of soils as pertaining to their place in the environment. Special emphasis will be given to the role of soil in conventional agricultural systems, natural resource systems, waste management systems, and reclaimed and artificial soil systems. Prerequisite: AG 3426. (WI)

3455 Land Surveying. (2-4) Engineering practices used in plane and geodetic surveying including differential and profile leveling, topographic, land, boundary and cadastral, and construction surveys. Laboratory exercises include use of dumpy levels, transits and total stations, and GPS (Global Positioning System) total station with RTK (real time kinematic). Planimeters and stereoscopes are used in analyzing aerial maps. Prerequisites: MATH 1315 or 1317 or 1319, AG 2373, AG 2390.

4185 Current Problems in Technical Agriculture. (1-0) A course for advanced undergraduates to study subject matter of special interest in agriculture. Problems in agronomy, economics, animal science, plant science, and farm mechanics may be selected. Prerequisite: Approval by department chair. May be repeated for up to three semester hours credit. Course may not be taken for graduate credit. (WI)

4212 Program Building. (2-0) This course will focus on program and curriculum development in agricultural education settings. Primary course elements will include determining program and curriculum goals and objectives, implementing the program, and curriculum evaluation. Co-requisites: AG 4343, AG 4681 (to be taken in final semester).

4300 Greenhouse and Nursery Management. (2-2) Planning greenhouses for commercial and home use; plant-nursery layouts. Study of the physical and economic factors affecting the production of plants in the greenhouse and other forcing structures, and in the field; management techniques used in the production and marketing of greenhouse and nursery plants. (WI)

4302 Fruit and Vegetable Crop Production. (2-2) Factors influencing small-fruit and tree-fruit and vegetable crop production in the field including root stocks, varieties, soil, planting, transplanting, irrigating, fertilizing, pruning, insects, diseases, nematodes, weeds, chemicals, harvesting, storing, and marketing; greenhouse production of certain vegetables. (WI)

4304 Landscape Management. (2-2) To acquaint students with the practices and techniques used in professional landscape construction and management, and with the scientific and technical basis for such practices.

4305 Landscape Design. (2-2) Landscaping combines elements of art and science to create functional, aesthetically pleasing outdoor space. This class helps students develop knowledge of design elements and principles. Students learn site and client analysis techniques for critiquing landscapes. Students learn to communicate ideas through the planning and drawing of landscape plans.

4306 Advanced Landscape Design and Construction. (2-2) Students will become more adept at using computer applications for designing small commercial and residential landscapes. Students will also learn to apply landscape designs to installation and construction techniques. Prerequisite: AG 4305.

4307 Professional Development in Agriculture. (3-0) This course requires students to select a topic of current interest appropriate to the major. Critical analysis of the situation including both positive and negative aspects will be encouraged. Findings will be presented in both oral and written form. (Capstone Course). Prerequisite: Senior Classification.

4310 Agricultural Internship. (0-6) Supervised on-the-job experience in an agriculturally related business or agency. This course may be repeated for credit. See department chair or advisor for information.

4311 Instructional Methods for Career and Technology Educators. (2-2) An analysis of the instructional techniques, strategies and methods appropriate to the effective teaching of career and technology subjects. Teaching special populations and teaching in multicultural environments will be addressed. Prerequisites: To be taken the Fall semester before student teaching.

4325 Feeds and Feeding. (2-2) Study of feedstuffs used in livestock enterprises. Application of basic nutrients to the needs of different species of livestock. Formulating rations, methods of feeding, feed control laws, and feeding investigation. Prerequisites: AG 1445; CHEM 1341, 1141; BIO 1330, 1130.

4326 Advanced Animal Science-Ruminants. (3-0) The application of scientific and technological advances to production and management in ruminant animal production and management. Prerequisite: AG 1445. (WI)

4328 Advanced Animal Science-Poultry and Swine. (3-0) Application of basic principles in the production and management of nonruminant animals. Scientific and technological advances with emphasis on overall management, health care, nutrition, genetics, physiology, and marketing of nonruminant animals. Prerequisites or co-requisites: AG 3325, 3331; AG 1110. (WI)

4330 Food Technology: Processing Meats. (2-2) Evaluation and grading of carcasses; wholesale and retail cuts of beef, pork, lamb, and poultry. Emphasis on quality controls, testing of finished products that have been frozen, cured, fried, pickled, and canned. Prerequisites: AG 1445, BIO 1330, 1130 and CHEM 1341, 1141; or consent of instructor.

4343 Organization and Management for Laboratory Programs. (2-2) Instructional programs involving laboratory equipment and facilities will be examined. Curriculum, teaching methods, equipment and facility management practices including various aspects of safety, tool management, inventory and security are emphasized along with facilities layout planning. Must be taken in last semester of program. Prerequisites or co-requisites: AG 4212, 4681.

4361 Agriculture Electric and Mechanical Systems. (2-2) Electrical fundamentals applied to agricultural production and processing. Circuits, power, energy, wiring design, and motor fundamentals; selection, installation and operational characteristics. Sensors and control devices including

switches, relays, timers, and circuit breakers will be studied. Prerequisite: AG 2373.

4371 Special Topics in Agricultural Systems Management. (3-0) Study of selected topics not currently available in existing courses.

4371B Agricultural Irrigation Technology. (3-0) Principles associated with water management practices in maintaining soil productivity and the influence of water management on environmental quality. Emphasis will be placed on the selection and layout of irrigation and drainage systems, waste management systems, and the impact on the environment. Prerequisite: AG 2373, 3320. Recommended: TECH 1413 and TECH 2310.

4371S GPS-Agricultural and Environmental Applications. (3-0) An introduction of techniques and technologies using the Global Positioning System (GPS) in precision agriculture, land surveying and environmental applications. The use of GPA and geo-referenced data in Geographic Information Systems (GIS) will be taught. Labs will be used to collect and analyze data.

4380 Agricultural Finance. (3-0) An introduction to finance and financial problems faced by agribusiness managers. The subject matter includes financial analysis, planning, and control; capital budgeting; capital structure, liquidity, and risk management; and financial markets. Prerequisites: AG 2383; MATH 1315 or MATH 1319; ACC 2361.

4381 Agricultural Policy. (3-0) Identification and analysis of governmental programs and policies affecting the production and marketing of agricultural products. An economic evaluation of alternative policies and their application for farmers, consumers and agribusinesses will be considered. Prerequisites: AG 2383; MATH 1315 or MATH 1319. (WI)

4383 Agricultural Resource Economics. (3-0) Economic concepts and institutional factors relating to the use of agricultural resources such as land, air, water, energy, space, etc. Emphasis is on the conservation of resources and the environmental interactions resulting from the use of natural resources for agricultural production. Prerequisite: AG 2383, MATH 1315 or MATH 1319. (WI)

4681 Student Teaching in Agricultural Science and Technology. (0-6) Planning for teaching agricultural science in selected schools in Texas. Prerequisite: Senior classification (to be taken in final semester).

School of Criminal Justice

Hines Building 108
T: 512.245.2174 F: 512.245.8063
www.cj.txstate.edu

Degree Programs Offered

Bachelor of Science in Criminal Justice (BSCJ), major in Criminal Justice

Bachelor of Science in Criminal Justice (BSCJ), major in Criminal Justice Corrections

Bachelor of Science in Criminal Justice (BSCJ), major in Criminal Justice Law Enforcement

Minor Offered

Criminal Justice

These degree programs prepare students to pursue advanced academic degrees and to serve the community in the operation and management of criminal justice agencies which include federal, state, county, and municipal law enforcement; probation; courts; institutional corrections; parole; and related agencies. The programs are founded on an interdisciplinary and academic approach to the role of criminal justice in the maintenance of social order in a democratic society.

Students pursuing a degree in criminal justice should be willing to meet the standards required of such a career. The majority of criminal justice agencies require sound academic preparation, psychological stability, physical agility, and a record free of felonies or excessive traffic offenses. All three programs include optional internships, and students selecting an internship option must meet criteria described below. The Criminal Justice major includes the development of advanced research and writing skills and includes interdisciplinary course work.

15 credit hours in criminal justice core curriculum (or their equivalents) may be transferred from a Texas public two-year college as agreed by Texas public institutions for the criminal justice field of study. If transferring additional criminal justice courses please contact the College of Applied Arts Academic Advising Center for assistance.

Criminal Justice Core

CJ 1310, 2310, 2350, 2355, and 2360 are required of all Criminal Justice majors.

Internship

A student must meet the following requirements before being allowed to enroll in an internship course: Texas State GPA of 2.25, CJ GPA of 2.50, completion of 90 college course work hours (including 21 in CJ), ENG 1310 and 1320, CJ 3346, HIST 1310 and 1320, COMM 1310, MATH 1315, 1316 or 1319, CJ 3347 or MATH 2328 or SOCI 3307 or PSY 3301, POSI 2310 and 2320, and 7 hours of Natural Science. Permission of Internship Coordinator is also required.