College of Agricultural Sciences and Natural Resources

Location: Location: Ag/ET, Room 135, 903.886.5358
Dean: Dr. Bryan Rank
Interim Associate Dean and Department Head: Dr. Byron Housewright
College of Agricultural Sciences and Natural Resources Web Site (http://www.tamuc.edu/ag/)

The College of Agriculture Sciences and Natural Resources offers degrees at both the baccalaureate and master's levels. A Bachelor of Science degree can be earned in several different majors, as described below.

Majors in the College of Agricultural Sciences and Natural Resources

Students seeking a bachelor's degree in any of the following majors must complete:

1. Core Curriculum Requirements (http://catalog.tamuc.edu/undergrad/core-curriculum-requirements/) (refer to those sections of this catalog).

In addition, courses in the major must be completed as shown below.

- AgriBusiness B.S. (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agribusiness/)
- Agricultural Science B.S. - Broadfield (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agricultural-science-bs-broadfield/)
- Agricultural Science and Technology Agriculture, Food, and Family Option (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agriculture-food-and-family-option/)
- Agricultural Science and Technology B.S. - Industry Emphasis (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agribusiness/agricultural-science-and-technology-ba-bs-industry-emphasis/)
- Agricultural Science and Technology B.S. - Leadership and Communications Emphasis
- Agricultural Science and Technology B.S. - Emphasis in Ornamental Horticulture (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/emphasis-in-ornamental-horticulture/)
- Agricultural Science and Technology B.S. - Teacher Certification Option (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agricultural-science-and-technology-teacher-certication-option/)
- Agriculture Second Major (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agriculture-second-major/)
- Animal Science B.S. (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/animal-science-ba-bs/)
- Animal Science-Pre-Veterinary Medicine Option B.S. (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/animal-science-pre-veterinary-medicine/)
- Animal Science - Biosciences Option B.S. (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/biosciences/)
- Animal Science - Industry and Production Option B.S. (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/ansc-prod/)
- Equine Studies BS (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/equine-studies-bs/)
- Sustainable Agriculture and Food Systems B.S. (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/sustainable-agriculture-and-food-systems/)
- Pre-Veterinary Biomedical Technology
- Veterinary Biomedical Technology B.S. (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/vet-biomedical-tech/)
- Wildlife and Conservation Science B.S. (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/wildlife-and-conservation-science/)

Pre-Professional Program for Veterinary Medicine

The College of Agriculture Sciences and Natural Resources also offers an undergraduate pre-professional program in pre-veterinary medicine. Students are advised to follow the pre-professional curriculum as well as pursue a degree in Animal Science. Students selecting the pre-veterinary program will be trained in biological, animal, chemical and physical sciences. For additional information, contact Dr. Douglas Eborn (douglas.eborn@tamuc.edu), Dr. Megan Owen (megan.owen@tamuc.edu), or Dr. Amanda Delisle (amanda.delisle@tamuc.edu).

Teacher Education Programs

Students interested in becoming a middle or high school teacher of Agricultural Science and Technology or Family and Consumer Sciences should contact Dr. Keith Frost (keith.frost@tamuc.edu), Dr. Bob Williams (bob.williams@tamuc.edu), or Dr. Doug LaVergne (doug.lavergne@tamuc.edu) for additional information.

Minors in the College of Agricultural Sciences and Natural Resources

- AgriBusiness Minor (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agribusiness-minor/)
- Agricultural Minor (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agriculture-minor/)
- Agricultural Economics Mino (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agricultural-economics-minor/)r
- Agricultural Education Minor (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agricultural-education-minor/)
- Agricultural Leadership and Communication Minor (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agriculturealleadershipandcommminor/)
- Agronomy Minor (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agronomy-minor/)
- Animal Science Minor (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/animal-science-minor/)
- Equine Science Minor (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/equine-science-minor/)
- Family and Consumer Sciences Minor (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/family-consumer-sciences-minor/)
- Food Studies Minor (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/food-studies/)
- Horticulture Minor (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/horticulture-minor/) (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/horticulture-minor/)
- Minor in Veterinary Science (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/minor-in-veterinary-science/)

AgriBusiness B.A./B.S. (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agribusiness/)

AgriBusiness Minor (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agribusiness-minor/)
Agriculture Minor (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agriculture-minor/)
Agricultural Economics Minor (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agricultural-economics-minor/)
Agricultural Education Minor (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agriculturealleadershipandcommminor/)
Agricultural Leadership and Communications Minor
Agricultural Science B.S. - Broadfield (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agricultural-science-ba-bs-broadfield/)
Agricultural Science and Technology - Agriculture, Food, and Family Option, B.S. (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agriculture-food-and-family-option/)
Agricultural Science and Technology B.A./B.S. - Industry Emphasis (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agribusiness/agricultural-science-and-technology-ba-bs-industry-emphasis/)
Agricultural Science and Technology B.S. - Leadership and Communications Emphasis (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agricultural-science-and-technology-leadership-and-communication-emphasis/)
Agricultural Science and Technology B.A./B.S. - Emphasis in Ornamental Horticulture (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agricultural-science-and-technology-ba-bs-emphasis-ornamental-horticulture/)
Agricultural Science and Technology B.A./B.S. - Teacher Certification Option (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agricultural-science-technology-ba-bs-teacher-certification-option/)
Agricultural Sciences Double Major (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agricultural-sciences-double-major/)
Agriculture Second Major (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agriculture-second-major/)

Agronomy Minor (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/agronomy-minor/)
Animal Science B.A./B.S. (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/animal-science-ba-bs/)
Animal Science Minor (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/animal-science-minor/)
Animal Science - Pre-Veterinary Medicine Option B.A./B.S. (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/animal-science-pre-veterinary-medicine-option-ba-bs/)
Animal Science - Biosciences Option B.S. (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/biosciences/)
Animal Science-Industry and Production Option B.S.

Anthrozoology (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/anthrozoology/)
Equine Studies B.S. (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/equine-studies-bs/)
Equine Science Minor (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/equine-science-minor/)
Family and Consumer Sciences Minor (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/family-consumer-sciences-minor/)
Food Studies Minor (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/food-studies/)
Horticulture Minor (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/horticulture-minor/)
Sustainable Agriculture and Food Systems B.S. (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/sustainable-agriculture-and-food-systems/)
Pre-Veterinary Biomedical Technology
Veterinary Biomedical Technology (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/vet-biomedical-tech/)
Wildlife and Conservation Science (https://coursecatalog.tamuc.edu/undergrad/colleges-and-departments/agriculture-sciences-and-natural-resources/wildlife-and-conservation-science/)

First Year

Fall	**Hours**
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Total Hours: 0

AEC 2317 - Agricultural Economics
Hours: 3
(AGRI 2317) A study of economic principles, with emphasis on their application to the solution of farm, agribusiness, and agricultural industry problems.

AEC 297 - Special Topics
Hours: 1-4
Organized class. May be repeated when topics vary.

AEC 301 - Trends in the Food Industry
Hours: 1-3
Analysis of current trends in the food industry, including norms, specifications, and standards; trade issues; and policies with national and international scope that affect the U.S. food industry. The focus is on developing an understanding of the causes and consequences of such trends, the various issues involved, and how they affect stakeholders and society. Prerequisites: Junior standing.

AEC 302 - Computer Applications in Agriculture
Hours: 3
An introductory course to computer applications with specific emphasis on applications used in agricultural businesses. Content includes spreadsheet management, word processing, and presentation applications.

AEC 304 - Farm Accounting
Hours: 3
The course covers the application of accounting principles as they apply to the production and marketing of agricultural products to analyze the financial performance and condition of the farm business.

AEC 314 - Farm Management
Hours: 3
Farm Management. Three semester hours. Techniques and procedures used for decision making in the farm business. Determination of optimum enterprise choice, resource combination and techniques of financial management, budgeting, and whole farm/ranch planning.

AEC 316 - Agricultural Marketing
Hours: 3
Agricultural Marketing. Three semester hours. A broad view of marketing; food markets and consumption; marketing functions and institutions. Applications of economic theory to agricultural price estimation, discovery, and determination.

AEC 324 - Farm Management Lab
Hours: 1
Students will be exposed to hands-on farm management problem-solving techniques using technology.

AEC 327 - Agricultural Sales
Hours: 3
This course introduces students to sales and principles of selling techniques for agricultural products and services, real estate, financial, and other industrial and institutional products and services. Students will develop skills to take advantage of career opportunities in the agricultural sales field.

AEC 340 - Agricultural Finance
Hours: 3
Agricultural Finance. Three semester hours. Analysis of capital investments, interpretation of financial statements, capital structure considerations for agricultural firms, farm real estate pricing, and financial intermediation in agriculture.

AEC 347 - Agricultural Price Theory
Hours: 3
Intermediate microeconomic principles with agricultural commodity applications related to market price determination, resource allocations, and government policies.

AEC 348 - Principles of Macroeconomics of Agriculture
Hours: 3
A study of macroeconomic principles with their application to problems of agricultural production, distribution, and income; the interrelationship between agriculture and other segments of the economy; and the dynamic forces in the economy which impact agriculture.

AEC 350 - Agricultural Finance Laboratory
Hours: 1
Students will be exposed to hands-on agricultural finance problem-solving techniques using technology.

AEC 360 - Agricultural Law
Hours: 3
Agricultural Law. Three semester hours. Survey of law and legal decisions that impact agriculture including farm and preservation, water rights, pollution abatement standards, workers' rights, externalities, pesticide/insecticide regulation, product inspection, development of legislation, mineral rights and employer liability. Prerequisite: Junior standing.

AEC 380 - Agricultural Statistics
Hours: 3
Principles and estimation techniques used in the analysis of agricultural data including measures of central tendency and dispersion, probability, sampling, hypothesis testing, analysis of variance, correlation coefficient, and regression. Prerequisites: MATH 1314 or MATH 1324.

AEC 389 - Independent Study
Hours: 0-4
Independent Study. One to four semester hours. Individualized instruction/research at an advanced level in a specialized content area under the direction of a faculty member. May be repeated when the topic varies. Prerequisite: Consent of department head.

AEC 390 - Agricultural Statistics Laboratory
Hours: 1
Students will be exposed to hands-on agricultural statistics problem-solving techniques using technology.

AEC 435 - Agricultural Policy I
Hours: 3
Analytical treatment of historical, recent and current economic problems, and governmental policies influencing American agriculture and rural America. The focus is on developing an historical and conceptual understanding of the economics of agriculture and how public policy has and does influence the nature and performance of American agriculture.

AEC 445 - Natural Resource and Environmental Economics
Hours: 3
This course explores the approach that economists take to environmental and resource problems. It examines both the economic roots of environmental problems and the solutions that economists suggest. The course focuses on questions a policymaker must face in deciding how and when to regulate, including issues of efficiency and distribution.

AEC 455 - Commodity Futures and Options
Hours: 3
The objectives of this course are to understand why futures exchanges and commodity futures contracts exist; understand and be able to forecast basis; understand hedging and be able to design hedging strategies for various commodity producers and users; understand both put and call options and their potential use in a commodity risk management program; and understand the usefulness and shortcomings of fundamental and technical analysis.

AEC 489 - Indst Ag Economics
Hours: 1-4
Independent Study. One to four semester hours. Individualized instruction/research at an advanced level in a specialized content area under the direction of a faculty member. May be repeated when the topic varies. Prerequisite: Consent of department head.

AEC 497 - Special Topics
Hours: 1-4
Special Topics. One to four semester hours. Organized class. May be repeated when topics vary.

AG 1131 - Intro To Agriculture
Hours: 1
(AGRI 1131) Introduction to agriculture and its relationship to the sciences. Also explores careers and opportunities in agriculture. Insights into the agriculture curriculum and course content are also presented. Required of all agriculture majors.

AG 201 - Biological Literature
Hours: 3
This course provides students with the fundamentals of scientific thinking and scientific writing. The course starts with a brief overview of the history and philosophy of science as it pertains to biology. Students will learn about empiricism, parsimony, and how to apply the scientific method to developing and testing hypotheses. Students will be taught how to write in scientific style; naming conventions, how to cite scientific names, how to avoid obfuscatory scrivenry, establishing flow, organizing a scientific document, how to write an abstract, how to present scientific data and statistics, how to cite figures and tables, how to cite scientific sources, how to avoid plagiarism, and how to find scientific information. Concepts of bioethics will be presented at the end of the semester. Crosslisted with: BSC 201.

AG 297 - Special Topics
Hours: 0-4
Organized class. May be repeated when topics vary.

AG 300 - Professional Agricultural Communications
Hours: 1
Professional Agricultural Communications. One semester hour. Techniques of agricultural communication emphasizing principles involved in job search. Techniques of interviewing, resume writing, letters of inquiry, etc. For agriculture majors. Prerequisites: ENG 1301 and junior standing.

AG 314 - Comparative Vertebrate Physiology
Hours: 3
The course is a comparative study of basic physiological principles and functional organization with emphasis on the functioning of organ systems in various vertebrate classes and their adaptation to the environment leading to an understanding of evolutionary relationships. The course evaluates i) the mechanisms by which animals perform their life-sustaining functions, ii) the ways in which diverse phylogenetic groups of animals both resemble each other and differ, iii) the ways in which physiology and ecology interact, and iv) the importance of all levels of organization, from genes to proteins and tissues to organs, for the full understanding of physiological systems. Crosslisted with: BSC 314.

AG 315 - Ecological Genetics
Hours: 3
Ecological genetics is about how environmental and population-level processes affect the genetic structure of populations. The course begins with a basic overview Mendelian genetics followed by an in-depth study of population genetics and the intrinsic and extrinsic processes that influence the genetic composition of populations and metapopulations. Because the interaction between genes and the environment fundamentally affect the viability of populations, ecological genetics has broad relevance for understanding population stability and maintenance healthy populations. Crosslisted with: BSC 315.

AG 316 - Becoming a Wildlife Professional
Hours: 3
Working with wildlife can be a thrilling adventure steeped in the wonders of the natural world, but entering the field demands a strong personal commitment. Students will gain knowledge in the proper training and guidance needed to transform themselves into competitive applicants for wildlife jobs and forge successful careers. Student will learn about many entry-level jobs available for the next generation of wildlife biologists and conservationists. Over 100 diverse career options for aspiring wildlife workers will be presented, including work in biological field research, forestry, rehabilitation, ranching, photography, and refuge management. Students will learn the best ways to prepare for a vocation in the wildlife profession while obtaining pragmatic advice about applying for and obt Crosslisted with: BSC 316.

AG 335 - Wildlife Management I
Hours: 3
Wildlife Management I. Three semester hours. The purpose of this course is to introduce students to the many aspects of wildlife and conservation science. It will provide an introduction to the history of wildlife management and conservation, ecosystems and ecology, population modeling, animal behavior, food and cover, wildlife diseases, predators and predation, and hunting and trapping. Offered: FALL

AG 336 - Wildlife Management II
Hours: 3
Wildlife Management II. Three semester hours. This course is designed to complement Wildlife Management I and provides an introduction to the many aspects of wildlife ecology and conservation science. Topics covered include water and soils, farmlands, rangelands, and forests, parks and refuges, urban wildlife management, and non-game and endangered species. Students are required to participate in field trips designed to give practical experience in wildlife management techniques.

AG 337 - Field Methods in Wildlife and Conservation Science
Hours: 4
This course provides students with practical training in the methods used to collect quantitative data on plant and animal populations, animal movements and home ranges, habitat associations, and animal behavior. Field exercises are integrated with lecture material emphasizing study design, statistics, and data interpretation. Crosslisted with: BSC 337.

AG 338 - Wildlife Management Techniques
Hours: 3
This class will develop the principles and techniques for managing wildlife populations. Topics covered will include experimental design, hypothesis testing, scientific writing, techniques for capturing and marking wildlife, age and sex determination, parameter estimation (population size, density, survival, etc.), radio-telemetry, home range and resource selection. Students enrolled in this course must be willing to participate in a field-based classroom research project when and where feasible. Crosslisted with: BSC 338.

AG 339 - Becoming a Wildlife Professional
Hours: 3
Working with wildlife can be a thrilling adventure steeped in the wonders of the natural world, but entering the field demands a strong personal commitment. Students will gain knowledge in the proper training and guidance needed to transform themselves into competitive applicants for wildlife jobs and forge successful careers. Student will learn about many entry-level jobs available for the next generation of wildlife biologists and conservationists. Over 100 diverse career options for aspiring wildlife workers will be presented, including work in biological field research, forestry, rehabilitation, ranching, photography, and refuge management. Crosslisted with: BSC 339.

AG 350 - Introduction to Sustainable Agriculture
Hours: 3
This course introduces students to the common principles and practices associated with sustainable agriculture from ecological, economical, social, and ethical perspectives.

AG 352 - Urban Agriculture
Hours: 3
This course provides an extensive overview of agriculture and food security issues and practices at the local level in cities in the U.S. and abroad.

AG 381 - Big Game Management
Hours: 3
This class will expose students to concepts of managing major big game species in North America (i.e. white-tailed deer, feral hog, desert mule deer, pronghorn antelope, desert bighorn sheep, javelina, mountain lion, bear), with focus on the conservation practices of those species in Texas. Overview of topics include taxonomy, life history, harvest management, habitat management, population estimation, and conservation ecology of exotic species. Additional topics cover wildlife diseases, genetics, economic significance, and human dimensions. Indoor lab exercise will cover identification and aging of species. Field trips will expose students to actual management practices conducted in the field and provide an opportunity for applied skills in planning field studies, data collection, analysis, and synthesis of a management plan. Crosslisted with: BSC 381.

AG 383 - Waterfowl Management
Hours: 3
The course will expose students to concepts of managing waterfowl in North America (i.e.with focus on the conservation practices of those species in Texas. Overview of topics include taxonomy, life history, harvest management, habitat management, population estimation, and conservation ecology of exotic species. Additional topics cover wildlife diseases, genetics, economic significance, and human dimensions. Indoor lab exercise will cover identification and aging of species. Field trips will expose students to actual management practices conducted in the field and provide an opportunity for applied skills in planning field studies, data collection, analysis, and synthesis of a management plan.

AG 385 - International Wildlife Conservation
Hours: 3
The course covers select topics in wildlife conservation such as biodiversity, habitat management, and cultural and political influences for the conservation of fauna in major biomes of Africa, Asia, Europe, Latin America, Oceania and other regions of the world. Students will i) build an understanding of and appreciation for diverse perspectives in wildlife management approaches throughout the world, ii) Competently assess and apply past and current ecological principles to evaluating international approaches to wildlife conservation, iii) Demonstrate constructive dialog with diverse perspectives focusing on international wildlife conservation, and iv) Critically assess an international wildlife conservation policy issue using examples from scientific literature.

AG 389 - Independent Study
Hours: 0-4
Individualized instruction/research at an advanced level in a specialized content area under the direction of a faculty member. May be repeated when the topic varies. Prerequisite: consent of department head.

AG 392 - Appld Ethics US World Ag
Hours: 3
This course examines major, contemporary issues in agriculture and food policy with emphasis on the ethical aspects of each issue. Discussion focuses on assessing the particular economic, cultural, geographic, political, religious, technological and scientific principles with a moral and ethical framework. Course scope is approximately half U.S. domestic issues and half international issues. Prerequisite: Junior standing.

AG 397 - SPECIAL TOPICS
Hours: 1-4
Special Topics. One to four semester hours. Organized class. May be repeated when topics vary.

AG 400 - Seminar
Hours: 1
Seminar. One semester hour. Techniques involved in presenting scientific and technical oral reports. Oral presentations required. Prerequisites: Senior standing.

AG 402 - Ornithology
Hours: 3
This course begins with an overview of current theories regarding the origins of birds and flight. This is followed by a brief survey the living orders and their biogeography. Other topics include the mechanics and adaptations for flight, avian physiology and anatomy, migration, communication and behavior, ecology, and avian conservation. Prerequisites: BSc 301 with a minimum grade of C. Crosslisted with: BSC 402.

AG 404 - Vertebrate Biology
Hours: 3
This course takes a systematic approach to understanding vertebrate evolution, diversity and biology. It will follow the development of each vertebrate taxon through the fossil record from late Cambrian to the present. This is followed by discussions of vertebrate zoogeography, habitat and foraging, feeding modes, dispersal and migration, mating systems and parental care. Prerequisites: BSC 301 with a minimum grade of C. Crosslisted with: BSC 404.

AG 405 - Internship Agri-Industries
Hours: 3-6
Three to six semester hours. This course provides the opportunity for students to gain on-the-job experience in the preparation for careers in the rapidly growing agri-related areas of industry and business. Assignments will be at an approved work situation under supervision of a designated faculty member. Ten to twenty hours per week will be required.

AG 406 - Mammalogy
Hours: 3
The objective of this course is to survey the phylogenetic relationships, diversity, biology, and ecology of mammals, including an understanding of the characterization of the orders and families of the extant mammals based on morphological traits, evolutionary Crosslisted with: BSC 406.

AG 408 - Nutritional Biochemistry
Hours: 3
Nutritional Biochemistry - Three semester hours A course in biochemistry using nutrition as a model. Topics will include the energetics of metabolism, the structure and metabolism of proteins, carbohydrates, lipids and the integration of metabolic systems. Included also will be the chemistry of nitrogenous bases and how transcription and translation is accomplished on the cellular level. The course is 3-credit-hour class with 3 hours lecture and no lab (3,0). Prerequisites are ANS 407, CHEM 212, CHEM 314.

AG 412 - Fundamentals of Biostatistics
Hours: 3
The objective of this course is to provide students with the knowledge and understanding of the methods of statistical analysis applicable to biological research. Emphasis will be placed on the concepts and application of statistical thinking. Basic probability theory, parametric and non-parametric statistics including t-tests, analysis of variance, correlation, regression, and other quantitative methods will be introduced. Prerequisites: MATH 1314 with a minimum grade of C. Crosslisted with: BSC 412.

AG 415 - Upland Bird Ecology and Management
Hours: 3
Status, ecology, management, and conservation issues of North American upland game birds. Student will understand the role of upland game bird professionals. Develop knowledge of the status of North American upland game birds. Understand the basic principles of upland game bird ecology and management. Learn to apply knowledge to solve conservation problems. Crosslisted with: BSC 415.

AG 416 - Wildlife Population Biology
Hours: 3
Three semester hours (2 lec / 2 lab) This course outlines processes governing the abundance and distribution of animals and plants, and the consequences for natural resource management. Practical applications lie in wildlife management, sustainable harvesting of resources, pest control and conservation of endangered species. Topics will include mathematical models of population growth, population viability analysis, and metapopulations, dispersal, population harvesting, predation, population cycles, and competition. Prerequisites: Math 142 or MATH 2312. Crosslisted with: BSC 416.

AG 417 - Geospatial Mapping
Hours: 3
The course will provide basic knowledge of the fundamentals of Geographic Information Systems (GIS), including GIS theory and applications. The course will take a hands-on and problem solving approach to learning GIS and will cover basic GIS including map characteristics and projections, spatial data models, relational databases, and spatial analysis with a focus on natural resource research and management and environmental science. Crosslisted with: BSC 417.

AG 418 - Undergraduate Research Experience
Hours: 1-3
This is a research-intensive course that requires permission from instructor for registration. The course is offered as a variable-credit course, meaning that students may elect to take between 1-3 credits, with a maximum of 3 credits applied towards the degree requirements, at any stage of their undergraduate degree standing (1st-4th year) after they have declared their major. Research projects undertaken by the undergraduate student are managed by a faculty mentor in CASNR based on the credit-hour requirements and the research interests of the student. Students will formulate a contract with the faculty mentor to design and implement inventory and monitoring of wildlife resources at TAMUC, including the Farms, Wetlands, and private or public lands on which research is undertaken by TAMUC faculty and graduate students. Field labs will consist of field work consistent with the experience level of the student and provide an opportunity for applied skills in planning field studies, data collection, analysis, and synthesis of a management plan.

AG 423 - Natural Resources Management
Hours: 3
An investigation of best management practices and conservation techniques used by landowners and managers to protect renewable natural resources from intensive agricultural production. Emphasis will be on preventing soil loss and contamination, maintaining water quality, and protecting wildlife habitat.

AG 435 - Wildlife Habitat Ecology and M
Hours: 3
This class will expose the student to the history and concepts of an animal’s habitat beginning with the ideas of Aldo Leopold to current ideas of what habitat is. Students will be introduced to principles and techniques of habitat management as they apply to forest, rangeland, wetland, and agricultural ecosystems. Current concepts of Conservation Biology such as fragmentation, meta-population ecology, and corridor ecology will also be covered. Students enrolled in this course must be willing to attend field trips when and where feasible to see actual management practices conducted in the field. Crosslisted with: BSC 435.

AG 436 - Plant Diversity & Conservation
Hours: 3
The course focuses on patterns and distribution of plant diversity and threats to plant diversity. Range of strategies and approaches used in plant conservation will be discussed. Crosslisted with: BSC 436.

AG 438 - Wetland Ecology and Management
Hours: 4
Four semester hours (3 lec / 2 lab) This class will address the ecology of wetlands from a systems approach, starting first with what defines a wetland both legally and functionally, and covering important and defining principles of hydro-period, soils, wetland plants, wetland succession, delineation, and wetlands as wildlife habitat. The lab will immerse students in field exercises ranging from wetland plant collection and identification, and wetland bird identification. Students enrolled in this course must be willing to attend field trips when and where feasible to see different wetland types and the function and values they provide. Prerequisites: BSC 307. Crosslisted with: BSC 438.

AG 440 - Human Dimensions of Wildlife
Hours: 3
Human Dimensions of Wildlife Management explains how a wildlife professional can more effectively manage species and social-ecological systems by fully considering the role that humans play in every stage of the wildlife management process. Human Dimensions of Wildlife Management provides the essential information that students and practitioners need to be effective problem solvers to handle a variety of situations, such as managing deer populations in residential areas, encounters between predators and people, or managing citizen input on wildlife issues. Topics will include human dimensions of wildlife management and conservation, wildlife use (hunting and fishing), working with public and private landowners, involving citizen scientists, managing citizen input, using economics to inform Crosslisted with: BSC 440.

AG 462 - Agroecology
Hours: 3
AG 462 Agroecology is a three hour course to understand agroecological concepts that incorporate ideas about a more environmentally and socially sensitive approach to agriculture, one that focuses not only in production, but also in ecological sustainability of a production system. Crosslisted with: BSC 462.

AG 463 - Landscape Ecology
Hours: 3
AG 463 landscape Ecology is a three hour course designed to provide an overview of the relationships between ecological processes in the environment and particular ecosystems using a variety of landscape scales, development of spatial patterns, and organizational levels of research and policy. Crosslisted with: BSC 463.

AG 464 - Principles of Sustainability
Hours: 3
AG 464 Principles of Sustainability is a three hour course designed to provide an overview of the social and biological principles of sustainability. An emphasis will also be placed on understanding on the education, health, population dynamics, culture, agriculture, food security, and natural resources aspects of sustainability. Crosslisted with: BSC 464.

AG 489 - Indst Agricul Sci
Hours: 3
Independent Study. One to four semester hours. Individualized instruction/research at an advanced level in a specialized content area under the direction of a faculty member. May be repeated when the topic varies. Prerequisite: Consent of department head.

AG 490 - H Honors Thesis
Hours: 0-6
AG 490 - H Honors Thesis Hours: 6 Individualized instruction/research at an advanced level in a specialized content area under the direction of a faculty member. Prerequisite Consent of head. Note May be repeated when the topic varies.

AG 491 - H Ind Honors Readings
Hours: 3
AG 491 - H IND HONORS RDGS Hours: 3 Individualized instruction/research at an advanced level in a specialized content area under the direction of a faculty member. Prerequisite Consent of head. Note May be repeated when the topic varies.

AG 497 - Special Topics
Hours: 1-5
Special Topics. One to five semester hours. Organized class. May be repeated when topics vary.

AGED 2301 - Agricultural Education Fundamentals and Curriculum Design
Hours: 3
This course is designed as an entry level program and will cover foundational elements of agricultural education history, philosophy, and theory. Additional emphasis will be placed on introductory principles of curriculum development and design.

AGED 3300 - Introduction to the Profession of Agricultural Education
Hours: 3
This course provides prospective agricultural educators with a beginning foundation for understanding learners, enhancing student achievement, and understanding the teaching environment. The course will emphasize the structure, organization, management, and governance of the American school system and current issues related to the semiprofessional legal, ethical, and multicultural foundations of teaching also will be discussed. Prerequisites: All requirements for admission to the teaching program within the College of Education including minimum overall GPA of 2.75 and TSI Complete. Note: Thirty clock hours of professional field experiences are required.

AGED 3301 - Experiential Learning and Leadership
Hours: 3
This course is an introduction to the history, philosophies, and practices of utilizing experiential learning within the context of agricultural education. Particular emphasis will be placed on identifying opportunities to transform experiences provided within the three-circle model of agricultural education into experiential learning.

AGED 297 - Special Topics
Hours: 1-4
Organized class. May be repeated when topics vary.

AGED 371 - Agricultural & Youth Leadershi
Hours: 3
Agricultural and Youth Leadership. Three semester hours. Application of leadership principles with emphasis on interpersonal and personal skills, organizational structure, and FFA and 4-H Club activities.

AGED 404 - Supervised Experience Programs
Hours: 3
Supervised Experience Programs - Three semester hours Theories and practices associated with experiential learning models used in secondary agricultural science programs and community-based youth programs.

AGED 465 - Student Tch Secondary Sch
Hours: 6
The student will teach in a selected school for a continuous period of 14 weeks under the joint supervision of local school officials and personnel of the University. The student teacher will engage in and develop, as nearly as possible, all professional competencies deemed essential in teaching an Agricultural Science and Technology program. Senior standing required. Prerequisite: PSY 300 With a grade of C or better. Admittance to the College of Education Teacher Certification Program with an approved Placement.

AGED 470 - Methods of Teaching Agricultural Science and Technology
Hours: 3
Professional skills deemed appropriate to and essential in the teaching of all phases of a local program of Agricultural Science and Technology will be developed. This course is taken during the student teaching residency semester. Senior standing required. Prerequisites: AGED 371.

AGED 471 - The Program of Instruction in Agricultural Science and Technology
Hours: 3
A "Comprehensive Program of Instruction" will be planned for each student, including courses of study for the secondary school, programs of activities for th FFA, resource use and parent/community relations. Philosophy and administration of secondary and community-based Agricultural Science and Technology programs will be emphasized. Senior standing required. Prerequisites: PSY 300 with a minimum grade of C.

AGED 489 - Independent Study
Hours: 1-6
Individualized instruction/research at an advanced level in a specialized content area under the direction of a faculty member. May be repeated when the topic varies.

AGED 497 - Special Topic
Hours: 1-4
Organized class. May be repeated when topics vary.

ALC 2301 - Introduction to Agricultural Leadership, Education, and Communication
Hours: 3
This course is an introduction to principles of leadership, personal skill development, academic and scholarly development and application of leadership theory and leadership models. Emphasis in leadership styles, application of theory, social justice, conflict management, positive psychology, emotional intelligence, self-assessment, and reflection as applied to agriculture.

ALC 2302 - Personal Leadership Development in Agriculture
Hours: 3
This course focuses on the development of leadership in agricultural and related settings. The development, application, and reflection of personal leadership capabilities through self-assessments and experiential learning activities will be explored. Development of effective leadership identity through personal leadership inventories which include strengths, personality type, values, vision, communications skills, influence, commitment, goal achievement strategies, and emotional intelligence.

ALC 3301 - Organizational Leadership Development in Agriculture
Hours: 3
This course is designed for students who are interested in positions of leadership and who want to learn more about creating, organizing, and direction of effective groups and teams. Exploration of strategies and techniques for successful teams including conflict management, facilitation, negotiation, skill building, and experiential activities in agriculture. Topics of discussion include: components of a group and team, relationships of group and team members, effectiveness of groups and teams, and communication within groups and teams. Focus on major theories and impact of effective leadership in organizations in both theory and practice will also be explored. Students will develop skills in decision-making, management, and ethical leadership related to agricultural organizations.

ALC 3311 - Contemporary Issues in Agriculture Leadership, Education, and Communications
Hours: 3
This course is an evaluation of current issues pertaining to leadership in agriculture including a historical look at leadership and its impact on produces and consumers. Content and teaching will promote understanding of the agricultural industry with a focus on advocacy, written, online, and oral communications.

ALC 3312 - Agricultural Communications and Publications
Hours: 3
This course provides students with an introduction to the field of agricultural communications and journalism by providing an overview of the history, importance and role communications play in agriculture. This course will introduce the communication process, how agricultural communicators utilize media to reach a variety of audiences, audience analysis, blog and social media writing, photography, newsletters.

ALC 4301 - Professional Presentations in Agricultural Leadership, Education, and Communications
Hours: 3
This course emphasizes techniques of interviewing resume writing, letters of inquiry, and presentation of scientific and technical oral reports. Effective listening strategies, communication strategies, interpersonal skills and presentation strategies essential for use in today's workplace will also be explored through the study and application of strategies and techniques for effective presentations in the food, agricultural, natural resources, as well as other professions, with emphasis on oral and visual presentation techniques. Presentation skills and strategies for formal and informal situations including conferences, poster presentations along with leadership, conflict resolution, interviewing, negotiation, and group communication theory and strategies will be discussed.

ALC 4311 - Public Relations, Crisis Communications, and Leading Change
Hours: 3
This course offers the development of theoretical knowledge of strategically managing communications and developing mutually beneficial relationships with the public, crisis issue management, crisis communication, image repair discourse, and implementing effective change leadership. Best practices (and other) practices are discussed through real-world case studies.

ALC 4312 - Senior Portfolio in Agricultural Leadership and Communications
Hours: 3
This course is designed to develop an ongoing reflection of individual accomplishments, skills, activities, programs, and other related experiences contributing to student personal development. The course will focus on: a personal statement of leadership/personal mission statement, resume, compilation of leadership experiences, and compilation of reflective essays on leadership experience including reflection on student leadership style, key qualities and strengths you possess, essay on leadership growth, goals, professional experience, certificates, honors, and letters of reference.

ALC 4602 - Professional Internship in Agricultural Leadership and Communications
Hours: 6
This course provides the opportunity for students to gain on-the-job experience to prepare them for careers in agricultural leadership, education, and communications. There are two primary routes to satisfy the internship: The first is a traditional, formal placement internship requiring 20 hours per week equal to 200 hours (minimum). The second option is a series of smaller, shorter placements over an extended duration to a minimum of 200 combined hours. For both routes students will develop goals, submit progress reports, supervisor evaluations, and develop a report post internship.Consultation with faculty advisor is required prior to course registration is required to ensure the internship will provide the student with experience applicable to the agricultural leadership, education, and/or communications discipline. Prerequisites: Instructor Approval.

AMC 2303 - Agricultural Welding Techniques
Hours: 3
(AGRI 2303) Three semester hours (2 lec / 2 lab) Introduction to oxy-fuel cutting/welding, shielded metal arc welding, and gas metal arc welding processes in context of applications in agricultural equipment repair and fabrication.

AMC 297 - Special Topics
Hours: 1-4

AMC 315 - Agri Systms Technology Mgmt
Hours: 3
Agricultural Systems Technology Management. Three semester hours (2 lecture, 2 lab). Preliminary study to acquaint student professionals with the principles and theories needed to comprehend and manage agricultural and environmental technology; introduce the application of information technology to agricultural and environment systems; develop mathematical concepts and unit analysis skills associated with machinery and equipment, industry and marketing, energy, structural and environmental and natural resource systems. Focus shall be on basic knowledge rather than on in-depth analysis of the systems covered. Prerequisites: Math 141 or consent of the instructor.

AMC 389 - Independent Study
Hours: 1-4
Independent Study. One to four semester hours. Individualized instruction/research at an advanced level in a specialized content area under the direction of a faculty member. May be repeated when the topic varies. Prerequisite: Consent of department head.

AMC 397 - Special Topics
Hours: 1-4
Special Topics - 1-4 Semester Hours

AMC 424 - Agricultural Safety
Hours: 3
Three semester hours (2 lec / 2 lab) Principles and strategies for implementing safety training and reducing risk of injuries in agricultural enterprises including shop and machinery operations, chemical applications, livestock handling, transportation, and farm-based recreation. Prerequisites: Junior or instructor approval.

AMC 425 - Housing and Home Improvement
Hours: 3
This course addresses contemporary issues relevant to residential family housing and home improvement.

AMC 426 - Agri Power & Energy Management
Hours: 3
A study of the principles and theories needed to comprehend and manage agricultural and environmental technology associated with machinery/ equipment and energy systems. Reduction and synthesis of natural and applied science principles which involve mechanical, electrical, chemical power systems; the adjustments, fabrication, maintenance, repair and man agreement of machines and equipment utilized in said systems; knowledge of entrepreneurship, client relations, communications, economics, safety, service, planning, and regulation of technologies associated with agriculture and the environment.

AMC 428 - Laboratory Management in Agricultural Mechanization
Hours: 3
Principles and techniques for planning, organizing, and supervising instructional activities in agricultural mechanization. Topics include lab safety, inventory control, equipment selection, skill development, and assessment methods.

AMC 489 - Independent Study
Hours: 1-4
Independent Study. One to four semester hours. Individualized instruction/research at an advanced level in a specialized content area under the direction of a faculty member. May be repeated when the topic varies. Prerequisite: Consent of department head.

AMC 497 - Special Topics
Hours: 1-4
Special Topics. One to four semester hours. Organized class. May be repeated when topics vary.

ANS 1119 - Introduction to Animal Science Laboratory
Hours: 1
(AGRI 1119) Laboratory in the preliminary study of the selection, reproduction, nutrition and management of beef and dairy cattle, swine, small ruminants, horses and poultry.

ANS 1319 - Introduction to Animal Science
Hours: 3
(AGRI 1319) Study of the selection, reproduction, nutrition and marketing of beef and dairy cattle, small ruminants, swine, horses and poultry.

ANS 2319 - Livestock Handling and Presentation
Hours: 3
Students will be engaged in active experiential learning in all aspects of handling, training, fitting and presenting livestock in meat animal production systems. Included in the content will be selection, feeding, clipping, and stock show preparation.

ANS 2321 - Livestock Selection & Evaluation
Hours: 3
(AGRI 2321) Three semester hours (1 lec / 4 lab) Selection and evaluation of breeding and market animals, breed characteristics, and carcass evaluation as it relates to live animal evaluation. Prerequisites: ANS 1319 or concurrent enrollment and ANS 1119 or concurrent enrollment.

ANS 297 - Special Topics
Hours: 1-4
Organized class. May be repeated when topics vary.

ANS 300 - Pre-Junior Livestock Judging Team
Hours: 2
Beginning livestock judging training, including evaluation, selection, and oral reasons, for students that will compete on the East Texas A&M University Livestock Judging Team the following Spring. Class will also meet outside of the scheduled time. Prerequisites: ANS 2321 (Livestock Evaluation and Selection) with a minimum grade of C.

ANS 301 - Junior Livestock Judging Team
Hours: 2
Competitive Livestock Judging Team representing Texas A&M University-Commerce at intercollegiate livestock judging contests in the Spring Semester. Students will receive extensive training in livestock evaluation, selection, and oral reasons. Team practices, travel, and contests will also occur outside of regularly scheduled class periods. Prerequisites: ANS 300 (Pre-Junior Livestock Judging Team), with a minimum grade of C.

ANS 307 - Animal Feeds and Feeding
Hours: 3
Three semester hours (2 lec / 2 lab) Chemical composition of feedstuffs, requirements of domestic animals, utilization of nutrients, formulating and balancing rations. Prerequisites: ANS 1319, ANS 308, and MATH 1314.

ANS 308 - Animal Nutrition
Hours: 3
Functions of carbohydrates, proteins, vitamins, lipids, minerals and water. Chemistry and physiology of digestion, absorption, and metabolism of nutrients and their metabolites in animals. Prerequisites: ANS 1319, CHEM 1305 or CHEM 1311, and BSC 1406.

ANS 309 - Animal Breeding
Hours: 3
Genetic evaluation and estimation of breeding values. Selection and the use mating systems including the use of inbreeding, crossbreeding, and other mating plans. Prerequisites: MATH 1314 and ANS 1319.

ANS 310 - Animal Genetics
Hours: 3
An introduction to molecular genetics including Mendelian and population genetics, replication, transcription, and translation. Gene expression and regulation. Use of current genomic methodologies including genotyping and transgenics in animal agriculture. Prerequisites: ANS 1319 or BSC 1407 and CHEM 1311.

ANS 311 - Reproductive Physiology of Domestic Animals
Hours: 3
Three semester hours (2 lec / 2 lab) Comparative anatomy and physiology of the male and female reproductive systems of domestic animals, endocrinology of reproduction, gestation and parturition. Prerequisites: ANS 1319, BSC 1406, CHEM 1311.

ANS 312 - Artificial Breeding of Domestic Animals
Hours: 3
Three semester hours (2 lec / 2 lab) Principles of artificial breeding of farm animals. Semen collection and evaluation, gamete freezing and storage, reproduction management techniques and pregnancy diagnosis. Prerequisites: ANS 311.

ANS 313 - Dairy Cattle Management
Hours: 3
Dairy breeds and their selection, milk secretion, composition and handling, milking equipment and facilities. Prerequisites: ANS 1319.

ANS 314 - Comparative Vertebrate Physiology
Hours: 3
The course is a comparative study of basic physiological principles and functional organization with emphasis on the functioning of organ systems in various vertebrate classes and their adaptation to the environment leading to an understanding of evolutionary relationships. The course evaluates i) the mechanisms by which animals perform their life-sustaining functions, ii) the ways in which diverse phylogenetic groups of animals both resemble each other and differ, iii) the ways in which physiology and ecology interact, and iv) the importance of all levels of organization, from genes to proteins and tissues to organs, for the full understanding of physiological systems. Cross listed with BSC 314

ANS 317 - Livestock Management Techniques
Hours: 3
Three semester hours (2 lec / 2 lab) Application of animal handling and management techniques for dairy, beef, sheep, swine and poultry. Prerequisites: ANS 1319 and ANS 1119.

ANS 319 - Anatomy and Physiology of Domestic Animals
Hours: 3
Structure and function of organ systems with special reference to domestic animals. Prerequisites: ANS 1319 and BSC 1406.

ANS 320 - Anatomy and Physiology of Domestic Animals Laboratory
Hours: 1
Laboratory systematic study of the gross and microscopic anatomy and physiology of domestic animals. NOTE: Dissection of animal cadavers will be required of all students. Prerequisites: ANS 1319.

ANS 389 - Independent Study
Hours: 0-4
Independent Study. One to four semester hours. Individualized instruction/research at an advanced level in a specialized content area under the direction of a faculty member. May be repeated when the topic varies. Prerequisite: Consent of department head.

ANS 397 - Special Topics
Hours: 0-4
Organized class. May be repeated when topics vary.

ANS 401 - Senior Livestock Judging Team
Hours: 2
Students will represent Texas A&M University-Commerce in intercollegiate livestock judging contests in the Fall Semester (finishing their collegiate livestock judging eligibility). Students will receive advanced training in livestock evaluation, selection, and oral reasons. Team practice, travel, and contests will also occur outside of scheduled class times. Prerequisites: ANS 301 (Junior Livestock Judging Team), with a minimum grade of B.

ANS 409 - Ultrasound Techniques
Hours: 3
Three semester hours (2 lec / 2 lab) Ultrasound Techniques for Body Composition in Livestock. Basic knowledge and techniques of real-time ultrasound to measure body composition in livestock. Prerequisites: ANS 1319.

ANS 411 - Sheep and Goat Management
Hours: 3
Three semester hours (2 lec / 2 lab) Types, breeds and usefulness of sheep and goats in the U.S. Management systems, production schemes, and general husbandry. Prerequisites: ANS 1319.

ANS 412 - Beef Cattle Management
Hours: 3
Three semester hours (2 lec / 2 lab) Concepts and principles of breeding, feeding and management of beef cattle in the U.S. A survey of the past, present and future ideas of the beef cattle industry. Prerequisites: ANS 1319.

ANS 413 - Swine Management
Hours: 3
Three semester hours (2 lec / 2 lab) Commercial and purebred swine operations. Feeding, breeding, and management practices, production efficiency and waste management facilities. Prerequisites: ANS 1319.

ANS 415 - Companion Animal Management
Hours: 3
Anatomy, physiology, nutrition, genetics and health of companion animals including cats, dogs, rabbits, rats, mice, reptiles, amphibians and fish. Problem solving and enterprise management. Prerequisites: ANS 1319 and junior standing.

ANS 417 - Domestic Animal Behavior and Welfare
Hours: 3
Investigation into the evolution and etiology of common and uncommon domestic animal behaviors. In conjunction to common behaviors and production practices the ethical treatment and management of domestic animals from the welfare perspective will be covered; including evolution, regulations, legislation on a global scale. Prerequisites: ANS 219 or ANS 319. Crosslisted with: ANS 517.

ANS 419 - Diseases and Parasites of Livestock
Hours: 3
A study of the control and prevention of common infectious and non-infectious diseases of livestock. The common parasites, their prevention, and control. Prerequisites: ANS 1319 and BSC 1406.

ANS 489 - Independent Study
Hours: 1-4
Independent Study. One to four semester hours. Individualized instruction/research at an advanced level in a specialized content area under the direction of a faculty member. May be repeated when the topic varies. Prerequisite: Consent of department head.

ANS 490 - H Honors Thesis
Hours: 3
Honors Thesis - Three semester hours

ANS 491 - H Honor Reading
Hours: 3
Honors Readings in Animal Science. Three semester hours.

ANS 497 - Special Topics
Hours: 0-4
Special Topics. One to four semester hours. Organized class. May be repeated when topics vary.

ANZ 1101 - Orientation to Anthrozoology
Hours: 1
This course serves as an introduction to the field of anthrozoology and its intersection with agricultural sciences and other disciplines. Students will explore the foundational concepts of anthrozoology, understand its relevance to various industries, and learn about campus resources and support available to them. The course aims to provide insights into the anthrozoology curriculum and course content, ensuring that students have a clear understanding of their academic journey.

ANZ 1301 - Introduction to Companion and Exotic Animal Sciences
Hours: 3
This course provides students with an overview of the fundamental concepts and principles in the field of companion and exotic animal sciences. Through a combination of lectures, discussions, and hands-on activities, students will explore the biology, behavior, nutrition, health, and management of a variety of companion and exotic animals. The course aims to foster an understanding of responsible care practices and ethical considerations for these animals in various contexts.

ANZ 3301 - Progression and Transformation of Human-Animal Relationships
Hours: 3
This course provides an in-depth exploration of the historical progression of human-animal relationships and the transformative impact of these interactions on both humans and animals. Students will analyze the diverse roles of animals in human societies, including their contributions to warfare, agriculture, culture, and more. The course will also examine the development of domestic and captive animals, exploring the physical and behavioral changes associated with domestication and captivity. The focus will be on understanding the complex interplay between humans and animals throughout history and the present, with an emphasis on the effects of domestication and captivity on animals' genetics, behavior, and well-being. Prerequisites: ANS 1319 or ANZ 1301 and ENG 1301 with a C or higher.

ANZ 3310 - Public and Personal Relationships with Animals
Hours: 3
This course delves into the multifaceted impact of human-animal relationships on various aspects of society, exploring the public and personal connections humans have with animals. Through the examination of different types of relationships, students will analyze the portrayal of animals in media, literature, and fiction, and its influence on public perceptions and interactions with animals. Students will address questions such as why certain animals are kept as pets, how animal portrayal in media affects perceptions, and how fiction shapes human-animal interactions. By exploring the intersection of human-animal relationships and media, this course aims to enhance students' critical thinking and understanding of the complexities surrounding our interactions with animals. Prerequisites: ENG 1301.

ANZ 3331 - Animals in Global Cultural Contexts
Hours: 3
This course provides a comprehensive exploration of human-animal interactions from a cultural perspective across diverse societies worldwide. Students will analyze and discuss the multifaceted factors that contribute to the relationships between humans and animals on a global scale. By examining economic, cultural, religious, geographic, and political considerations, students will gain insights into the complex and dynamic ways in which humans interact with animals across different cultural contexts. The course will focus on recent and current cultural factors that shape global human-animal relationships, fostering a nuanced understanding of the interplay between culture, society, and animals. Prerequisites: ENG 1301.

ANZ 3332 - Behavior of Companion and Exotic Animals
Hours: 3
This course provides an in-depth exploration of the behavior of companion animals, captive exotic animals, and those in the wild. Students will study the significance of typical behaviors and stereotypies in various species, while also delving into cognition, neurotypical regulation of stress, and behavioral responses. The course emphasizes the importance of appropriate husbandry and management practices, including nutrition, enclosure design, and handling techniques for ensuring the well-being of animals in different settings. By examining behavior from both a physiological and environmental perspective, students will develop a comprehensive understanding of animal behavior and its practical implications. Prerequisites: ENG 1301 and BSC 1406.

ANZ 3335 - Laws and Regulations of Animal Care and Use
Hours: 3
This course provides an in-depth examination of the legal and regulatory frameworks governing animal care and use across various contexts, including livestock, companion animals, captive exotic animals, and wildlife. Students will explore guidelines and regulations established by regulatory bodies such as the USDA, AALAC, AVMA, and others in the United States, while also considering global regulatory bodies and guidelines. The course emphasizes current legal issues and challenges related to animal care and welfare, including enforcement mechanisms. By analyzing laws and regulations, students will develop a comprehensive understanding of the legal aspects of animal care and use. Prerequisites: ENG 1302 and ANS 1319 or ANZ 1301 or BSC 1407.

ANZ 4101 - Career Exploration in Anthrozoology
Hours: 1
This course is designed to provide students with a comprehensive understanding of the career opportunities available within the discipline of Anthrozoology. Through a series of interactive activities, mock interviews, guest speaker sessions, and networking events, students will gain insights into potential career paths upon graduation. The course will emphasize practical preparation for entering the workforce, including resume building, interview techniques, and the development of essential soft skills. By the end of the course, students will be better equipped to pursue fulfilling careers related to Anthrozoology. Prerequisites: Junior standing.

ANZ 4303 - Communicating Science to the Public
Hours: 3
This course explores effective methods of translating complex scientific concepts into engaging and accessible content for diverse public audiences. Students will learn various communication modalities, including public speaking, social media utilization, and writing, to convey scientific information to the general public. The course emphasizes the importance of clear and accurate science communication, with a focus on adapting technical information from peer-reviewed sources into material that resonates with non-expert audiences. Through practical exercises and projects, students will enhance their ability to bridge the gap between scientific knowledge and public understanding. Prerequisites: ENG 1302.

EQSC 2321 - Horse Evaluation
Hours: 3
(AGRI 2321) Three semester hours (2 lecture, 2 lab). Introduction to horse judging. Establishes the critical and analytical thinking skills, judgment, and written and oral communication skills in preparation for horse judging in competitive settings.

EQSC 140 - Introduction to Horsemanship and Equitation
Hours: 3
Three semester hours (2 lec / 2 lab) Introduction to horse handling and equitation including grooming, saddling, bridling, horse care and basic riding techniques (English and Western). Emphasis on practical work and confidence building for students with little or no horse experience.

EQSC 220 - Intermediate Horsemanship and Equitation
Hours: 3
Three semester hours (2 lec / 2 lab) This course focuses on the refinement of the skills of western riders with some previous experience. The emphasis is on training or conditioning of older horses, and understanding equine behavior as it relates to riding and training horses. Prerequisites: EQSC 140 or instructor approval.

EQSC 240 - Introduction to Equine Science
Hours: 3
Three semester hours (2 lec / 2 lab) Introduction to structure and function of the horse, equine management, nutrition, conformation, biomechanics, reproduction and health. Overview of the equine industry and career choices.

EQSC 241 - Advanced Horsemanship
Hours: 3
Three semester hours (2 lec / 2 lab) Refinement of equitation and horse training principles for various disciplines. Prerequisites: EQSC 240, EQSC 345.

EQSC 297 - Special Topics
Hours: 1-4
Organized class. May be repeated when topics vary. Prerequisites: Consent of department head.

EQSC 321 - Equine Genetics and Mating Selection
Hours: 3
Principles of genetics, and application of breeding selection with emphasis on the horse. Study of genetic disorders, inheritance, and genetic improvement of horses. Prerequisites: ANS 118 or EQSC 240.

EQSC 322 - Equine Exercise Physiology
Hours: 3
Fundamentals of evidence-based equine training and exercise methods. Discussion of training programs, their assessment and effectiveness, and prevention of exercise-induced injuries. Prerequisites: ANS 1319 or EQSC 240, and EQSC 323.

EQSC 323 - Equine Anatomy and Physiology
Hours: 3
Equine structure and function with emphasis on the nervous, respiratory, digestive, cardiovascular and musculoskeletal systems.

EQSC 325 - Advanced Horse Evaluation
Hours: 3
Three semester hours (2 lec / 2 lab) Course emphasis is on equine evaluation in competition with refinement of decision making and public speaking skills. Travel to horse competitions is required. Prerequisites: EQSC 225.

EQSC 335 - Stock Horse Equitation
Hours: 3
Three semester hours (2 lec / 2 lab) This course focuses on the training and showing of horse in collegiate stock horse competition. Prerequisites: Instructor approval.

EQSC 340 - Equine Marketing and Sale Fitting
Hours: 3
Three semester hours (2 lec / 2 lab) This class is designed to help students learn the objectives for training yearling colts. The students will do ground work with the horses that is beyond halter breaking the colts. The students will work on getting horses ready for the many aspects involved in being saddle horses. The students will learn how to teach the colts to walk, trot, and lope in both directions on a longe line, load into a trailer on their own, listen to verbal commands, come up to people in the pasture for catching, stand correctly and still for purposes of show, general obedience, and future farrier needs, as well as many other aspects of training a young horse.

EQSC 341 - 2-Yr-Old Horse Training
Hours: 3
Three semester hours (2 lec / 2 lab) Habituation of the young horse to tack and work under saddle. Prerequisites: EQSC 240, EQSC 241, EQSC 345.

EQSC 342 - Equine Nutrition
Hours: 3
Nutrition of the horse according to stage of development, use and training. Discussion of ration formulation, feeding practice and digestive disorders. Prerequisites: ANS 1319 or EQSC 240.

EQSC 343 - Equine Reproduction
Hours: 3
Anatomy and physiology of the mare and stallion including lactation, endocrinology, parturition, semen quality and behavior. Management of broodmares, stallions and foals. Prerequisites: ANS 1319 or EQSC 240.

EQSC 345 - Equine Training
Hours: 3
Three semester hours (2 lec / 2 lab) Introduction to equine perception, behavior, memory and learning. Behavior analysis in young and adult horses and application of evidence-based training principles. Introduction of corrective methods to discourage unwanted behaviors and enforce the desired behaviors. Prerequisites: EQSC 220 or instructor approval.

EQSC 346 - Equine Reproductive Techniques
Hours: 3
Three semester hours (2 lec / 2 lab) Introduction to routine reproductive techniques such as estrus detection, semen management, breeding techniques, artificial insemination, sonographic pregnancy diagnosis, and introduction to reproductive health management. Emphasis is on stallion, mare and foal examination and application of veterinary techniques related to equine reproduction. Prerequisites: ANS 1319 or EQSC 240, EQSC 343.

EQSC 350 - Equine Sales & Marketing
Hours: 3
Three semester hours (2 lec / 2 lab) This course involves discussions of the economic, structural, cultural, and political factors impacting marketing functions in equine business enterprises. Advertising and promotions for sale horses, determining prices for horses, breeding fees, how to analyze pedigrees and black type pedigrees, as well as the application of market research design and methodology in establishing equine sales related businesses. Students will also learn how to fit and prepare a young horses for sale. Prerequisites: EQSC 240 or ANS 1319.

EQSC 355 - Equine Industry Tour
Hours: 3
Three semester hours (2 lec / 2 lab) Tours of breeding, training, and competition facilities that are of importance to the equine industry. An additional course fee may be assessed to cover travel, and lodging arrangements. The student will be required to pay this course fee in advance of departure for the tour. Scholarship funds may not cover the additional expense of this course. Student will be responsible for own meals and extras. Prerequisites: EQSC 240.

EQSC 389 - Independent Study
Hours: 0-4
Individualized instruction/research at an advanced level in a specialized content area under the direction of a faculty member. May be repeated when the topic varies. Prerequisites: Consent of department head.

EQSC 441 - Stable Management
Hours: 3
Horse and barn management principles for breeding, training or boarding facilities including horse and client safety, preventative health care, record keeping, emergency care, facility and manure management, feed and supply management, equine law and customer relations. Prerequisites: EQSC 240.

EQSC 443 - Equine Enterprise Management
Hours: 3
Application of economic principles to the equine industry in order to develop a profitable equine business. Discussion of strategies to develop a business idea or a starter business, as well as adequate pricing and marketing of equine services. Prerequisites: ANS 118 or EQSC 240.

EQSC 489 - Independent Study
Hours: 1-4
Individualized instruction/research at an advanced level in a specialized content area under the direction of a faculty member. May be repeated when the topic varies. Prerequisites: Consent of department head.

EQSC 490 - H Honors Thesis
Hours: 3
Honors Thesis. Three semester hours.

EQSC 491 - H Ind Honors Readings
Hours: 3
Individualized instruction/research at an advanced level in a specialized content area under the direction of a faculty member.

EQSC 497 - Special Topics
Hours: 0-4
Special Topic

FCS 375 - Foundations in Family and Consumer Sciences
Hours: 3
An overview of historical and philosophical origins, career opportunities, and responsibilities associated with Family and Consumer Sciences professions. Youth leadership activities, professional organizations, cooperative extension, and secondary education programs in Family and Consumer Sciences will be emphasized.

FCS 389 - Independent Study
Hours: 0-4
Independent Study. One to four semester hours. Individualized instruction/research at an advanced level in a specialized content area under the direction of a faculty member. May be repeated when the topic varies. Prerequisite: Consent of department head.

FCS 425 - Housing & Home Improvement
Hours: 3
This course addresses contemporary housing issues relevant to family residences and home improvement.

FCS 475 - Instructional Techniques
Hours: 3
Instructional techniques commonly used by Family and Consumer Sciences professionals including classroom, laboratory, work-based, project-based, virtual, and non-formal settings.

FCS 489 - Independent Study
Hours: 0-4
Independent Study. One to four semester hours. Individualized instruction/research at an advanced level in a specialized content area under the direction of a faculty member. May be repeated when the topic varies. Prerequisite: Consent of department head.

FDSC 1329 - Principles of Food Science
Hours: 3
(AGRI 1329) Three semester hours (2 lecture, 2 lab). Basic principles of food preservation in relation to processing techniques and quality control procedures. Processing effects on aesthetic and nutritional food quality of plant and animal products will be explored. Field trips to food processing companies will be required.

FDSC 318 - Meat Technology
Hours: 3
Three semester hours (2 lecture, 2 lab). Theory and practice of slaughtering, processing, curing, and storing meat from domestic animals. Wholesale and retail cuts. Prerequisites: ANS 1119, ANS 1319.

FDSC 421 - Food Systems: Farm to Fork
Hours: 3
This course will introduce students to the concept of food systems at the local, regional, and global levels. Students will examine and reflect on critical issues influencing food production, processing, distribution, and consumption. Prerequisites: Junior standing.

FDSC 489 - Independent Study
Hours: 0-4
Independent Study. One to four semester hours. Individualized instruction/research at an advanced level in a specialized content area under the direction of a faculty member. May be repeated when the topic varies. Prerequisite: Consent of department head.

FDSC 497 - Special Topics
Hours: 1-4
Special Topics. One to four semester hours. Organized class. May be repeated when topics vary.

PLS 1107 - Applied Plant Science Lab
Hours: 1
(PLS 1107) Course will provide students with hands-on exercises in the lab, greenhouse, and field. Students will grow agronomic and vegetable crops, examine seeds with a hand-lenses, separate plants into their morphological components, prepare and view cross sections of leaves and stems, identify agronomically important seeds and plants, conduct a seed or plant experiment via greenhouse or take-home components, calculate fertilizers and other agronomic math problems, and view agronomic equipment.

PLS 1115 - Introduction to Horticulture Laboratory
Hours: 1
(AGRI 1115) Introduction to the techniques and science for the growth and propagation of horticultural plants, including identification, propagation, fertilization, and pruning.

PLS 1307 - Introduction to Plant Science & Agronomy
Hours: 3
(PLS 1307) An introduction to the principles of plant growth, plant morphology, crop development and production, tillage and soil conservation practices, pest management, crop improvement, and crops of the world.

PLS 1315 - Introduction to Horticulture
Hours: 3
(AGRI 1315) Introduction to the science and art of modern horticultural plant production and growth, including propagation, fertilization, pest control, and pruning; major groups of garden crops including vegetables, fruits and nuts, ornamentals, houseplants, and florist crops. crops; lab includes propagation and culture of garden plants in field and greenhouse.

PLS 2313 - Economic Entomology
Hours: 3
(AGRI 2313) Three semester hours (2 lecture, 2 lab). This course introduces students to the major orders of insects and other arthropods of economic importance with specific emphasis on those beneficial and harmful to agricultural and horticultural crops, livestock, pets, and food products. Control techniques using Integrated Pest Management will be included.

PLS 230 - Ornamental Plant Identification
Hours: 3
Three semester hours (2 lec / 2 lab) Ornamental trees, shrubs, vines, and garden annuals and perennials. Their identification, nomenclature, classification, cultural requirements and landscape uses.

PLS 297 - Special Topics
Hours: 1-4
Organized class. May be repeated when topics vary.

PLS 303 - Introduction to Floral Design
Hours: 3
Three semester hours (2 lec / 2 lab) Introduction to the history and uses of floral art in society. Principles and elements of design will be discussed and demonstrated using floral materials.

PLS 305 - Landscape Design
Hours: 3
Design of residential and commercial landscapes. The student will learn basic design concepts and themes, be able to create landscape plans, and will be able to provide a cost estimate for the design. Prerequisites: PLS 230 or instructor approval.

PLS 306 - Plant Propagation
Hours: 3
Three semester hours (2 lec / 2 lab) This course provides an introduction to sexual and asexual plant propagation. The student will learn the skills and techniques to successfully propagate plants from seeds and other vegetative structures. Prerequisites: PLS 1315 or PLS 1307.

PLS 309 - Soil Science
Hours: 3
Origin, formation, fertility and management of soils. Prerequisites: PlS 115 or 1415, and Chem 1405 or 1411.

PLS 320 - Soil Fert-Plant Nutrition
Hours: 3
Soil Fertility and Plant Nutrition. Three semester hours. Elements required for plant nutrition and their effects on plant growth. Principles of uptake, transport and assimilation. Prerequisite: PLS 309.

PLS 323 - Field Crops
Hours: 3
Three semester hours (2 lecture, 2 lab). Principles of agronomic crop production practices. Major field crops and management techniques will be studied. Prerequisites: PLS 1307 OR PLS 1315.

PLS 324 - World Herbs and Vegetables
Hours: 3
A comprehensive overview of major and minor vegetable crops and culinary herbs grown around the world, U.S., and Texas in terms of center of origin, history, classification, economic importance and marketing patterns, nutritional value, physiological growth and development patterns, and commercial production practices. Prerequisites: PLS1307 Introduction to Plant Science or PLS 1315 Introduction to Horticulture.

PLS 326 - Forage and Pasture Crops
Hours: 3
Three semester hours (2 lec / 2 lab) The production, harvesting, storage, and uses of forage crops, hay and pasture crops, improvements, care and management of pastures given special emphasis. Practice work includes identification of seeds and plants, judging of hay, and field and pasture observation. Prerequisites: PLS 1307 OR PLS 1315, PLS 309.

PLS 327 - Hydroponic Crop Production
Hours: 3
Three semester hours (2 lec / 2 lab) Principles of hydroponic production systems, including types of system, nutrient solution preparation and management, crop response to aerial environmental factors and their manipulation, new technologies inherent to controlled environment agriculture (plant factories, vertical farming). Hands-on experience with the practice of hydroponic production of major vegetables (leafy greens, culinary herbs, and vine crops). Prerequisites: PLS 324 World Herbs and Vegetables.

PLS 329 - Soil Science Laboratory
Hours: 1
Atudents will explore laboratory techniques to determine soil physical and chemical properties that are related to plant growth. Prerequisites: PlS 115 or 1415, and Chem 1405 or 1411.

PLS 355 - Interior Plantscaping
Hours: 3
Three semester hours (2 lec / 2 lab) This course provides an introduction into interior plantscapes. The course will include identification, selection, installation, maintenance, and management of plants used in interior landscapes.

PLS 381 - Crop Physiology
Hours: 3
Physiological processes underlying crop management practices and their alternatives. Prerequisites: Chem 1407, PlS 115 or PLS 1415.

PLS 397 - Special Topics
Hours: 1-4

PLS 420 - Crop Production Practicum
Hours: 3
Crop Production Practicum. Three semester hours (1 lecture, 4 lab). Study of crop production practices in this area by actually planting, growing, harvesting, and marketing a crop: (a) Wheat or Oats; (b) Corn; (c) Grain Sorghum; (d) Cotton. A report, including costs and returns, will be due upon completion of the project. Course may be repeated when subject varies, up to a maximum of 9 hours. Prerequisite: PlS 115.

PLS 430 - Greenhouse Management
Hours: 3
Three semester hours (2 lec / 2 lab) This course covers greenhouse structures and equipment needed for successful plant production in a greenhouse. The student will learn about greenhouse construction, production, and management as a business venture. Prerequisites: PLS 1315 or 1307.

PLS 434 - Principles of Weed Science
Hours: 3
Three semester hours (2 lec / 2 lab) An introduction to the principles of weeds, weed control, and herbicides. Prerequisites: PLS 1307 or PLS 1315.

PLS 450 - Landscape Management
Hours: 3
Three semester hours (2 lec / 2 lab) This course covers information related to the management of landscapes on residential and commercial properties. Topics will include items related to effective installation and maintenance of landscape properties, including financial and personnel aspects of managing a landscape business. Prerequisites: PLS 1315 or instructor approval.

PLS 455 - Turfgrass Management
Hours: 3
Three semester hours (2 lec / 2 lab) Establishment and maintenance of turfgrasses in lawns, sports fields, and golf courses. Course will include selection, planting, fertilization, maintenance, and pest and disease control.

PLS 460 - Plant Taxonomy
Hours: 3
Three semester hours (2 lec / 2 lab) A systematic overview of the plant kingdom focusing on classification and identification of unknown specimens.

PLS 489 - Independent Study
Hours: 1-4
Independent Study. One to four semester hours. Individualized instruction/research at an advanced level in a specialized content area under the direction of a faculty member. May be repeated when the topic varies. Prerequisite: Consent of department head.

PLS 490 - Independent Study
Hours: 3

PLS 491 - H Ind Honors Readings
Hours: 3

PLS 497 - Special Topics
Hours: 0-4
Special Topics. One to four semester hours. Organized class. May be repeated when topics vary.

VETT 1111 - Veterinary Clinical Externship I
Hours: 3
This course consists of a supervised clinical experience in a work place. The primary objective is to reinforce and expand upon concepts learned by participating in actual cases and familiarization with and appreciation for the role of the Veterinary Nurse in a practical, applied atmosphere. The student is to achieve competency in skills and decision-making abilities commensurate with the Committee on Veterinary Technician Education and Activities (CVTEA) requirements. NOTE: 160 clinical hours (~ 4 weeks) during the summer will be completed over the duration of this course. Prerequisites: Successful completion of the first year in the professional Veterinary Biomedical Technology Program.

VETT 2111 - Veterinary Clinical Externship II
Hours: 3
This course consists of a supervised clinical experience in a work place. The primary objective is to reinforce and expand upon concepts learned by participating in actual cases and familiarization with and appreciation for the role of the Veterinary Nurse in a practical, applied atmosphere. The student is to achieve competency in skills and decision-making abilities commensurate with the Committee on Veterinary Technician Education and Activities (CVTEA) requirements. NOTE: 240 clinical hours (~ 6 weeks) during the summer will be completed over the duration of this course. Prerequisites: Successful completion of the second year of the professional Veterinary Biomedical Technology program.

VETT 3111 - Veterinary Clinical Externship III
Hours: 5
This course consists of a supervised clinical experience in a work place. The primary objective is to reinforce and expand upon concepts learned by participating in actual cases and familiarization with and appreciation for the role of the Veterinary Nurse in a practical, applied atmosphere. The student is to achieve competency in skills and decision-making abilities commensurate with the Committee on Veterinary Technician Education and Activities (CVTEA) requirements. NOTE: 300 clinical hours during the final semester will be completed over the duration of this course, but may be started over the winter break. Students will have Thursday and Fridays off in their final semester to allow of externship hours. Prerequisites: Current enrollment in the final semester of the professional Veterinary Biomedical Technology program.

VETT 100 - Introduction to the Profession of Veterinary Medicine
Hours: 3
This course is designed to give students an overview of veterinary medicine from its origin to the present time. The course will include, but not be limited to: professionalism, legal and ethical aspects of veterinary practice, regulatory and government bodies, safety, sanitation and waste-disposal protocols, the human-animal bond, animal welfare, animal abuse, breeds of companion animals, professional associations, credentialing, roles of the veterinary team members, and careers. Note: this course is required for entrance into the professional Veterinary Biomedical Technology program.

VETT 101 - Veterinary Medical Terminology
Hours: 1
Veterinary medical terminology explored through a systematic study of word parts. This courses focuses on fundamental recognition, interpretation and medical terms used in effective clinical communication.

VETT 140 - Veterinary Office Skills and Procedures
Hours: 1
This course is designed to cover the support skills needed in a veterinary office which are critical to the success or failure of a practice. This course will include, but not be limited to: telephone etiquette, client-based financial transactions, ethical and legal procedures, bookkeeping functions, scheduling, records and logs management, medical records, and inventory. Students will be introduced to one or more industry-standard veterinary software programs as well as word processing and spreadsheet software. Prerequisites: VETT 100 with a minimum grade of C or concurrent enrollment.

VETT 220 - Humane Treatment and Handling of Animals
Hours: 2
This course is designed to focus upon animal welfare and humane treatment during handling and restraint. Topics will include, but not be limited to: physical examination, behavior, husbandry, safety, equipment choice, and basic clinical procedures of all domestic species. NOTE: Handling of animals will include domestic small and large species with required participation. Prerequisites: Current enrollment in the professional Veterinary Biomedical Technology program.

VETT 250 - Veterinary Professional Communications
Hours: 3
This course is designed to cover professional communications that may be encountered in a veterinary practice. This course will include, but not be limited to: basic communication skills, psychology of client relations, client communication, leadership, social media, time and stress management, receptionist duties and dealing with difficult clients, malpractice, human-animal bond, euthanasia, death and dying, career goals, resume writing, and interviews.

VETT 297 - Veterinary Special Topics
Hours: 0-4
Organized class. May be repeated when topics vary.

VETT 300 - Clinical Veterinary Nutrition
Hours: 3
This course is designed to introduce students to applied animal nutrition. The course covers basic nutrition for both ruminant and simple-stomach animals. This course will include, but not be limited to: the basic elements of nutrition including the major categories of nutrients, and their sources, digestion, and metabolism, interpretation of pet food labels, homemade, raw, and commercial diets as well as therapeutic/critical care nutrition for dogs and cats. Both large and small animal feeds and feeding will be covered with companion animal nutrition as the focus. Common nutritional diseases and calculating the amount of food to feed dogs and cats during various stages of the life cycle will also be covered.

VETT 305 - Veterinary Anatomy and Physiology I
Hours: 3
This is the first of a two-course sequence examining the structure and function of comparative vertebrate animal body systems important in health and disease. Terminology and nomenclature of the veterinary field will be emphasized. A systems approach to prepare students to locate and recognize clinically significant anatomical features. In conjunction with classroom instruction, the anatomy and physiology lab component for this course requires students to apply knowledge from the classroom to hands-on and critical-thinking application exercises. Corequisites: VETT 306.

VETT 306 - Veterinary Anatomy and Physiology I Dissection Lab
Hours: 1
Laboratory systematic study of the gross anatomy of domestic animals commonly seen in veterinary practice. NOTE: Dissection of animal cadavers will be required of all students.

VETT 307 - Veterinary Anatomy and Physiology II
Hours: 3
This is the second of a two-course sequence examining the structure and function of comparative vertebrate animal body systems important in health and disease. Terminology and nomenclature of the veterinary field will be emphasized. A systems approach to prepare students to locate and recognize clinically significant anatomical features. In conjunction with classroom instruction, the anatomy and physiology lab component for this course requires students to apply knowledge from the classroom to hands-on and critical-thinking application exercises. Prerequisites: VETT 100, VETT 101, ANS 1319 and VETT 305 and VETT 306. Corequisites: VETT 308 VETT A&P Lab II.

VETT 308 - Veterinary Anatomy and Physiology II Dissection Lab
Hours: 1
Laboratory systematic study of the gross anatomy of domestic animals commonly seen in veterinary practice. NOTE: Dissection of animal cadavers will be required of all students. Prerequisites: VETT 100, VETT 101, ANS 1319, VETT 305 and VETT 306. Corequisites: VETT 307 Veterinary A&P II.

VETT 310 - Veterinary Pharmacology
Hours: 3
This course familiarizes students with the fundamental knowledge and pharmaceutical principles of veterinary related drugs. This course will include, but not be limited to: nomenclature, pharmacokinetics, pharmacodynamics, mechanisms of action, the applications to each body system, indications, contraindications, methods of administration, drug schedules and controlled substances. Emphasis is placed on the role the Veterinary Nurse plays in educating the client in the use of prescribed drugs in pets and production animals. The legal and ethical factors involved in handling pharmaceuticals are also considered. Prerequisites: Current enrollment in the second year of the professional Veterinary Biomedical Technology program. Corequisites: VETT 311.

VETT 311 - Veterinary Pharmaceutical Calculations
Hours: 1
This course is designed to present the broad spectrum of information commonly referred to as posology, which is defined as the study of dose and dosage in the field of applied pharmacology. This course will include, but not be limited to: elementary algebra, general mathematics used by veterinary medical personnel involved in calculating dosages on common drugs, reading drug orders and labels, intravenous flow rates, and systems of measure, drug orders, and dose calculations to other calculations. The goal of this course is that each student be confident and capable of calculating correct drug doses regardless of the physical form of the medication. This course requires a strong background in algebra, the metric system, and an understanding of word problems. Prerequisites: Current enrollment in the second year of the professional Veterinary Biomedical Technology program. Corequisites: VETT 310.

VETT 325 - Veterinary Parasitology and Entomology
Hours: 3
This course introduces students to basic laboratory procedures and veterinary parasitology. This course will include, but not be limited to: basics of parasitism, life cycles, pathogenesis, identification, and control of common internal (nematodes, tapeworms, flukes, and protozoa) and external (insects, mites, lice, fleas and ticks) parasites of veterinary and zoonotic importance in domestic animals. Prerequisites: ANS 1319, VETT 100, VETT 101, BSC 1406, non veterinary biomedical technology students are not required to take corresponding VETT 326 Lab. Students enrolled in the professional Veterinary Biomedical Technology program MUST enroll in the corresponding lab. Corequisites: VETT 326 Veterinary Parasitology and Entomology.

VETT 326 - Veterinary Parasitology and Entomology Laboratory
Hours: 1
Hands-on laboratory course regarding the study of parasitology principles and procedures commonly utilized in veterinary medicine. This course is also an introduction to laboratory procedures and will include microscope care and use, sample collection, basic diagnostic analysis of fecal and other specimens and identification of parasites. NOTE: This is the laboratory component of VETN 325 and must be taken in conjunction with it for all veterinary nursing students but is not required for non vet nursing majors. Prerequisites: ANS 1319, VETT 100, VETT 101, BSC 1406. Corequisites: VETT 325.

VETT 330 - Diagnostic Imaging for Veterinary Technicians
Hours: 3
Three semester hours (2 lec / 2 lab) This hands on course is designed as an introduction to radiology and other types of imaging in a veterinary facility. This course will include, but not be limited to: radiation properties, x-ray production, radiographic equipment, darkroom procedures, the radiographic image, animal positioning and radiation safety. The use of ultrasound will be demonstrated and alternative technologies for imagining such as fluoroscopy, CT, MRI and nuclear scintigraphy will be discussed. In the laboratory portion of this course, students will be required to position patients, calculate exposure values, expose radiographic film and process it. Students will examine radiographs taken by their lab groups and critique them for their diagnostic quality. Prerequisites: Current enrollment in the professional Veterinary Biomedical Technology program.

VETT 340 - Veterinary Clinical Pathology I
Hours: 3
An introduction to Veterinary Clinical Pathology as it relates to normal and abnormal physiology of animal species. This course deals with the examination of blood, urine, exudates, and cells for diagnostic and prognostic purposes in veterinary practice. Topics include, but not be limited to: proper collection and preparation of biological samples, analysis of urine, blood, blood chemistry and cytological samples and necropsy procedure with sample collection. Prerequisites: ANS 1319, VETT 100, VETT 101, BSC 1406, CHEM 1305 or CHEM 1311, VETT 307 and VETT 308. Corequisites: VETT 341.

VETT 341 - Veterinary Clinical Pathology I Laboratory
Hours: 1
Hands-on laboratory course regarding the study of hematology, urine analysis, cytology and serum chemistry principles and diagnostic procedures commonly utilized in veterinary medicine. This is the laboratory component of VETT 340 and must be taken in conjunction with it. Prerequisites: ANS 1319, VETT 100, VETT 101, BSC 1406, CHEM 1305 or CHEM 1311, VETT 307 and VETT 308. Corequisites: VETT 340.

VETT 342 - Veterinary Clinical Pathology II
Hours: 2
This course will review content as it relates to normal and abnormal physiology of animal species. This course deals with the examination of blood, urine, exudates, and cells for diagnostic and prognostic purposes in veterinary practice. Topics include, but not be limited to: proper collection and preparation of biological samples, blood, and cytological samples and necropsy procedure and sample collection Prerequisites: Current enrollment in the professional Veterinary Biomedical Technology program.

VETT 345 - Small Animal Clinical Nursing Techniques
Hours: 2
This laboratory class is designed to be an introduction to nursing concepts and specific skills necessary for small animals. Students learn how to properly restrain cats and dogs, administer parenteral injections, take a patient history, complete medical records, conduct a physical examination, and perform clinical procedures related to primary patient care. Topics include, but not be limited to: including wound care and bandaging, diagnostic procedures for the ears and eyes, parenteral injection techniques, and administering medications. Prerequisites: Current enrollment in the second year of the professional Veterinary Biomedical Technology program.

VETT 350 - Large Animal Clinical Nursing Techniques
Hours: 2
Presents common large animal nursing skills. The course focuses on basic species knowledge, husbandry, physical examination, restraint, equipment and handling safety. The laboratory develops skills in bovine, equine, caprine, ovine handling and will include, but not be limited to: hoof trimming, vaccinations, dehorning, and castration methods, venipuncture, IV catheter placement, administering fluids and medications, bandaging and splinting techniques and neonatal care. Laboratory sessions will provide a hands-on teaching experience with common large animal species. Prerequisites: Current enrollment in second year of the professional Veterinary Biomedical Technology program.

VETT 397 - Veterinary Special Topics
Hours: 0-4
Organized class. May be repeated when topics vary.

VETT 400 - Veterinary Surgical Nursing
Hours: 2
This course focuses on the Veterinary Technician' role in surgery. Topics include, but are not limited to: instruments, surgical support equipment, aseptic technique and proficiency in the proper preparation of the operating room. Skills such as intravenous catheter placement, proper endotracheal intubation, patient and surgical site preparation, and surgical pack preparation will be covered in this course as well as VETT 412 Lab. Prerequisites: Current enrollment in the third year of the professional Veterinary Biomedical Technology program. Corequisites: VETT 410, VETT 411, VETT 412.

VETT 410 - Veterinary Anesthesiology
Hours: 3
This lecture course presents basics of anesthesiology. The student will learn specific anesthetic agents and pharmaceuticals used in veterinary medicine, appropriate clinical indications, their proper dosages, side effects, and routes of administration. Other topics include but are not limited to: the principles of patient evaluation, induction and maintenance, anesthesia monitoring, care of the patient in and around the anesthetic period and control of post-surgical pain as well as client education for postoperative care. Hands on experience and skills will be developed in VETT 412 Laboratory. Prerequisites: Current enrollment in the third year of the professional Veterinary Biomedical Technology program.

VETT 411 - VETERINARY DENTISTRY: PRINCIPLES AND PRACTICES
Hours: 2
This course will focus on dental anatomy, common dental diseases, and basic dental procedures. Topics will include, but not limited to: oral anatomy, terminology, instrumentation, proper charting, routine periodontal care common dental diseases, dental prophylaxis and oral radiography. Emphasis is on the role of the Veterinary Technician in a small animal practice in providing dental services and client education on home dental care. Hands on experience and skills will be developed in laboratory. Prerequisites: Current enrollment in the third year of the professional Veterinary Biomedical Technology program.

VETT 412 - Anesthesia, Dentistry & Surgical Nursing Skills Laboratory I
Hours: 2
This is a laboratory class and emphasizes practical aspects of the surgical nursing, dentistry and anesthesia courses. Skills will include but not be limited to: aseptic technique, surgical instrumentation, preparation for surgical procedures, intravenous catheter placement, endotracheal intubation, patient monitoring, dental prophylaxis, oral charting and radiographic techniques. NOTE: Live animals are used in this course. Students are required to provide all pre and post care of patients used in labs and may be required to be at school after hours and/or on weekends. Prerequisites: Current enrollment in the third year of the professional Veterinary Biomedical Technology program. Corequisites: VETT 400, VETT 410, VETT 411.

VETT 413 - Anesthesia, Dentistry & Surgical Nursing Skills Laboratory II
Hours: 2
Continuation of skills and concepts from 412. Prerequisites: VETT 400, 410, 411 & 412 and current enrollment in the third year of the professional Veterinary Biomedical Technology program.

VETT 430 - Emergency & Critical Care for Veterinary Technicians
Hours: 3
Three semester hours (2 lec / 2 lab) This course provides an introduction to current emergency & critical care procedures for both large and small animals. A systematic approach will be taken in examining the physiology, treatment and care of emergency and critical care cases seen in practice. Physical findings, appropriate diagnostic testing, initial treatment, appropriate monitoring and follow-up are emphasized. Laboratories will include emergency simulations, clinical cases and critical thinking skills. Prerequisites: Current enrollment in the second year of the professional Veterinary Biomedical Technology program.

VETT 451 - Veterinary Disease Management
Hours: 3
This course includes a general study of the more common and important diseases of small and large animals, their etiology, pathogenesis, clinical signs, typical lesions, diagnosis, prevention and treatment. Prerequisites: VETT 100, VETT 101, VETT 307, VETT 308. Corequisites: VETT 100, VETT 101, VETT 307, VETT 308.

VETT 460 - Lab Animal and Exotics Disease & Management
Hours: 2
Introduction to the husbandry, handling, restraint, care and use of exotics and laboratory animals. Includes discussion in common diseases, biosecurity, and public health. The care and use of laboratory animals will be covered in depth. Prerequisites: Current enrollment in the third year of the professional Veterinary Biomedical Technology program.

VETT 470 - Veterinary Nursing Senior Seminar - A Case Based Approach
Hours: 1
This course is designed to provide students in the Veterinary Biomedical Technology Program with a culminating experience to discuss and reflect on concepts that have been learned throughout the program of study. The students will also have the opportunity to present current topics and issues that are relevant to the veterinary profession and animal industry. Case-based presentations emphasize the basic pathophysiology of disease and clinical investigation and demonstrate the interactions between the clinical and basic sciences. Prerequisites: VETT 410, VETT 411, VETT 412, VETT 450 & VETT 455, senior standing, current enrollment in the final semester of the professional Veterinary Biomedical Technology program.

VETT 471 - VTNE Preparation
Hours: 1
This course prepares students for the Veterinary Technician National Exam (VTNE). Topics include test-taking strategies, formation of a study plan, and a review of topics from previous veterinary technology courses. Students enrolled in this course will develop essential test-taking skills by completing practice exams covering all major topics. Prerequisites: VETT 410, VETT 411, VETT 412, VETT 450 & VETT 455, senior standing, current enrollment in the final semester of the professional Veterinary Biomedical Technology program.

VETT 472 - Clinical Competency Final Evaluation
Hours: 1
Evaluates the students' clinical skills and knowledge after successful completion of all courses in the major, in order to prepare them for the national board examination and clinical practice. Evaluation of clinical skills and knowledge includes selected clinical laboratory techniques (parasitology, hematology, urinalysis, cytology, chemistry, serology, microbiology); diagnostic imaging; office procedures; surgical preparation, instrumentation and assistance; anesthesia induction, maintenance and monitoring; restraint and handling techniques; small, large and laboratory animal diagnostic and therapeutic techniques; and pharmacology calculations, labeling and drug classification. Prerequisites: VETT 410, VETT 411, VETT 412, VETT 450 & VETT 455, senior standing, current enrollment in the final semester of the professional Veterinary Biomedical Technology program.

VETT 497 - Veterinary Special Topics
Hours: 0-4
Organized class. May be repeated when topics vary.

VETT 498 - Global Survey of Agriculture and Veterinary Medicine
Hours: 0-4
This course is a study abroad opportunity for students to experience the animal industry in another country. Veterinary colleges, farms and other agricultral industries will be toured and students will participate in hands on learning experinces. Emphasis will be placed on learning about different cultures and how new knowledge can be applied to students lives and professions. NOTE: locations will rotate yearly. Prerequisites: ANS 1319.