ANSC - ANIMAL SCIENCE

ANSC 107 General Animal Science
Credits 3. 3 Lecture Hours.
(AGRI 1319, 1419) General Animal Science. Scientific animal agriculture; selection, reproduction, nutrition, management and marketing of beef cattle, swine, sheep, goats and horses; evaluation and processing of meat, wool and mohair. Importance of livestock and meat industries.
Prerequisite: Concurrent registration in ANSC 108 required.

ANSC 108 General Animal Science
Credit 1. 2 Lab Hours.
(AGRI 1419, AGRI 1119) General Animal Science. Laboratory to accompany ANSC 107.
Prerequisite: Concurrent registration in ANSC 107 required.

ANSC 117 Texas Barbecue
Credit 1. 1 Lecture Hour.
Survey, demonstration and participation in preparation techniques of Texas barbecue; comparison of regional and international barbecue methods.
Prerequisite: First year students.

ANSC 201 Introductory Equine Care and Use
Credits 2. 2 Lecture Hours.
Survey of basic equine care and use; breeds of horses and their use; care and maintenance of equines including feeding, health care, housing and equipment.

ANSC 207 Art and Heritage of Livestock
Credits 3. 3 Lecture Hours.
Using art as a venue to understand the legacy and heritage of livestock production and livestock’s contribution to civilization and society; from man as hunter, agriculturalist, and finally, as industrialist; from cave paintings to Russell and Remington; history of the effects of painting, poetry, architecture and sculpture on agriculture.

ANSC 210 Companion Animal Science
Credits 3. 3 Lecture Hours.
Types, care, physiology, common diseases and common treatments of companion animals (dogs, cats, exotic pets); careers including biomedical research; solutions for problems such as behavior and overpopulation.
Prerequisite: ANSC 107.

ANSC 211 Equine Industry and Career Preparation
Credits 2. 2 Lecture Hours.
Identify opportunities and skill sets required to pursue a career in the equine industry; development of resume, communication, professional etiquette and interview skills.

ANSC 215 Introduction to Livestock Evaluation
Credits 2. 1 Lecture Hour. 3 Lab Hours.
Live market animal appraisal in relation to carcass and composition; criteria for selection of breeding livestock; techniques for preparation and delivery of oral reason.

ANSC 221 Equine Handling and Safety
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Working around horses safely and effectively; includes equine behavior, proper handling techniques, controlling movement of horses, health assessment and basic management.
Prerequisite: ANSC 201.

ANSC 230 Animal and Research Experience
Credits 2. 1 Lecture Hour. 2 Lab Hours.
Hands-on experience with farm animals; development and understanding of the scientific method; demonstration of critical thinking skills to evaluate scientific information.

ANSC 242 Growth and Development of Livestock
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Evaluation of slaughter livestock as related to growth and development, production efficiency, carcass value; selection of breeding animals based on performance, production records, visual appraisal; principles of growth biology; biotechnological tools used to manage growth and development.
Prerequisites: ANSC 107 and ANSC 108.

ANSC 289 Special Topics in...
Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours.
Selected topics in an unidentified area of animal science. May be repeated for credit.
Prerequisite: Approval of instructor.

ANSC 291 Research
Credits 0 to 4. 0 to 4 Other Hours.
Research conducted under the direction of faculty member in animal science. May be repeated 2 times for credit.
Prerequisites: Freshman or sophomore classification and approval of instructor; 2.0 GPR in major and overall.

ANSC 302 Basic Beef Cattle Production
Credits 3. 3 Lecture Hours.
Fundamental concepts of beef management and production principles. Service course recommended for non-animal science majors.
Prerequisites: ANSC 107 and ANSC 108.

ANSC 303/NUTR 303 Principles of Animal Nutrition
Credits 3. 3 Lecture Hours.
Scientific approach to nutritional roles of water, carbohydrates, proteins, lipids, minerals, vitamins, and other dietary components; emphasis on the comparative aspects of gastrointestinal tracts and on digestion, absorption, and metabolism of nutrients.
Prerequisites: ANSC 107 and ANSC 108; CHEM 222 or CHEM 227 or equivalent.
Cross Listing: NUTR 303/ANSC 303.

ANSC 305 Animal Breeding
Credits 3. 3 Lecture Hours.
A systems approach to selection and mating of livestock; gene frequency, heritability, relationship, inbreeding, linebreeding, heterosis, crossbreeding, direct and correlated response to selection, and use of pedigree, family, progeny testing and indices for selection.
Prerequisites: ANSC 107 and ANSC 108; GENE 301; STAT 301.

ANSC 307/FSTC 307 Meats
Credits 3. 2 Lecture Hours. 3 Lab Hours.
Integrate studies of the meat animal processing sequence regarding the production of meat-type animals and the science and technology of their conversion to human food.
Prerequisites: ANSC 107 and ANSC 108.

ANSC 309 Applied Animal Record Keeping
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Keeping, analyzing and interpreting records to make fully-informed decisions on a day-to-day basis for production and management scenarios; practical application unique to animal science and meat processing.
Prerequisite: Junior or senior classification.
Prerequisite: commercial and on-the-farm feed mixing methods and feed control laws.

ANSC 310 Behavior and Management of Domestic Animals
Credits 3. 2 Lecture Hours. 2 Lab Hours.
Application of behavior of cattle, horses, sheep, goats and swine to their management; basic principles, physiology of behavior, perception, training, predators, use of dogs in livestock production, stress and animal welfare.
Prerequisites: ANSC 107 and ANSC 108.

ANSC 311 Equine Behavior and Training
Credits 3. 1 Lecture Hour. 5 Lab Hours.
Equine behavior and application of principles of psychology to training horses; systematic approaches to horse training emphasizing principles of learning; equipment and its use; stable management and preparation of horses for competition; separate laboratory sections for students with varying backgrounds.

ANSC 312 Equestrian Technology
Credits 2. 1 Lecture Hour. 3 Lab Hours.
Advanced scientific methods and techniques for execution of equine performances in hunter, dressage and stock horse events; anatomical, physiological and psychological implications; preparation of horses and riders.

ANSC 314 Wool Evaluation and Grading
Credits 2. 1 Lecture Hour. 3 Lab Hours.
Evaluation of U.S.D.A. grades for wool and mohair; steps involved in processing raw wool into finished fabric; genetic and environmental factors affecting quality characteristics of wool and mohair; grading, evaluation and selection of fleeces for economic value; oral and written defense of judgments.

ANSC 315 Livestock Judging
Credits 2. 1 Lecture Hour. 3 Lab Hours.
Selection and evaluation of beef cattle, swine, sheep and horses. Ability to present accurate, clear and concise oral and written reasons stressed.
Prerequisites: ANSC 107 and ANSC 108; junior or senior classification.

ANSC 316 Equine Selection and Judging
Credits 2. 1 Lecture Hour. 3 Lab Hours.
Detailed evaluation and comparison of horses; selection and critique of athleticism and performance in horses; industry trends addressed; oral and written defense of judgments also explained and expected; required for participation on the Horse Judging Team.
Prerequisite: Junior or senior classification or approval of instructor.

ANSC 317 Meat Selection, Evaluation and Grading
Credits 2. 1 Lecture Hour. 3 Lab Hours.
Selection and grading of carcasses and wholesale cuts of beef, pork and lamb; principles of evaluation included in carcass contests and progeny testing.
Prerequisites: ANSC 107 and ANSC 108.

ANSC 318 Feeds and Feeding
Credits 3. 2 Lecture Hours. 3 Lab Hours.
Characteristics of feedstuffs used in livestock enterprises; manual and computer ration formulation procedures and life cycle nutritional management of beef, swine, sheep, dairy, horses, fish and pets; methods of grain, protein supplement and forage processing and evaluation; commercial and on-the-farm feed mixing methods and feed control laws.
Prerequisite: ANSC 303/NUTR 303.

ANSC 320 Animal Nutrition and Feeding
Credits 3. 3 Lecture Hours.
Nutritional functions of water, protein, carbohydrates, fats, minerals and vitamins and their digestion, absorption, use and excretion; energy, protein and forage feedstuff characteristics and processing; nutritional requirements, ration formulation and feeding methods for farm animals; general course for non-animal science majors.
Prerequisite: Junior or senior classification or approval of instructor; restricted to students in the college of agriculture and life sciences.

ANSC 325 Advanced Livestock and Product Evaluation
Credits 2. 1 Lecture Hour. 3 Lab Hours.
Advanced evaluation of cattle, swine, sheep and equine; products produced or associated with each species; advanced oral or written defense of judgments associated with changing trends in these industries. May be repeated three times for credit.
Prerequisite: Junior or senior classification.

ANSC 337 Meat Merchandising
Credits 2. 1 Lecture Hour. 3 Lab Hours.
Steps of meat processing and merchandising of retail and foodservice; merchandising practices such as selection, identification, fabrication, pricing, packaging and distribution.
Prerequisites: ANSC 307/FSTC 307; junior or senior classification.

ANSC 351 Current issues in Animal Agriculture
Credits 3. 3 Lecture Hours.
Preparation to project a professional image and the use of communication skills to describe animal agriculture; converse about the strengths and weaknesses of animal agriculture.
Prerequisite: Junior or senior classification.

ANSC 352 Advanced Livestock and Product Evaluation
Credits 2. 1 Lecture Hour. 3 Lab Hours.
Advanced evaluation of cattle, swine, sheep and equine; products produced or associated with each species; advanced oral or written defense of judgments associated with changing trends in these industries. May be repeated three times for credit.
Prerequisite: Junior or senior classification.

ANSC 367 Feedlot Cattle
Credits 3. 3 Lecture Hours.
Preparation to project a professional image and the use of communication skills to describe animal agriculture; converse about the strengths and weaknesses of animal agriculture.
Prerequisite: Junior or senior classification.

ANSC 380 Management of Stocker and Feedlot Cattle
Credits 2. 2 Lecture Hours.
Basic principles involved in feeding, management and disease control of stocker and feeder cattle from weaning through slaughter for economical production of beef.
Prerequisites: ANSC 318; junior or senior classification.

ANSC 402 Exploring Animal Industries
Credits 2. 2 Lecture Hours.
Instruction for students nearing the end of their undergraduate studies; theoretical understanding of organizations and human resources available to students; awareness and understanding of the job application process, resume and cover letter writing; networking, professional and business attire; ethics related to job searches and retention.
Prerequisite: Junior or senior classification.

ANSC 406 Beef Cattle Production and Management
Credits 4. 3 Lecture Hours. 2 Lab Hours.
Basic principles and methods of application involved in breeding, feeding, management, marketing and disease control in cow-calf production.
Prerequisites: ANSC 303/NUTR 303, ANSC 318, ANSC 433; junior or senior classification.

ANSC 408 Management of Stocker and Feedlot Cattle
Credits 3. 3 Lecture Hours.
Basic principles involved in feeding, management and disease control of stocker and feeder cattle from weaning through slaughter for economical production of beef.
Prerequisites: ANSC 318; junior or senior classification.
ANSC 411 Equine Nutrition and Health  
Credits 3. 3 Lecture Hours.  
Designed to provide knowledge of nutrition and health in the horse;  
gastrointestinal anatomy, nutrient utilization, feeding management and  
nutritional requirements; metabolic diseases, infectious diseases, internal  
and external parasites, and herd health management.  
**Prerequisite:** Junior or senior classification.

ANSC 412 Swine Production and Management  
Credits 4. 3 Lecture Hours. 2 Lab Hours.  
Basic principles and their practical application in efficient, economical  
pork production; all areas of production—breeding and selection,  
nutrition, housing and equipment, marketing, herd health and economic  
management.  
**Prerequisites:** Junior or senior classification.

ANSC 414 Sheep and Goat Production and Management  
Credits 4. 3 Lecture Hours. 2 Lab Hours.  
Application of basic principles of genetics, physiology and nutrition to  
practical sheep and angora goat production systems; management,  
health care and marketing of animals and fiber.  
**Prerequisites:** Junior or senior classification or approval of instructor.

ANSC 415 Brazil: Comparative Ruminant Production  
Credits 3. 3 Lecture Hours.  
Contrast two scenarios of ruminant production in Brazil; the effects of  
globalization on the two different production systems.  
**Prerequisites:** ANSC 303/NUTR 303 or ANSC 320 or approval of  
instructor.

ANSC 418 Equine Exercise Physiology  
Credits 3. 2 Lecture Hours. 2 Lab Hours.  
Changes within the systems of the horse resulting from the physical  
stresses of exercise, adaptations of systems in response to a training  
regimen; methodology for measuring improvement in physical condition;  
foundation for development of training programs for horses in moderate,  
intense or prolonged performance activities.  
**Prerequisites:** Junior or senior classification and approval of instructor.

ANSC 419 Equine Reproduction  
Credits 3. 3 Lecture Hours.  
Reproductive anatomy of the stallion and mare; industry and scientific  
practices; comprehensive analysis of the body of scientific research;  
development of critical thinking ability to assess and discuss previous  
research in comparison of needed research.  
**Prerequisites:** ANSC 201 and junior or senior classification or approval of  
instructor.

ANSC 420 Equine Production and Management  
Credits 4. 3 Lecture Hours. 2 Lab Hours.  
Application of biological and biotechnological principles and concepts in  
areas including genetics, breeding, nutrition, reproduction, immunology,  
parasitology, anatomy and exercise physiology to efficient production of  
horses for market; management of equine enterprises.  
**Prerequisites:** ANSC 201 and ANSC 433; junior or senior classification.

ANSC 421 Stock Horse Advanced Training  
Credits 3. 3 Lecture Hours. 2 Lab Hours.  
Theory and practice of applying scientific principles of psychology and  
behavior modification to advanced training of the stock horse;  
exercise conditioning and humane training methods to maximize learning  
effectiveness; current industry trends for preparing horses and showing  
in stock horse events.  
**Prerequisites:** ANSC 311 and previous riding experience.

ANSC 423 Issues in the Equine Industry  
Credits 3. 3 Lecture Hours.  
Integration of cumulative knowledge acquired in the equine science  
curriculum to demonstrate critical thinking and communication skills to  
address critical issues in the equine industry.  
**Prerequisites:** Junior or senior classification; approval of instructor.

ANSC 424 Equine Sales Management  
Credits 3. 3 Lecture Hours.  
Hands-on horse sale management experience through planning and  
conducting the Texas A&M University Department of Animal Science  
Horse Sale.  
**Prerequisite:** Junior or senior classification and approval of instructor.

ANSC 431 Equine Marketing and Development  
Credits 3. 3 Lecture Hours.  
Scope of domestic and international equine industry; safe handling  
and transport of horses for export or import; career opportunities in the  
equine field.  
**Prerequisite:** Junior or senior classification or approval of instructor.

ANSC 433 Reproduction in Farm Animals  
Credits 3. 2 Lecture Hours. 2 Lab Hours.  
Physiological principles of reproductive processes in cattle, sheep, swine  
and horses including sperm and ova production, estrus, fertilization,  
gestation and parturition; techniques of semen evaluation and storage,  
estrous synchronization, embryo transfer and pregnancy determination.  
**Prerequisite:** Junior classification.

ANSC 434 Animal Reproduction Management  
Credits 3. 2 Lecture Hours. 2 Lab Hours.  
available and emerging technologies; strategies including artificial  
insemination, embryo manipulation and transfer, control of ovulation,  
sex ratio manipulation and animal cloning for managing the reproductive  
function of farm animals; hands-on sessions using available technologies  
including artificial insemination of cattle.  
**Prerequisite:** ANSC 433, priority enrollment given to graduating seniors in  
animal science.

ANSC 436 Texas Panhandle Beef Production Tour  
Credits 2. 2 Lecture Hours.  
Facets of Texas Panhandle beef production; cash sales, video  
sales, futures and options markets, forward contracting; problem  
solving in real-time livestock marketing situations; risk of ownership of  
hypothetical livestock operations.  
**Prerequisites:** Junior or senior classification or approval of instructor.

ANSC 437 Marketing and Grading of Livestock and Meats  
Credits 3. 2 Lecture Hours.  
Study of USDA livestock and carcass grades; understanding current  
market trends for beef, pork, lamb and goat; review of branded and  
certified programs; principles applied in contracting, breakeven  
determination, hedging, and grid or formula pricing.  
**Prerequisite:** Junior or senior classification.

ANSC 439 Feedlot Risk Management  
Credits 2. 2 Lecture Hours.  
Advanced study of livestock marketing techniques; cash sales, video  
sales, futures and options markets, forward contracting; problem  
solving in real-time livestock marketing situations; risk of ownership of  
hypothetical livestock operations.  
**Prerequisites:** junior or senior classification or approval of instructor.
ANSC 447 Advanced Meat Science and Technology  
Credits 4. 3 Lecture Hours. 3 Lab Hours.  
Advanced basic and applied studies of meat science and/or technology utilizing the underlying physiological and structural components for conversion to human food; understanding the influence of pre- and post-harvest factors on meat quality, composition, color, packaging, sensory and preparation factors; applying scientific and business principles to manufacturing and process flow of commercial meat food products and demonstrating knowledge of these principles through development of meat products.  
Prerequisites: ANSC 307/FSTC 307; CHEM 222 or approval of instructor; junior or senior classification.

ANSC 457/FSTC 457 Hazard Analysis and Critical Control Point System  
Credits 3. 3 Lecture Hours.  
Hazard Analysis and Critical Control Point (HACCP) principles specifically related to meat and poultry; microbiological and process overviews; good manufacturing practices and standard operating procedures development.  
Prerequisite: FSTC 326/DASC 326 or approval of instructor.  
Cross Listing: FSTC 457/ANSC 457.

ANSC 470/FSTC 470 Quality Assurance for the Food Industry  
Credits 3. 3 Lecture Hours.  
Principles of food system process control including statistical process control (SPC) and the tools required to assure uniform communication and understanding of quality assurance systems.  
Prerequisite: Junior or senior classification.  
Cross Listing: FSTC 470/ANSC 470.

ANSC 481 Seminar  
Credit 1. 1 Lecture Hour.  
Review of literature and research problems related to the livestock and food industries; preparation of a technical report including an oral presentation supported by a written technical paper.  
Prerequisite: Senior classification.

ANSC 484 Livestock Practicum  
Credit 1. 2 Other Hours.  
Provides an opportunity to learn skills required in livestock production; planned for students who have had limited farm and ranch experience in one or more species.  
Prerequisite: Junior or senior classification in animal science or approval of instructor.

ANSC 485 Directed Studies  
Credits 0 to 4. 0 to 4 Other Hours.  
Directed individual study of selected problem in field of animal science.  
Prerequisites: Junior or senior classification; written approval of professor supervising the activity; 2.0 GPR in major and overall.

ANSC 487/FSTC 487 Sensory Evaluation of Foods  
Credits 3. 2 Lecture Hours. 2 Lab Hours.  
Application of sensory science principles and practices to food systems including an understanding of discriminative, descriptive and consumer sensory techniques.  
Prerequisites: CHEM 222 or CHEM 227; junior or senior classification.  
Cross Listing: FSTC 487/ANSC 487.

ANSC 489 Special Topics in...  
Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 8 Lab Hours.  
Selected topics in an identified area of animal science. May be repeated for credit.  
Prerequisite: Junior or senior classification.