

## Undergraduate Animal Science Courses

**ANSC 1105. Introduction to Veterinary/Medical Terminology. 1 Credit Hour (Lecture: 1 Hour, Lab: 0 Hours).**

Introduction to veterinary/medical terminology. The foundation of veterinary terminologies and medical language roots, prefixes, suffixes, and combining forms are covered along with musculoskeletal and dissection/spatial body positions. Designed to provide a comprehensive entry-level study of medical language for health career learners.

**ANSC 1119. General Animal Science Laboratory. 1 Credit Hour (Lecture: 0 Hours, Lab: 2 Hours).**

General overview of animal agriculture including beef cattle, dairy cattle, swine, sheep, goats, and horses; major disciplines of animal production including breeding and genetics, nutrition, reproductive physiology and products; use of live animals, physical and virtual models and feedstuffs/equipment to enhance experiential learning approach. Prerequisite: Concurrent enrollment in ANSC 1319.

**ANSC 1202. Barbeque Science. 2 Credit Hours (Lecture: 1 Hour, Lab: 2 Hours).**

An introduction to the science of meat preparation, incorporating food quality and safety, ingredients and flavors, cooking techniques, cut selection and consumer preferences. Lab fee: \$2.

**ANSC 1309. Introduction to Horse Production. 3 Credit Hours (Lecture: 2 Hours, Lab: 2 Hours).**

Introduction to fundamental aspects of horse production. Topics related to physiology of behavior, reproduction and hormones, nutrition and feed management, healthcare, and sectors of the equine industry will be presented in detail. Additional topics of horse management (handling and care) will also be included in course.

**ANSC 1319. General Animal Science. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

The scientific study of animal agriculture involving beef cattle, dairy cattle, swine, sheep, goats, and horses. Topics covered will include general management practices, reproduction, nutrition, health, handling, genetic selection, shelter/housing and marketing strategies and procedures. Prerequisites: Concurrent enrollment in ANSC 1119.

**ANSC 2101. Animal Science Industry. 1 Credit Hour (Lecture: 1 Hour, Lab: 0 Hours).**

A review of the opportunities available to Animal Science students upon graduation, and the appropriate concentrations to achieve career goals. Prerequisites: ANSC major; AGRI 1419 or ANSC 1319 and ANSC 1119.

**ANSC 2305. Horse Handling Techniques. 3 Credit Hours (Lecture: 1 Hour, Lab: 5 Hours).**

Skills development in basic horse handling and application of general principles of equine psychology and behavior. Prerequisite: instructor approval Lab fee: \$2.

**ANSC 2307. Livestock Evaluation. 3 Credit Hours (Lecture: 2 Hours, Lab: 2 Hours).**

Evaluation of market animals including beef cattle, swine, sheep and goats. Emphasis is on selection of breeding animals and evaluation of market animals and economically important characteristics for each species. Prerequisite: AGRI 1419 or ANSC 1319 and ANSC 1119.

**ANSC 2308. Meat and Carcass Evaluation. 3 Credit Hours (Lecture: 2 Hours, Lab: 2 Hours).**

Evaluation of meat cuts and carcasses from cattle, swine, sheep and goats. Emphasis is on factors affecting quality and yield for each species. Techniques for evaluation and for preparation of written reasons. This course is required for participation in the meat judging program, but is open to all students meeting the prerequisites. Prerequisite: AGRI 1419 or ANSC 1319 and ANSC 1119.

**ANSC 2309. Dairy Cattle Judging. 3 Credit Hours (Lecture: 2 Hours, Lab: 2 Hours).**

Evaluation of live dairy cattle for physical conformation. Emphasis will be placed on practical analysis and decision-making in evaluating live cattle on physical conformation for contest purposes. Communication skills will be developed to present evaluation decisions. Prerequisites: ANSC 1319 & ANSC 1119.

**ANSC 2312. Meat Animal and Carcass Evaluation. 3 Credit Hours (Lecture: 2 Hours, Lab: 2 Hours).**

Evaluation of live animals, carcasses and wholesale cuts of beef, pork, and lamb. Factors influencing grades, yields, and values in slaughtered cattle swine, and sheep. Meat quality and general principles of meat science are also introduced. Prerequisite: ANSC 1319.

**ANSC 2450. Anatomy and Physiology of Domestic Animals. 4 Credit Hours (Lecture: 3 Hours, Lab: 2 Hours).**

Introduction to comparative anatomy and physiology of domestic animals. The roles of the various systems of the animal body will be studied with practical applications made to animal production. Topics include anatomy and physiology of the skeletal, muscular, cardiovascular, pulmonary, digestive and reproductive systems. Prerequisite: AGRI 1419 or ANSC 1319 and ANSC 1119.

**ANSC 3101. Issues in the Equine Industry. 1 Credit Hour (Lecture: 1 Hour, Lab: 0 Hours).**

Integration of theory and applied knowledge gained in previous equine courses to demonstrate critical thinking and communication skills to address relevant issues in the equine industry. Prerequisites: ANSC 1309; and ANSC 3305 or ANSC 3314 or ANSC 3340 or ANSC 3410.

**ANSC 3301. Livestock Management. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

A study of the fundamental concepts and principles of beef cattle, sheep, goats, and swine production. Integration of principles of nutrition, breeding, physiology, and marketing into complete production and management programs. Structure of industry, enterprise establishment, systems of production, production practices, and improvement programs. Experiential practicums will be incorporated. Prerequisites: AGRI 1419 or ANSC 1319 and ANSC 1119; Agriculture Services and Development majors only.

**ANSC 3302. Sustainable Animal Production. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

A discussion of the economic, environmental and social components of sustainability and their role in the production and management of livestock. Prerequisite: AGRI 1419 or ANSC 1319 and ANSC 1119; BIOL 1406 or BIOL 1407; AGECE 2317 or ECON 2302.

**ANSC 3303. Pastures and Forages. 3 Credit Hours (Lecture: 2 Hours, Lab: 2 Hours).**

Identification, management, and utilization of forage crops as they pertain to the production of livestock and related species, including pastures, hay, and silage.

**ANSC 3304. Understanding the Behavior of Livestock. 3 Credit Hours (Lecture: 2 Hours, Lab: 2 Hours).**

Application of behavior of cattle, horses, sheep, goats and swine to their production and management; basic principles and physiology of behavior, perception, training, predators, stress and animal welfare. Prerequisite: AGRI 1419 or ANSC 1319 and ANSC 1119; ANSC 2350 or 2450.

**ANSC 3305. Equine Evaluation. 3 Credit Hours (Lecture: 2 Hours, Lab: 2 Hours).**

Influence of heredity, conformation, training and environmental effects on performance horses. A detailed evaluation of the athletic performance and conformation as it relates to function, and the criteria used for evaluation and selection of breeding, race and performance animals. Prerequisite: ANSC 1309 or ANSC 1310.

**ANSC 3308. Principles of Animal Nutrition. 3 Credit Hours (Lecture: 2 Hours, Lab: 2 Hours).**

An evaluation of the anatomical, physiological, and biochemical processes of digestion, absorption, and metabolism; overview of nutrients (water, carbohydrates, lipids, proteins, minerals, and vitamins) and their use within the body of animals. Prerequisite of AGRI 1419 or ANSC 1319 and ANSC 1119 recommended. Prerequisites: BIOL 1406 or 1407; and one of CHEM 1407, (1311 and 1111), or (1312 and 1112).

**ANSC 3309. Applied Animal Nutrition and Feeding. 3 Credit Hours (Lecture: 2 Hours, Lab: 2 Hours).**

Application of nutritional concepts; understanding of nutrient requirements and development of appropriate rations for livestock. Prerequisite: ANSC 3308.

**ANSC 3314. Applied Equine Nutrition. 3 Credit Hours (Lecture: 2 Hours, Lab: 1 Hour).**

Detailed examination of the unique anatomy and physiology of the digestive system of the horse. Dietary requirements nutrients as well as the major sources, needs, functions, and physiological aspects of inadequate and excess intake of nutrients. Common feedstuffs and use in formulating equine diets will be introduced. Prerequisite: ANSC 1309 or ANSC 3308 or instructor approval.

**ANSC 3315. Animal Diseases and Parasites. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

Exploratory study of infectious and non-infectious farm animal diseases, parasites, and parasitic diseases. Introduction to disease and parasite prevention through sanitation and treatment. Prerequisite: AGRI 1419 or ANSC 1319 and ANSC 1119.

**ANSC 3319. Animal Breeding. 3 Credit Hours (Lecture: 2 Hours, Lab: 2 Hours).**

Expanded course description: Students will be exposed to the practical application of genetic principles to livestock breeding. Following a review of Mendelian inheritance, topics will focus on the improvement of economic traits in livestock. Phenotypic expression of genes, including environmental influences, gene action, and the laws of probability; phenotypic variation, including quantitative and qualitative traits; and population genetics will be covered. Students will next focus on selection of breeding stock and breeding programs. In addition, breeding systems for specific species of livestock will be discussed. Prerequisites: AGRI 3409, or BIOL 3303 and BIOL 3103, or BIOL 3403, or equivalent.

**ANSC 3320. Animal Event Production. 3 Credit Hours (Lecture: 1 Hour, Lab: 4 Hours).**

Planning and implementing animal events. Publicity, promotion, budgeting, scheduling, soliciting sponsors, and event production.

**ANSC 3323. Ethical Issues in Agriculture and the Natural Resources. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

Students will examine the several major ethical issues facing agriculture and natural resources sciences in our current society. Readings, discussions and lectures will focus on the scientific, capitalistic, and philosophical motivation in common ethical issues. Upon completion of the course, students will be able to construct and dissect ethical arguments and hopefully become more aware of the ethical dilemmas we all face each day. Credit will not be awarded for both ANSC 3323 and WSES 3323.

**ANSC 3325. Equine Exercise Physiology and Conditioning. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

Influence of exercise and conditioning on muscle physiology, cardiovascular physiology, the biomechanics of locomotion, and energy utilization. Fundamental rehabilitation and treatment of sports injuries will be introduced. Prerequisites: ANSC 1309; ANSC 2350 or ANSC 2450.

**ANSC 3335. Equine Behavior Modification. 3 Credit Hours (Lecture: 1 Hour, Lab: 5 Hours).**

Application of the principles of equine psychology to train horses. Students will be assigned a young horse to halter train for fundamental groundwork. Prerequisite: Approval of instructor Lab Fee: \$2.

**ANSC 3340. Basic Therapeutic Riding. 3 Credit Hours (Lecture: 1 Hour, Lab: 6 Hours).**

Study and application of the methods of using the horse in a therapeutic riding program. Guidelines from Professional Association of Therapeutic Horsemanship International will be used. Students will gain practical experience in the development and conduct of a therapeutic riding program.

**ANSC 3341. Advanced Therapeutic Riding. 3 Credit Hours (Lecture: 1 Hour, Lab: 6 Hours).**

Advanced studies in the use of the horse in a therapeutic riding program. Students will gain the hands-on experience and the information about riding, instruction and safety necessary to become a Certified Therapeutic Riding Instructor with the Professional Association of Therapeutic Horsemanship International. Prerequisite: ANSC 3340 or instructor approval.

**ANSC 3360. Dairy Farm Evaluation. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

On-site dairy farm inspections, evaluating management systems, and developing recommendations to enhance farm performance. Topics include dairy economics, management, and records. Prerequisite: AGRI 1419 or ANSC 1319 and ANSC 1119.

**ANSC 3408. Physiology of Reproduction. 4 Credit Hours (Lecture: 3 Hours, Lab: 2 Hours).**

Fundamental aspects of animal reproduction: basic reproductive anatomy, physiology, endocrinology, histology and behavior and how to apply it to production and effective management of domestic livestock. Prerequisites: AGRI 1419 or ANSC 1319 and ANSC 1119; ANSC 2350 or ANSC 2450.

**ANSC 3409. Feeds and Feeding. 4 Credit Hours (Lecture: 3 Hours, Lab: 2 Hours).**

Basic digestive anatomy and physiology; proximate analysis, forage analysis, carbohydrates, fats, proteins, minerals, vitamins, roughages, concentrates supplements and basic ration formulation. Prerequisite: Junior classification; AGRI 1419 or ANSC 1319 and ANSC 1119. Lab fee \$2.

**ANSC 3410. Principles of Equine Reproduction. 4 Credit Hours (Lecture: 3 Hours, Lab: 2 Hours).**

Theory and practices associated with equine reproduction, including mare and stallion anatomy, endocrinology, folliculogenesis, breeding soundness exams, record keeping, and health care. Prerequisite: ANSC 1309 or equivalent.

**ANSC 3421. Meat Science. 4 Credit Hours (Lecture: 3 Hours, Lab: 2 Hours).**

Basic physical and chemical components of meat and their influence on specific attributes of meat and meat products. Scientific and technical procedures involved in processing food animals, and anatomy, nomenclature, and evaluation of meats. Food safety issues in the meat industry and Hazard Analysis Critical Control Points. Prerequisites: AGRI 1419 or ANSC 1319 and ANSC 1119; ANSC 2350 or ANSC 2450.

**ANSC 4061. Animal Science Study Tour. 1-3 Credit Hours (Lecture: 0 Hours, Lab: 1-3 Hours).**

Field course in animal agriculture designed to acquaint students with live animal operations, related businesses, and food/feed facilities. Includes travel to various sites. No more than 6 hours can count towards the ANSC degree. Prerequisite: Instructor approval. No more than 6 hours can count towards the ANSC BS degree.

**ANSC 4084. Internship. 1-3 Credit Hours (Lecture: 0 Hours, Lab: 1-3 Hours).**

Formally arranged and approved on-the-job training with cooperating sponsor in a commercial or private sector of the livestock or meats industries. A minimum of 40 hours per credit earned is required. Oral and written reports of internship experience are required. This course may be offered pass/fail. No more than 3 credits may count towards the ANSC-BS. Prerequisite: Approval of department head.

**ANSC 4086. Animal Science Problems. 1-4 Credit Hours (Lecture: 0 Hours, Lab: 1-4 Hours).**

Individualized study of current topics in student's major concentration of study or supporting discipline. Specific content and credit dependent upon student's interest, needs, and depth of study. May be repeated for a maximum of 6 semester hours credit. Prerequisite: Senior classification and advance approval by academic advisor.

**ANSC 4090. Special Topics in Animal Science. 1-4 Credit Hours (Lecture: 1-4 Hours, Lab: 0 Hours).**

Special Topics. (Credit-variable) This course deals with selected topics in animal science not covered by existing courses and may be repeated for credit when topics vary, with a maximum of six hours counting toward the degree. Prerequisite Course(s): Approval of department head.

**ANSC 4185. Senior Seminar. 1 Credit Hour (Lecture: 1 Hour, Lab: 0 Hours).**

A review of current problems and developments in animal science; professional opportunities and responsibilities; individual investigations and reports. Prerequisite: ANSC 4300 and Senior classification.

**ANSC 4300. Research and Writing in Animal Science. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours). [WI (<http://catalog.tarleton.edu/academicaffairs/>)]**

Detailed discussions and literature review of current knowledge in areas such as reproductive and alimentary physiology, nutrition, parasitology, pharmacology, and genetics. Topics will include experimental design and statistical evaluation of agricultural research. Students will prepare various types of writings based on scientific literature. Prerequisite: senior classification in agriculture.

**ANSC 4301. Equine Breeding Management. 3 Credit Hours (Lecture: 1 Hour, Lab: 5 Hours).**

Advanced theory and practices associated with equine reproduction, including breeding soundness exams, record keeping, and health care. Practices related to personnel management and economics of a equine breeding operation will be introduced. Prerequisite: ANSC 3410 or ANSC 3408 or instructor approval.

**ANSC 4302. Dairy Cattle Production. 3 Credit Hours (Lecture: 2 Hours, Lab: 2 Hours).**

Principles of dairy science and their application to the feeding and management of dairy cattle. Topics include herd improvement, selection, feeding, replacement stock development, disease control, animal welfare, milk marketing, and associated management practices. Prerequisite: ANSC 3408; ANSC 3409 or ANSC 3309; or permission of instructor.

**ANSC 4303. Beef Cattle Production. 3 Credit Hours (Lecture: 2 Hours, Lab: 2 Hours).**

An overview of the beef cattle industry, with emphasis on the seedstock and cow-calf sectors. A study of the fundamental concepts and principles of beef cattle production. Integration of principles of nutrition, breeding, physiology, and marketing into complete production and management programs. In-depth coverage of seedstock and cow-calf segments of the industry, with introduction to stocker cattle production and feedlot management. Prerequisite: ANSC 3408; ANSC 3309 or ANSC 3409; previous or concurrent enrollment on ANSC 3319.

**ANSC 4308. Environmental Physiology of Farm Animals. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

Studies of farm animals and interactions with their physical environment. Detailed attention is given to the effects of changes and extremes in natural and artificial animal environments, including temperatures, shelter, altitude, humidity, crowding, and other stress factors associated with modern livestock production and handling practices. Prerequisites: AGRI 1419 or AGRI 1319 or ANSC 1319 and ANSC 1119; ANSC 2350 or ANSC 2450.

**ANSC 4310. Swine Production. 3 Credit Hours (Lecture: 2 Hours, Lab: 2 Hours).**

Applications of marketing, nutrition, genetics, breeding and reproduction to modern swine production systems. Prerequisite: ANSC 3408; ANSC 3309 or ANSC 3409; previous or concurrent enrollment on ANSC 3319.

**ANSC 4312. Meat Processing and Merchandising. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

The chemical and physical characteristics of meats and their relations to the processing and manufacturing of meat food items. Carcass value as influenced by merchandising techniques and practices. Sanitation control and commercial and retail operations will be stressed. Prerequisite: ANSC 3421 or approval of department head.

**ANSC 4313. Sheep and Goat Production. 3 Credit Hours (Lecture: 2 Hours, Lab: 2 Hours).**

Practical applications of breeding, feeding, management, disease and parasite control with regard to range and farm conditions; fitting and showing. Wool and mohair production; grading; sorting; and marketing. Prerequisite: ANSC 3408; ANSC 3309 or ANSC 3409; previous or concurrent enrollment in ANSC 3319.

**ANSC 4314. Food Quality Assurance. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

The basis behind food quality control/assurance is discussed along with its application to various food systems to control and improve the quality and safety of our food supply. Credit will not be awarded for ANSC 4341 and ANSC 5314. Lab fee: \$2.

**ANSC 4319. Biotechnology in Agriculture. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

A study of modern biotechnology in agriculture today. This course will explore important advancements and tools in fields such as genetics, agronomy, and bioinformatics. It will also examine the legal constraints and ethical debates that surround these technologies. Credit will not be awarded for both ANSC 4319 and ANSC 5319. Prerequisites: AGRI 3409, or BIOL 3303 and 3103, or instructor approval.

**ANSC 4320. Stocker Cattle Production and Feedlot Management. 3 Credit Hours (Lecture: 2 Hours, Lab: 2 Hours).**

An in-depth examination of nutrition, marketing, consumer relations, and management of beef cattle stocker and feedlot operations. . Prerequisite: ANSC 3421; ANSC 3309 or ANSC 3409, or instructor approval.

**ANSC 4325. Equine Sales Prep and Marketing. 3 Credit Hours (Lecture: 1 Hour, Lab: 4 Hours).**

Preparing and marketing horses for sale. Business strategies, marketing, catalog preparation, public relations, product presentation, fitness, and sale preparation of horses. Prerequisite: ANSC 2305 or instructor approval.

**ANSC 4330. Horse Enterprise Management. 3 Credit Hours (Lecture: 2 Hours, Lab: 2 Hours).**

Individualized instruction in management techniques for horse enterprises including but not limited to record systems, marketing, business operation procedures, professionalism and liabilities. Students will be challenged to locate information and resources and apply knowledge to the management of horses in several aspects of the horse industry. Prior knowledge of basic equine management and terminology is assumed. Prerequisite: ANSC 3410 or ANSC 4301 or ANSC 3408; ANSC 3309 OR ANSC 3314.

**ANSC 4335. Companion Animal Management. 3 Credit Hours (Lecture: 2 Hours, Lab: 2 Hours).**

Overview of anatomy, physiology, genetics, health, behavior, nutritional needs and welfare considerations of companion animals. Emphasis will be in canine, feline and other companion animals. Breeding ethics and business enterprise management practices will be introduced. Prerequisite: ANSC 3309 or ANSC 3314 or VTSC 4323; ANSC 3408 and previous or concurrent enrollment in ANSC 3319.

**ANSC 4336. Assisted Breeding Technology. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

Reproductive principles and techniques in modern breeding programs for farm livestock and other species. Prerequisites: ANSC 2350 OR BIOL 2401; BIOL 3303 and BIOL 3103, or AGRI 3409.

**ANSC 4338. Value-Added Processed Meats. 3 Credit Hours (Lecture: 2 Hours, Lab: 2 Hours).**

The application of scientific principles and practices to further processed meat products. Interrelationships among tissue characteristics, ingredients, handling practices, processing technologies and storage conditions as they affect the quality, safety, and stability of muscle foods. Prerequisite: ANSC 3421.

**ANSC 4351. Environmental Stewardship in Animal Agriculture. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

Techniques and practices in animal production for good stewardship of land, water, and air. Review of applicable state and federal environmental laws. Prerequisites: AGRI 1419 or ANSC 1319 and ANSC 1119; CHEM 1311 and 1111 or CHEM 1407; BIOL 1406 or BIOL 1407.

**ANSC 4360. Lactation Physiology. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

A systematic overview of lactation physiology using dairy cattle as the primary model. Topics include mammary gland anatomy, milk secretion, mammary gland development, and disease impacts. Prerequisites: ANSC 2350 and ANSC 3408.

**ANSC 4361. Animal Science Study Tour. 3 Credit Hours (Lecture: 0 Hours, Lab: 3 Hours).**

Field course in animal agriculture designed to acquaint students with live animal operations, related businesses, and food/feed facilities. Includes travel to various sites. Prerequisite: Instructor approval.

**ANSC 4390. Special Topics. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

Selected topics in the animal sciences. May be repeated for credit when topics vary, with a maximum of six hours. Prerequisite: approval of department head.

**ANSC 4401. Ethology. 4 Credit Hours (Lecture: 3 Hours, Lab: 4 Hours).**

An introductory course in the behavior of animals, with emphasis on the natural selection, ontogeny, and function of behaviors as they relate to feeding, reproduction, predator-avoidance, and other traits. Both proximate (sensory, hormonal, genetic) and ultimate (ecological and evolutionary) mechanisms are addressed. Prerequisite: BIOL 1406 and BIOL 1407; WSES 2322 or AGRI 1419 or ANSC 1319 and ANSC 1119. Lab fee: \$2.

**ANSC 4440. Modern Livestock Production Systems. 4 Credit Hours (Lecture: 3 Hours, Lab: 2 Hours).**

Overview of beef, dairy, swine, small ruminant and poultry production systems and their applications. Modern concepts, ideas, and methodology associated with the application of technology to reproduction, breeding, health, nutrition and nutrient utilization, across various management schemes. Prerequisite: non-Animal Science majors only; ANSC 3408 or ANSC 3309 or ANSC 3409; or approval of instructor.