

# Animal Sciences

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The department offers four curriculum options. The pre-vet/pre-professional option (ANPV) provides students with a foundation in the biological and physical sciences for careers in emerging areas of animal biotechnology while satisfying requirements for application to Auburn's College of Veterinary Medicine, other professional schools, or graduate school. The animal and allied industries option (ANAI) offers greater breadth in animal production management and agribusiness while retaining more electives hours for additional curriculum flexibility. The equine science option (ANEQ) allows students to focus on the sciences and practical skills required for a successful career in the horse industry, and by choosing, appropriate elective courses, will prepare students to apply to Auburn's College of Veterinary Medicine. The meat science option (ANMS) prepares students for quality assurance and for research and development careers in the food industry. Students may use electives to develop expertise in fields such as animal breeding, nutrition, reproduction, growth, behavior, equine science, and companion animals.

## Majors

- Animal Sciences — Equine Science Option ([http://bulletin.auburn.edu/undergraduate/collegeofagriculture/animalsciencesansc/animalsciences\\_equinescienceoption\\_major/](http://bulletin.auburn.edu/undergraduate/collegeofagriculture/animalsciencesansc/animalsciences_equinescienceoption_major/))
- Animal Sciences — Meat Science Option ([http://bulletin.auburn.edu/undergraduate/collegeofagriculture/animalsciencesansc/animalsciences\\_musclefoodsoption\\_major/](http://bulletin.auburn.edu/undergraduate/collegeofagriculture/animalsciencesansc/animalsciences_musclefoodsoption_major/))
- Animal Sciences — Pre-Vet - Pre-Professional Option ([http://bulletin.auburn.edu/undergraduate/collegeofagriculture/animalsciencesansc/animalsciences\\_pre-vetrinarymedicine\\_professionalsoption\\_major/](http://bulletin.auburn.edu/undergraduate/collegeofagriculture/animalsciencesansc/animalsciences_pre-vetrinarymedicine_professionalsoption_major/))
- Animal Sciences — Animal and Allied Industries Option ([http://bulletin.auburn.edu/undergraduate/collegeofagriculture/animalsciencesansc/animalsciences\\_productionoption\\_major/](http://bulletin.auburn.edu/undergraduate/collegeofagriculture/animalsciencesansc/animalsciences_productionoption_major/))

## Minor

- Animal Sciences ([http://bulletin.auburn.edu/undergraduate/collegeofagriculture/animalsciencesansc/animalsciences\\_minor/](http://bulletin.auburn.edu/undergraduate/collegeofagriculture/animalsciencesansc/animalsciences_minor/))

## Courses

**ANSC 1000 INTRODUCTION TO ANIMAL SCIENCES (4)** LEC. 3. LAB. 2. The importance of livestock to agriculture and to the health and nutrition of a modern society. Livestock terminology, selection, reproduction, nutrition, management, marketing, and species characteristics of beef and dairy cattle, swine, sheep and horses.

**ANSC 1050 INTRODUCTION TO EQUINE CARE AND USE (3)** LEC. 2. LAB. 2. This course serves as an introductory course to the history, care, use, and enjoyment of horses. Students will learn the foundations of numerous topics of working with horses and how to handle horses safely and effectively.

**ANSC 1100 ORIENTATION TO ANIMAL SCIENCES (1)** LEC. 1. SU. An introduction to the departmental programs and personnel and how to make the most of the college experience. Breadth of career opportunities for animal science graduates.

**ANSC 2000 COMPANION ANIMAL MANAGEMENT (3)** LEC. 3. Practical aspects of behavior, nutrition, breeding, reproduction, health and management of dogs, cats and other animals generally considered to be human companions.

**ANSC 2010 ANIMALS AND SOCIETY (3)** LEC. 3. Ethical and scientific issues surrounding human-animal interactions and the role human-animal interactions play in modern society.

**ANSC 2050 EQUINE BEHAVIOR AND TRAINING (3)** LEC. 1. LAB. 4. Pr. ANSC 1050. This course is designed to teach students concepts of how equine behavior applies to training. Students will be exposed to a variety of training methods used in the equine industry.

**ANSC 2100 DAIRY GOAT U PROGRAM PLANNING (1)** LEC. 1. Pr. ANSC 1000. Students will be involved in planning and hosting the Dairy Goat U event for youth (ages 6-18) and adults. Course may be repeated for a maximum of 3 credit hours.

**ANSC 2150 SKILLS AND CONCEPTS OF EQUESTRIAN SPORTS (1)** LAB. 4. SU. Departmental approval. Basic management and care of animals used in intercollegiate equestrian and rodeo sports. Must be affiliated with the NCEA Equestrian Team or IHSA Equestrian Team in current term. Course may be repeated for a maximum of 2 credit hours.

**ANSC 2200 DAIRY U PROGRAM PLANNING (1)** LEC. 1. Pr. ANSC 1000. Students will be involved in planning and hosting the Dairy U event for youth (ages 6-18) and adults. Course may be repeated for a maximum of 3 credit hours.

**ANSC 2300 BEEF U PROGRAM PLANNING (1)** LEC. 1. Pr. ANSC 1000. Students will be involved in planning and hosting the Beef U event for youth (ages 6-18) and adults. Course may be repeated for a maximum of 3 credit hours.

**ANSC 2400 HORSE U PROGRAM PLANNING (1)** LEC. 1. Pr. ANSC 1000. Students will be involved in planning and hosting the Horse U event for youth (ages 6-18) and adults. Course may be repeated for a maximum of 3 credit hours.

**ANSC 2720 THE MEAT WE EAT (3)** LEC. 3. Foundation course on the global meat industry with emphasis on meat products, modern processing techniques, concepts of food safety, sanitation, inspection, grading and meeting consumer demands.

**ANSC 2910 PRACTICUM IN LIVESTOCK WELFARE AND MANAGEMENT (2)** LAB. 6. Pr. ANSC 1000. Departmental approval. Hands-on laboratory teaching applied management of livestock species, including horses, cattle, swine and small ruminants, using modern equipment and techniques.

**ANSC 3000 HERD HEALTH MANAGEMENT (3)** LEC. 3. Pr. ANSC 1000. The prevention and control of the major diseases of farm animals and the development of herd health programs.

**ANSC 3150 EQUINE MARKETING (3)** LEC. 3. Pr. ANSC 1000 and (ECON 2020 or ECON 2023 or ECON 2027). Practical concepts of equine marketing including evaluating the horse, assessing the market, targeting customers, and presenting the horse.

**ANSC 3300 INTRODUCTORY LIVESTOCK EVALUATION AND MARKETING (2)** LAB. 6. Pr. ANSC 1000. Comprehensive study of live animal and carcass evaluation techniques used in the selection and marketing of beef cattle, swine and sheep. The development of decision-making oral communication skills is emphasized.

**ANSC 3400 ANIMAL NUTRITION (4)** LEC. 3. LAB. 2. Pr. (CHEM 2030 or CHEM 2070 or CHEM 2077) and (BIOL 1030 or BIOL 1037). Principles and practice of animal nutrition, nutrient contents of feedstuff, and diet formulation.

**ANSC 3410 ANIMAL METABOLISM AND NUTRITION (3)** LEC. 3. Pr. (CHEM 2030 or CHEM 2070 or CHEM 2077) and (BIOL 1030 or BIOL 1037 or POUL 3150). Principles of animal nutrition and nutrient metabolism and a study of nutrients and their utilization by animals.

**ANSC 3420 APPLIED ANIMAL FEEDING AND NUTRITION (3)** LEC. 2. LAB. 1. Pr. ANSC 3410. Feedstuffs, diet formulation, and feeding practices applicable to the well-being and performance of economically important livestock and companion animals.

**ANSC 3500 ANIMAL BREEDING (3)** LEC. 3. Pr. ANSC 1000 and (STAT 2510 or STAT 2513 or BIOL 3000 or BIOL 3003 or AGRI 3000). Genetic and environmental effects of animal differences. Selection and mating systems used in the improvement of domestic animals with an emphasis on livestock.

**ANSC 3600 REPRODUCTIVE PHYSIOLOGY (4)** LEC. 3. LAB. 2. Pr. ANSC 1000 and BIOL 2510. Comparative anatomy, physiology and endocrinology of animal reproduction; principles of reproductive biotechnologies used to enhance reproductive efficiency in mammalian systems.

**ANSC 3610 ANIMAL GROWTH AND DEVELOPMENT (4)** LEC. 3. LAB. 2. Pr. ANSC 1000 and (BIOL 1030 or BIOL 1037). Biology of prenatal and postnatal growth of meat animals, emphasizing muscle, adipose, and bone tissues from a molecular, cellular, endocrine perspective. Application of concepts to improve rate, efficiency, and composition of growth.

**ANSC 3650 PHYSIOLOGY OF EQUINE ATHLETE (3)** LEC. 3. Pr. ANSC 1000 and BIOL 2510. Selection and development of the horse for athletic performance; exercising, training, and fitness conditioning for performance horses.

**ANSC 3700 MUSCLE FOODS (4)** LEC. 3. LAB. 2. Pr. ANSC 1000. Introduction to domestic animal growth and development, comparative evaluation of livestock and carcass composition. Biochemical and physiological factors affecting fresh meat and processed meat quality. Fundamentals of ante-and postmortem muscle biology, slaughter, processing, storage and merchandising of meat and meat products.

**ANSC 3760 VALUE BASED MARKETING OF LIVESTOCK (3)** LEC. 2. LAB. 2. Livestock grading standards and their application to carcasses of meat producing animals, concepts and principles of marketing, advertising, promotion and sales of commercial livestock.

**ANSC 3800 CAREERS IN ANIMAL SCIENCE (1)** LEC. 1. SU. Career opportunities for animal science graduates. Identifying and investigating careers and presenting oneself professionally for employment or post-baccalaureate education.

**ANSC 3840 STUDY/TRAVEL IN ANIMAL SCIENCE (1-10)** AAB/FLD. Departmental approval. Concentrated study in animal production and management, equine science and the meats industry within the US or international locations. Course may be repeated for a maximum of 10 credit hours.

**ANSC 4000 MODERN LIVESTOCK SYSTEMS (4)** LEC. 3. LAB. 2. Pr. (ANSC 3400 or ANSC 3420) and ANSC 3500 and ANSC 3600. Overview of beef, dairy, swine and small ruminant production systems. Modern concepts, ideas, and methodology associated with the application of technology to reproduction, breeding, health, nutrition, waste nutrient utilization, and management.

**ANSC 4010 BEEF PRODUCTION (4)** LEC. 3. LAB. 2. Pr. (ANSC 3400 or ANSC 3420) and ANSC 3500 and ANSC 3600. Overview of the beef cattle industry. Modern concepts, ideas and methodology associated with the application of technology to reproduction, breeding, nutrition, management and the use of facilities in a modern beef cattle enterprise.

**ANSC 4050 EQUINE PRODUCTION AND MANAGEMENT (4)** LEC. 3. LAB. 2. Pr. (ANSC 3400 or ANSC 3420 or ANSC 4450) and ANSC 3500 and ANSC 3600. Practical application and integration of nutrition, breeding, reproduction, selection, herd health, and management for efficient horse production.

**ANSC 4150 ADVANCED SKILLS AND CONCEPTS OF EQUESTRIAN SPORTS (1)** LAB. 4. SU. Pr. ANSC 2150. Principles and skills utilized in intercollegiate equestrian and rodeo team competition and management. Issues affecting management, training, marketing, and promotion of animals used in equestrian and rodeo sports. Must be affiliated with the NCEA Equestrian Team or IHSA Equestrian Team in current term. Course may be repeated for a maximum of 2 credit hours.

**ANSC 4300 ADVANCED LIVESTOCK JUDGING (1)** LAB. 4. Pr. ANSC 3300. Advanced course in principles and techniques of livestock selection based on visual criteria, performance records, and other advanced technologies. Course may be repeated for a maximum of 2 credit hours.

**ANSC 4450 EQUINE NUTRITION (3)** LEC. 2. LAB. 2. Pr. ANSC 3410 or ANSC 3400. Principles of digestive physiology, nutrition, and metabolic disorders unique to various classes of horses.

**ANSC 4700 MEAT PROCESSING (4)** LEC. 3. LAB. 3. Integration of topics in meat and non-meat ingredient chemistry and their applications to muscle food processing. Physical, chemical, and sensory properties of fresh and processed meat products.

**ANSC 4800 ISSUES IN ANIMAL AGRICULTURE (2)** LAB. 4. Pr. COMM 1000 or COMM 1003. Issues affecting animal agriculture, dealing with concerns of consumers and activists, involvement in public debate, and the political process.

**ANSC 4810 PROFESSIONAL DISCOURSE IN AGRICULTURE (1)** LAB. 2. Pr. COMM 1000 or COMM 1003. Methods for enhancing effective discourse concerning issues facing the livestock industry.

**ANSC 4920 INTERNSHIP IN ANIMAL SCIENCES (5-15)** INT. SU. Course may be repeated for a maximum of 15 credit hours.

**ANSC 4960 SPECIAL PROBLEMS (1-5)** IND. Departmental approval. Students will work under the direction of staff members on specific problems. Course may be repeated for a maximum of 15 credit hours.

**ANSC 4967 HONORS SPECIAL PROBLEMS (3-6)** IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

**ANSC 4970 SPECIAL TOPICS IN ANIMAL SCIENCES (1-4)** IND. Instruction and discussion of selected current topics in Animal Sciences. Course may be repeated for a maximum of 4 credit hours.

**ANSC 4980 UNDERGRADUATE RESEARCH (2-4)** IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

**ANSC 4997 HONORS THESIS (3-6)** IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

**ANSC 5700 MICROBIOLOGY OF MEATS AND OTHER FOODS (4)** LEC. 3. LAB. 1. Pr. BIOL 1030 or BIOL 1037 or BIOL 3200. Microorganisms associated with meat and other foods production, spoilage, and safety with training in both traditional and modern detection techniques May count either ANSC 5700, FDSC 5700, ANSC 6700 or FDSC 6700.

**ANSC 5730 SENSORY EVALUATION (3)** LEC. 2. LAB. 2. Pr. STAT 2510 or STAT 2513. History and methods of sensory testing of food products, factors affecting results. May count only one of the following: ANSC 5730, ANSC, 6730, POUL 5730, POUL 6730.

**ANSC 6700 MICROBIOLOGY OF MEATS AND OTHER FOODS (4)** LEC. 3. LAB. 1. Pr. BIOL 1030 or BIOL 3200 or BIOL 1037. Microorganisms associated with meat and other foods production, spoilage, and safety with training in both traditional and modern detection techniques. May count either ANSC 6700, FDSC 6700, ANSC 5700, or FDSC 5700. May count either ANSC 6700 or FDSC 6700.

**ANSC 7010 ADVANCED BEEF SYSTEMS (3)** LEC. 3. Advanced study of contemporary beef cattle production systems, including principles of planning, resource management and financing plus integrated biology in areas of breeding and selection, reproduction, metabolism, nutritional physiology and growth, health and disease; integration of forage system biology, soil and forage management as related to performance and sustainability.

**ANSC 7400 RUMINANT NUTRITION (3)** LEC. 3. Digestive physiology, mechanisms of rumen fermentation, postruminal nutritional biochemistry.

**ANSC 7410 NONRUMINANT NUTRITION (3)** LEC. 3. Departmental approval. Digestion, absorption, and utilization of macro and micro nutrients, nutrient interrelationship in swine and other non-ruminant species.

**ANSC 7610 PHYSIOLOGY OF GROWTH (3)** LEC. 3. Pr. BCHE 7210. Molecular and cellular basis of tissue differentiation, growth and development with emphasis on muscle, adipose and connective tissues and factors influencing gene expression controlling such events.

**ANSC 7700 MUSCLE FOODS AND APPLIED MUSCLE BIOLOGY (4)** LEC. 3. LAB. 2. Pr. ANSC 3700 and BCHE 7210. Investigations of muscle microanatomy, biochemistry of muscle proteins and lipids, biochemistry of skeletal muscle contraction, lipid/protein interactions, antemortem and postmortem factors affecting fresh and processed meat quality; discussion of classic and current scientific literature.

**ANSC 7950 SEMINAR (1)** LEC. 1. An intensive scientific literature study and subsequent seminar presentation of selected topics in some facet of animal sciences (Animal Genetics, Reproductive Biology, Growth and Development, Nutrition, Animal Production, Equine Studies, Meat Science and Food Animal related Biochemistry) by enrolled students. Course may be repeated for a maximum of 3 credit hours.

**ANSC 7960 SPECIAL PROBLEMS (1-5)** DSL/LEC. Conference problems, assigned reading, literature searches in one or more of the following major fields; (a) biochemistry, (b) nutrition, (c) animal breeding, (d) reproductive physiology, (e) growth physiology, (f) muscle foods, (g) microbiology, and (h) behavior. Course may be repeated for a maximum of 15 credit hours.

**ANSC 7970 SPECIAL TOPICS IN ANIMAL SCIENCES (1-5)** IND. Emerging topics in Animal Science and related industries. Course may be repeated for a maximum of 5 credit hours.

**ANSC 7990 RESEARCH AND THESIS (1-15)** MST. Research and thesis may be on technical laboratory problems or on problems directly related to beef and dairy cattle, sheep, swine, or laboratory animals. Course may be repeated with change in topics.

**ANSC 8400 PROTEIN AND ENERGY METABOLISM (3)** LEC. 3. Pr. BCHE 7210. Nutritional biochemistry of protein and energy metabolism of mammalian, avian and aquatic species. Concepts of protein turnover, nutrient-gene interactions, control of bioenergetics, nutritional assessment, nutritional quality of nutrient sources.

**ANSC 8410 VITAMIN AND MINERAL METABOLISM (3)** LEC. 3. Departmental approval. Vitamin and mineral nutrition with emphasis on chemical structures and characteristics, metabolic functions, deficiencies and toxicity syndromes, interrelationships and requirements of vitamins and minerals.

**ANSC 8990 DOCTORAL RESEARCH AND DISSERTATION (1-15)** DSR. Course may be repeated with change in topics.