Department of Animal Sciences – Course Descriptions

As you plan your academic degree in the Department of Animal Sciences, please refer to your curriculum guide, as well as the following course codes and descriptions. **(F;S;SS)** refers to courses offered in fall, spring or summer semesters. For courses outside the Department, please refer to the Undergraduate Bulletin, which you can find on the Student Gateway here.

The courses under the Animal Sciences and Laboratory Animal Sciences headings are within the two degree programs that lead to further studies in human or veterinary medicine. These programs are the first choice for students aspiring to enter medical professions.

Animal Sciences

ANSC 211. Animal and Laboratory Animal Sciences **Credit 3(2-2)**
Basic genetics, physiology, nutrition, animal products, processing, disease control, euthanasia, anesthesiology, and pharmacology. Production practices, management, and health of livestock and animals used in biomedical research. *Prerequisite: LASC 162*. **(F;S)**

ANSC 212. Feeds and Feeding **Credit 3(3-0)**
Composition and nutrient content of feeds, basic principles of feeding, comparative digestive systems, basic principles of nutrition for ruminant and monogastric animals. *Prerequisites: LASC 162 and ANSC 211*. **(S)**

ANSC 214. Agricultural Genetics **Credit 3(2-2)**
Basic principles of heredity in relation to animal and plant improvement. Laboratory in cytology and the genetic basis of inheritance. *Prerequisite: BIOL 101, 240, or 160*. **(F;S)**

ANSC 217. Anatomy and Physiology of Farm Animals **Credit 3(2-2)**
Structures and functions of the body systems and organs of domestic animals. *Pre-requisites: ANSC 211, BIOL 160*. **(S)**

ANSC 312. Meat and Meat Products **Credit 3(2-2)**
Meats from the consumer, processor, and producer standpoints. Meat as a food; inspection, grading, processing, preservation, and identification. **(F)**

Equine Management minor:

ANSC 218. Equine Science I **Credit 3 (2-2)**
Introduces the horse industry and emphasizes basic horse husbandry. Topics include history and development of the horse, status and future of the horse industry, breeds, types and classes of horses, cells, tissues, and organs, functional anatomy, biomechanics of movement, unsoundness, determining age, height, and weight of horses, genetics, reproduction and breeding. (**F,S**)

ANSC 219. Equine Science II **Credit 3 (2-2)**
Course continues horse industry theory and practices and emphasizes basic horse husbandry and stable management practices. Topics continue from equine science and include digestion and nutrition, feeds and feeding, health management, parasite control, shoeing and hoof care, buildings and equipment, equitation, and career opportunities. Prerequisites: ANSC 218. (**F,S**)

ANSC 220. Equine Conformation and Selection **Credit 3 (3-0)**
Evaluates conformation and movement. It covers related anatomy, identifies characteristics of major breeds, and introduces judging. Topics include the relationship of form to function and ideals and terminology for breed, halter, and performance specialties. (**F,S**)

ANSC 313. Advanced Horse Farm Management **Credit 3 (3-0)**

Course covers management skills for the different types of equine facilities. Topics will include breeding management, health management, pasture management, facility planning, marketing, record keeping, insurance, liability, contracts, and management of training and boarding facility. Prerequisite: ANSC 219. (**F,S**)

ANSC 314. Equine Behavior and Training **Credit 3 (2-2)**
Application of fundamental behavioral concepts to training of horses and modification of undesirable behavioral patterns. Topics include early handling, halter breaking, lunging, long lining, and saddling and bridling through riding. Different taining methods will be covered and practiced as appropriate. Prerequisite: ANSC 219. (**F,S**)

ANSC 415. Horse Production **Credit 3(2-2)**
A survey of the light horse industry in the U.S. Horse Breeds and registry associations. Breeding, care, and management in the light Horse. Comparative judging of breed groups' preventative procedures; disease control. **(S)**

Poultry Science

ANSC 354. Fundamentals of Poultry Breeding **Credit 4(3-2)**
Breeding, selection, and improvement of poultry. *Prerequisites: ANSC 214 and 451*. **(S)**

ANSC 451. Poultry Production **Credit 3(2-2)**
Principles and practices of poultry production. *Prerequisite: ANSC 211*. **(F)**

ANSC 555. Advanced Commercial Poultry Management **Credit 4(3-2)**
Management of poultry farm and hatchery operation will be emphasized. *Prerequisite: ANSC 451*. **(S)**

ANSC 411. Livestock Production **Credit 3(2-2)**
Selection, breeding, feeding, management of beef cattle and sheep. *Prerequisite: ANSC 212*. **(F)**

ANSC 413. Sanitation and Diseases of Farm Animals **Credit 2(2-0)**
Sanitation and the common diseases of livestock with reference to causes, prevention and treatment as well as their relation to the environment. **(S)**

ANSC 415. Horse Production **Credit 3(2-2)**
A survey of the light horse industry in the U.S. Horse Breeds and registry associations. Breeding, care, and management in the light Horse. Comparative judging of breed groups' preventative procedures; disease control. **(S)**

ANSC 416. Swine Production **Credit 3(2-2)**
Breeding, nutrition, production, and management in modern swine enterprises. Marketing and economic aspects of swine production. Swine production and the environment. *Prerequisite: ANSC 211*. **(S)**

ANSC 421. Dairy Cattle Production **Credit 3(2-2)**
Lactation, management and nutrition for efficient milk production. Dairy cattle breeding and selection. Care of dairy equipment and dairy cattle records. *Prerequisite: ANSC 212*. **(F)**

ANSC 555. Advanced Commercial Poultry Management **Credit 4(3-2)**
Management of poultry farm and hatchery operation will be emphasized. *Prerequisite: ANSC 451*. **(S)**

ANSC 611. Principles of Animal Nutrition **Credit 3(3-0)**
Fundamental of modern animal nutrition; classification of nutrients, nutrient metabolism; nutrient partitioning in production. *Prerequisite: ANSC 212 or permission of instructor*. **(F)**

ANSC 614. Animal Breeding **Credit 3(3-0)**
Application of genetic and breeding principles to livestock production and improvement.

Phenotypic and genotypic effects of selection methods; mating systems. *Prerequisites: ANSC 211 and 214*. **(F)**

ANSC 615. Selection of Meat and Meat Products **Credit 3(2-2)**
Identification, grading and cutting of meats. **(SS)**

ANSC 619. Special Problems in Livestock Management **Credit 3(3-0)**
Problems in feeding, breeding and management in beef cattle, sheep and swine production. *Prerequisite: Senior standing or permission of instructor*. **(F;S)**

ANSC 624. Physiology of Reproduction in Vertebrate Species **Credit 3(2-2)**
Mechanisms of reproductive processes with special emphasis on their interaction with the disciplines of nutrition, immunology and biochemistry. *Prerequisite: ANSC 461 or permission of instructor*. **(F)**

ANSC 637. Environmental Toxicology **Credit 3(3-0)**
Basic principles of environmental toxicology; regulatory perspectives; spills, anthropogenic pollution problems; ecological and human risk assessments; overview of classes of toxic agents, routes of exposure, target animals (aquatic, terrestrial, and mammalian species), and toxicological testing. Prerequisites: BIOL 101, CHEM 106 or 107, and CHEM 251. (**F)**

ANSC 665. Techniques in Biotechnology **Credit 3(2-2)**
Basic principles and laboratory experiences in biotechnology. Concepts of DNA structure, function, related applications in biotechnology. Methods: isolating DNA and RNA; genomic DNA and plasmid DNA analysis, gel electrophoresis, Southern hybridization, gene probes, and more. Prerequisite: CHEM 251, ANSC 214, BIOL 466, or permission of instructor. **(F;S)**

Laboratory Animal Science

LASC 161. Orientation I **Credit l(1-0)**
Orientation to college academic life with consideration for program demands, learning techniques and resources. **(F)**

LASC 162. Introduction to Animal and Laboratory Animal Sciences **Credit 3(3-0)**
Ethical considerations, basic sciences, history of use, laws, and guidelines in using livestock and laboratory animals.

LASC 261. Medical Terminology **Credit 3(3-0)**
Introduction to medical terminology; vocabulary building using Latin and Greek terms as it relates to basic anatomy, physiology, and pathology. **(F;S)**

LASC 363. Internship I **Credit 1-6(0-2 to 12)**
Preparation and field experiences with activities in Laboratory Animal Sciences. Prerequisites: Junior standing and special departmental permission. **(F;S;SS)**

LASC 365. Biology, Diseases and Care of Laboratory Animal **Credit 4(3-3)**
The biology, diseases and care of laboratory animals; behavior of common laboratory animals; handling, restraint; necropsy and diagnostic procedures: anesthesia, aseptic surgical procedures. **(F)**

LASC 459. Integrated Anatomy **Credit 4(3-3)**
The origin, development, and structure of bio-systems in laboratory animals, food animals and companion animals will be studied. *Prerequisite: LASC 261*. **(F)**

LASC 460. Microscopic Anatomy **Credit 3(2-3)**
Microscopic studies of cells and tissues of laboratory, food, and companion animals. *Prerequisite: LASC 459*. **(F;S)**

LASC 461. Physiology of Domestic Animals **Credit 3(2-3)**
Function of bio-systems in laboratory animals, farm animals, and companion animals.

Prerequisite: LASC 459. **(S)**

LASC 462. Principles of Medical Sciences **Credit 3(3-0)**
Basic concepts of diseases and the biological reactions to disease within the living body. Basic concepts on the living body; cell injury, inflammatory reactions; circulatory disturbances; immune disorders; growth disturbances; and the nature and cause of disease. **(F)**

LASC 463. Internship II **Credit 3-6(0-6 to 12)**
Field experiences in veterinary medical activities. Prerequisites: LASC 363 and special departmental permission**. (F;S;SS)**

LASC 564. Introduction to Research **Credit 3(2-3)**
Biomedical research techniques including fundamental laboratory investigations, precepts of the scientific method and experimental design; application of scientific instrumentation. Prerequisite: Senior standing. **(S)**

LASC 569. Seminar in Laboratory Animal Science **Credit 1(1-0)**
Discussion of current topics in laboratory animal science or histotechnology. **(F)**

LASC 636. Principles of Toxicology **Credit 3(2-3)**
General principles involved in absorption, distribution, and excretion of toxicants, biotransformation, adverse effects, and factors that modify their effects. Toxic effects on specific target organs. **(S)**

LASC 653. Laboratory Animal Management and Clinical Techniques **Credit 4(2-6)**
Principles, theories and current concepts of laboratory animal science. Government regulations, ethical considerations, animal facility management and animal health surveillance. *Prerequisite: Permission of instructor*. **(S)**

LASC 660. Special Techniques in Specimen Preparation, Immunological Techniques, Electron Microscopy, Radiology or Histotechnology **Credit 3(1-6)**
Special expertise in either the preparation of animal models for classroom, museum, and special display, the theoretical and practical aspects of immunological techniques, electron and light microscopy, radiology, tissue culture or histochemistry. Prerequisite: Senior standing or special departmental permission**. (F;S;SS)**