ANSC - ANIMAL SCIENCES

ANSC Class Schedule (https://courses.illinois.edu/schedule/DEFAULT/DEFAULT/ANSC/)

Courses

ANSC 100  Intro to Animal Sciences  credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/100/)
Survey of beef and dairy cattle, companion animals, horses, poultry, sheep, and swine. Includes the importance of product technology and the basic principles of nutrition, genetics, physiology, and behavior as they apply to breeding, selection, feeding, and management. Lecture and lab.

ANSC 101  Contemporary Animal Issues  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/101/)
Provides an understanding of fundamental issues impacting the care and use of animals, and their role in human welfare. Topics addressed include the fundamental principles of animal domestication and its impact on humans, animal welfare and care, animal-environmental interactions, food safety, diet and health issues, economic and societal issues facing the world today, and bioethical issues.

ANSC 103  Working With Farm Animals  credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/103/)
Introductory course that will provide novice students with the fundamentals of animal-animal and animal-human interactions for domestic farm animals. Emphasizes hands-on experiences to develop a background in the concepts and practice of recognizing and understanding the animal's physiology and behavior, animal well being, and animal responses to human interactions. Prerequisite: ANSC 100. Restricted to students in the Animal Sciences department. Not intended for First Time Freshman students.

ANSC 110  Life With Animals and Biotech  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/110/)
Lecture/discussion course that will provide students an overview of biotechnology and animals. Focuses on biotechnological achievements involving animals and how they influence the global development of agriculture, medicine, and industry. Topics will be covered from scientific, discovery, historical, social, and political perspectives. Credit is not given to Animal Science majors.
This course satisfies the General Education Criteria for:
Nat Sci Tech - Life Sciences

ANSC 199  Undergraduate Open Seminar  credit: 0 to 5 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/199/)
An experimental course on a special topic in animal sciences. Approved for Letter and S/U grading. May be repeated, if topics vary.

ANSC 201  Principles of Dairy Production  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/201/)
Surveys the dairy industry; examines principles of breeding, selection, reproduction, feeding, milking and management of dairy cattle. Prerequisite: ANSC 100.

ANSC 204  Intro Dairy Cattle Evaluation  credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/204/)
Evaluation of physical traits of dairy cattle in relation to economic value and genetic improvement; sire selection, mating systems, and genetic merit for dairy cattle. Field trip required. Prerequisite: ANSC 100 or consent of instructor.

ANSC 205  World Animal Resources  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/205/)
Examination of the world's animals, domesticated and wild, and their uses in various climatic, economic and cultural contexts. Exploration of their contemporary management and their future prospects. Provides background for international experiences, such as ACES 298 and ACES 299. Prerequisite: Completion of the campus Composition I general education requirement.
This course satisfies the General Education Criteria for:
Advanced Composition

ANSC 206  Horse Management  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/206/)
Focus on the principles of managing horses from birth through breeding; topics include reproductive physiology, breeding management, nutrition, diseases, parasites, herd health programs, genetics, facility design and exercise physiology.

ANSC 207  The Science of Pets and How to Care for Them  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/207/)
An introduction to companion animal biology through consideration of the physical structure, nutrition, behavior, and reproduction of animal species most commonly kept as companions. The basic information is applied to discussion of basic preventive health care. Course content is largely focused on cats and dogs, although other mammals, birds and reptiles will be briefly considered. Legal and economic issues, and ethical considerations associated with companion animals are also incorporated into the course discussion. Credit is not given for both ANSC 207 and ANSC 307.
This course satisfies the General Education Criteria for:
Nat Sci Tech - Life Sciences

ANSC 210  Grilling and BBQ Science  credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/210/)
This course will focus on food preparation and safety, product quality, correct cooking methods, endpoint temperatures, and other general grilling-related topics. The objective is to expand student knowledge on how to utilize different cuts of meat and other products to produce meals. Students will work in groups to prepare a dish with a specific product assigned to them and present their results to the class. Grills and cooking equipment will be provided. Additional fees may apply. See Class Schedule.

Information listed in this catalog is current as of 07/2022
ANSC 211 Breeding Animal Evaluation credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/211/)
Application of current scientific tools, methods, and performance programs available to livestock breeders for improving beef cattle, swine, and sheep; emphasis on the changing nature of modern breeds of livestock as influenced by selection, economics, and consumer and market trends. Course requires visits (including weekends) to farms, related companies, and events to observe the latest techniques and scientific principles associated with livestock selection and evaluation. Students are responsible for personal expenses on the field trips. Prerequisite: Junior standing.

ANSC 215 Introduction to Animal Evaluation credit: 1 or 2 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/215/)
The objective of each section is to train students on industry evaluation techniques of animals and/or their by-products. Additionally, students will examine different industry production styles, selection for improvements, and end product marketability. This course is divided into sections that focus on evaluation of animals or animal by-products (meat or dairy) and will develop skills of basic evaluation associated with each section. Travel to production facilities may occur based on the section. May be repeated in separate semesters, if topics vary to a maximum of 6 credit hours. For Animal Science majors, only one instance (2 credit hours) taken in this course will count as an Applied Science credit towards their degree requirements. Prerequisite: Restricted to sophomore through senior standing required. Transfer students allowed. Freshman are not allowed to enroll in this course.

ANSC 219 Meat Technology credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/219/)
Student participation in the transformation of live animals through harvest and carcass fabrication into food products for human consumption; includes laboratory. Purchase of personal equipment is required.

ANSC 221 Cells, Metabolism and Genetics credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/221/)
Provides an introductory background in basic aspects of cell biology, physiology, and genetics. Topics addressed include cell structure, cell organelles, and different types of cells, protein synthesis and gene expression, chromosome structure, basic mechanisms of chromosome replication, basic principles of quantitative and population genetics, and an introduction to genomics and proteomics. Prerequisite: ANSC 100, CHEM 102 and 103 or concurrent enrollment.

ANSC 222 Anatomy and Physiology credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/222/)
Provides an introductory background in basic and fundamental principles of animal anatomy and physiology. The major organ systems (muscle, skeletal, neural, endocrine, cardiovascular, respiratory, and renal) will be presented with an emphasis on comparative anatomy, integrated function, and specific homeostatic mechanisms. Prerequisite: ANSC 100.

ANSC 223 Animal Nutrition credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/223/)
Provides an introductory background in the fundamental principles of animal nutrition and how nutrition impacts animal well-being and performance. Students will develop comprehensive knowledge in gastrointestinal and digestive anatomy and physiology, nutrient function and requirements, and energy utilization in various species. Specific topics include different classes and properties of nutrients, differences in digestive mechanisms in monogastric vs. ruminant animals, and how carbohydrates, lipids, proteins, minerals, and vitamins contribute to the nutrient requirements of animals. Prerequisite: ANSC 100, ANSC 221, and CHEM 104 and CHEM 105.

ANSC 224 Animal Reproduction and Growth credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/224/)
Study of the basic principles of reproduction, lactation, growth, and hormonal regulation in animals as well as humans, including cell growth and differentiation, processes of reproduction, biotechnological methods of reproductive control, manipulation, performance enhancement of lactation and growth. Prerequisite: ANSC 100, ANSC 221.

ANSC 231 Evolution of Sex credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/231/)
Focuses on the reproductive strategies and reproductive life cycles of animal species beginning with lower invertebrates, then to insects, amphibians, reptiles, birds and mammals. Discussion will focus on how the ancient environment influenced reproductive strategies of early animals and how animal species are adapting to the environmental challenges they face today.

ANSC 250 Companion Animals in Society credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/250/)
Explores the current and historical functions and influences of companion animals in American society. Topics include the evolution of animal protection, the use of assistance and service animals, and the growth of the pet supply industry. Controversial issues which are of current concern to society will also be examined. This course satisfies the General Education Criteria for:
Cultural Studies - Western

ANSC 251 Epidemics and Infectious Diseases credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/251/)
Introduces students to the major past and present causes of plague in humans as well as agricultural and companion animals. Smallpox, yellow fever, bubonic plague, polio, SARS, AIDS, West Nile encephalitis, Zika, PRRS, PEDV, foot and mouth disease, bovine spongiform encephalopathy, and others will be discussed. The characteristics of each disease, including, mode of transmission, symptoms, duration of illness, and mortality rates will be presented. History and probability of recurrence will also be explored. Prerequisite: Some knowledge in anatomy and physiology may be helpful.

ANSC 255 Animal Ethics credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/255/)
Explores ethical issues raised by human use of animals. Students will be asked to apply philosophical perspectives to historical and current animal issues such as raising animals for food production, the keeping of pets, management and use of wild animals, use of animals in research, animal breeding and biotechnology, and animal control. This course satisfies the General Education Criteria for:
Humanities - Hist Phil
ANSC 256  Horse's Role in Human History  credit: 3 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/256/](https://courses.illinois.edu/schedule/terms/ANSC/256/))
Provides an understanding of the crucial roles that horses have played in the development and expansion of human civilization, including how the role of the horse in culture and society has changed throughout history. Topics addressed include an understanding of the evolution and domestication of horses, use of horses for transportation, sport, warfare and power, and the impact of horses on societal issues facing the world today.

ANSC 293  Internship Off Campus  credit: 1 to 4 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/293/](https://courses.illinois.edu/schedule/terms/ANSC/293/))
Supervised, off-campus learning experience in an animal-related enterprise. May be repeated to a maximum of 12 hours. No more than 12 hours of special problems, research, thesis and/or individual studies may be counted toward degree in ACES. Prerequisite: Good academic standing; ANSC 100.

ANSC 294  Intern On Campus Practical Exp  credit: 1 to 5 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/294/](https://courses.illinois.edu/schedule/terms/ANSC/294/))
Supervised, on-campus learning experience associated with subject matter specific to animal sciences. Approved for Letter and S/U grading. May be repeated to a maximum of 12 hours. No more than 12 hours of special problems, research, thesis and/or individual studies may be counted toward degree in ACES. Prerequisite: Good academic standing; ANSC 100.

ANSC 295  UG Research or Thesis  credit: 1 to 5 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/295/](https://courses.illinois.edu/schedule/terms/ANSC/295/))
Individual research in animal sciences. May be repeated in the same or separate terms to a maximum of 12 hours. Independent Study courses are limited to 12 hours total applying to a degree in ACES. Prerequisite: Minimum GPA of 2.5; not open to students on probation; consent of instructor.

ANSC 298  Animal Science Careers and Professional Development  credit: 1 Hour. ([https://courses.illinois.edu/schedule/terms/ANSC/298/](https://courses.illinois.edu/schedule/terms/ANSC/298/))
Designed to help students prepare for and investigate different career options in Animal Sciences. Professional development opportunities like undergraduate research, internships, and study abroad will be discussed. Prerequisite: Sophomore standing.

ANSC 299  Animal Mgt Field Studies  credit: 1 or 2 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/299/](https://courses.illinois.edu/schedule/terms/ANSC/299/))
Field studies of farms and service industries; discusses and demonstrates management practices on commercial farms. Trip normally taken during spring break. May be repeated up to 5 hours in the same term and 12 hours maximum if topics vary.

ANSC 301  Food Animal Production, Management, and Evaluation  credit: 3 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/301/](https://courses.illinois.edu/schedule/terms/ANSC/301/))
Provides an overview of how nutrition, genetics, and environment affect beef cattle, swine, and sheep growth, development, and end-product quality and value. Students get hands-on experience evaluating and determining value of live animals and carcasses. Prerequisite: Credit or concurrent enrollment in ANSC 223 and ANSC 224; or consent of instructor.

ANSC 305  Human Animal Interactions  credit: 3 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/305/](https://courses.illinois.edu/schedule/terms/ANSC/305/))
Animals play a significant role in our society and in the lives of many individuals. This course explores the current and historical interactions of humans with non-human animals in our society from a multidisciplinary approach. Various cultures and historical periods will be examined when discussing these relationships with various non-human animals.

This course satisfies the General Education Criteria for:
Social Beh Sci - Soc Sci

ANSC 306  Equine Science  credit: 3 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/306/](https://courses.illinois.edu/schedule/terms/ANSC/306/))
Understand and apply current scientific research and principles of equine science to intensive horse production. An in-depth approach to equine reproductive physiology, nutrition, anatomy and exercise physiology will be followed using a combined lecture and laboratory format. Emphasis on current research and hands-on techniques. Prerequisite: ANSC 206, ANSC 222 or equivalent, and credit or concurrent enrollment in ANSC 224 or equivalent; or consent of instructor.

ANSC 307  Companion Animal Management  credit: 3 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/307/](https://courses.illinois.edu/schedule/terms/ANSC/307/))
Provides an advanced overview of companion animal biology through consideration of the physical structure, nutrition, behavior, and reproduction of animal species most commonly kept as companions. Course content is applied to discussion of best management practices and basic preventive health care. Course content is largely focused on cats and dogs, although other mammals, birds and reptiles are briefly considered. Legal and economic issues, ethical considerations, and career opportunities associated with companion animals are also incorporated into course discussion. Credit is not given for both ANSC 307 and ANSC 207. Prerequisite: ANSC 221, ANSC 222, ANSC 223, ANSC 224 or consent of instructor.

ANSC 309  Meat Production and Marketing  credit: 2 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/309/](https://courses.illinois.edu/schedule/terms/ANSC/309/))
General approach to meat utilization with emphasis on selecting, grading, cutting, and pricing meat for the retail, restaurant, and food service industry. This course includes laboratory and may use field trips to establishments to highlight course concepts.

ANSC 310  Meat Selection and Grading  credit: 3 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/310/](https://courses.illinois.edu/schedule/terms/ANSC/310/))
Study characteristics associated with the value of carcasses, primal and retail cuts from meat animals; emphasize USDA grading and specifications as well as written communication. Field trips to meat packing plants are required. Prerequisite: ANSC 215, Section A.

ANSC 312  Advanced Livestock Evaluation  credit: 3 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/312/](https://courses.illinois.edu/schedule/terms/ANSC/312/))
Advanced instruction in the selection of breeding animals of beef, sheep, and swine species and in the evaluation of market animals for slaughter. This course requires visits to farms, related companies, and events to observe the latest techniques and scientific principles associated with livestock selection and evaluation. Prerequisite: ANSC 211 or consent of instructor.

ANSC 313  Horse Appraisal  credit: 2 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/313/](https://courses.illinois.edu/schedule/terms/ANSC/313/))
Advanced course for students interested in improving their performance and conformation evaluation skills; provides exposure to the horse show industry and the career opportunities associated with this facet of the horse industry; students may compete in intercollegiate judging contests.
ANSC 314  Adv Dairy Cattle Evaluation  credit: 2 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/314/](https://courses.illinois.edu/schedule/terms/ANSC/314/))
Advanced instruction in the selection of breeding dairy animals. Involves visits to farms, related companies and events to observe the latest techniques and scientific principles associated with dairy cattle selection and evaluation. Field trips for cattle judging are required. Prerequisite: ANSC 204 or ANSC 215 or consent of instructor.

ANSC 322  Livestock Feeds and Feeding  credit: 3 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/322/](https://courses.illinois.edu/schedule/terms/ANSC/322/))
Livestock feeds and practical feeding applications for livestock will be addressed. Feed identification and ration formulation will be strongly emphasized. One session of this class will take place at the UIUC Feed Mill. Prerequisite: ANSC 223.

ANSC 331  Biology of Reproduction  credit: 2 to 4 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/331/](https://courses.illinois.edu/schedule/terms/ANSC/331/))
Study of comparative reproduction, lactation, behavior, reproductive strategies, assisted reproduction, and reproductive diseases in domestic and wild animals including mammals, birds, reptiles, and amphibians. Prerequisite: Sophomore standing; IB 104 or one introductory level biology course.

ANSC 350  Cellular Metabolism in Animals  credit: 3 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/350/](https://courses.illinois.edu/schedule/terms/ANSC/350/))
Principles and regulation of cellular metabolism in animals, emphasizing energy derivation and its relationship to domestic animal and food production. Prerequisite: CHEM 104, CHEM 105, and ANSC 221 or equivalent.

ANSC 360 ([https://courses.illinois.edu/schedule/terms/ANSC/360/](https://courses.illinois.edu/schedule/terms/ANSC/360/)) Technology and Management: The Basics CWL 389, MACS 383  credit: 3 Hours.
Overview of agricultural systems' problems and application of different tools and sensors on problem-solving and efficient systems' design.

ANSC 363  Behavior of Domestic Animals  credit: 4 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/363/](https://courses.illinois.edu/schedule/terms/ANSC/363/))
Introduction to concepts of animal behavior with emphasis on domestic animals; lecture and discussion. Prerequisite: ANSC 100.

ANSC 366  Animal Behavior  credit: 3 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/366/](https://courses.illinois.edu/schedule/terms/ANSC/366/))
Same as ANTH 342, IB 329, and PSYC 329. See IB 329.

ANSC 370  Companion Animal Policy  credit: 3 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/370/](https://courses.illinois.edu/schedule/terms/ANSC/370/))
This course provides an overview of public policy with respect to the use and treatment of companion animals in the United States. Current and alternative policies are considered in terms of their effectiveness in improving or otherwise altering the treatment of companion animals. The influences of animal protection organizations, consumer groups, politicians, the scientific community, and other stakeholders on the development and enforcement of policies are examined in detail. Prerequisite: ANSC 250.

ANSC 396  UG Honors Research or Thesis  credit: 1 to 5 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/396/](https://courses.illinois.edu/schedule/terms/ANSC/396/))
Independent study, under the supervision of a faculty member, on a problem of appropriate scope and character that culminates in writing a thesis. Intended primarily for honors students who plan on conducting research or pursuing graduate study. Thesis projects must be supervised by a faculty member and reviewed by a departmental committee. Students must present a satisfactory thesis to receive credit. May be repeated to a maximum of 5 hours in the same semester and to a total maximum of 12 hours. No more than 12 hours of special problems, research, thesis and/or individual studies may be counted toward degree in ACES. Prerequisite: Junior standing, minimum GPA of 3.4; consent of a faculty member.

ANSC 398  UG Experiential Learning  credit: 1 to 5 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/398/](https://courses.illinois.edu/schedule/terms/ANSC/398/))
Student-directed experiential learning on special topics directly pertaining to subject matter in animal sciences. Students are required to complete a Memorandum of Agreement prior to enrolling in this course. Additional fees may apply. See Class Schedule. Approved for Letter and S/U grading. May be repeated up to 5 hours per semester, up to a maximum of 12 total hours. Independent Study courses are limited to 12 hours total applying to a degree in ACES.

ANSC 400  Dairy Herd Management  credit: 3 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/400/](https://courses.illinois.edu/schedule/terms/ANSC/400/))
The technology of modern milk production practices; application of principles in nutrition, physiology, economics, health and hygiene, waste management, and facilities design for efficient dairy herd management systems. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 201 or consent of instructor.

ANSC 401  Beef Production  credit: 3 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/401/](https://courses.illinois.edu/schedule/terms/ANSC/401/))
The principles of the management of beef cattle enterprises. Applies science and technology to the breeding, selection, feeding, health and production of beef and beef products. Emphasizes the use of research findings in decision-making. 3 undergraduate hours. 3 graduate hours. Credit is not given for both ANSC 401 and ANSC 213. Prerequisite: ANSC 223 or equivalent.

ANSC 402  Sheep and Goat Production  credit: 3 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/402/](https://courses.illinois.edu/schedule/terms/ANSC/402/))
The objective of this course is to understand the core principles of sheep and goat production. This course covers topics including common breeds, reproduction, breeding and selection, nutrition, health, fiber production, and management. Some lectures will be at the University farms. Other lectures will include demonstrations of sheep and goats evaluation principles, neonatal lamb and kid health, body condition scoring, and lamb and goat cooking. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 223 or equivalent.

ANSC 403  Pork Production  credit: 3 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/403/](https://courses.illinois.edu/schedule/terms/ANSC/403/))
 Applies science and technology to the selection, breeding, feeding, housing and management of swine in a production enterprise; emphasizes use of research findings in decision making. 3 undergraduate hours. 3 graduate hours. Credit is not given for both ANSC 403 and ANSC 213. Prerequisite: ANSC 221 or equivalent; ANSC 223 or equivalent; ANSC 467; and ANSC 224 or equivalent or ANSC 431.

ANSC 404  Poultry Science  credit: 3 Hours. ([https://courses.illinois.edu/schedule/terms/ANSC/404/](https://courses.illinois.edu/schedule/terms/ANSC/404/))
Basic principles of genetics, physiology, nutrition, and health of avian species; the application of science and technology in solving the breeding, nutrition, disease, housing, and other management problems encountered in commercial egg and poultry meat production. 3 undergraduate hours. 3 graduate hours.
ANSC 05  Advanced Dairy Management  credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/405/)
Advanced dairy management compliments the four other classes offered in the dairy certificate program featuring applied management principles and practices needed in modern dairy production. 2 undergraduate hours. 2 graduate hours. Prerequisite: ANSC 201 or equivalent or consent of instructor.

ANSC 06  Zoo Animal Conservation Sci  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/406/)
Topics related to the conservation, physiology and management of exotic animal species in a captive setting will be addressed. These include conservation biology, population genetics, nutrition, reproduction (natural and assisted), behavior, exhibitry, environmental enrichment and veterinary care. Also covers taxonomy, zoo research, the role of zoos in conservation, and the ethics of maintaining captive animals. 3 undergraduate hours. 3 graduate hours. One Saturday field trip may be required. Prerequisite: ANSC 207 or ANSC 307.

ANSC 07  Animal Shelter Management  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/407/)
Basic management concepts related to maintaining the physical and behavioral health of companion animals in a shelter setting will be addressed. Population dynamics and management will be heavily emphasized. Utilizes practical resources available through local and national animal welfare organizations. Two class sessions will take place at the Champaign County Humane Society. One Saturday field trip is required. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 207 or ANSC 307.

ANSC 09  Meat Science  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/409/)
Fundamental biological principles that influence composition, processing, preservation, and quality of meat and meat products. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 221, IB 104, or equivalent.

ANSC 221  Minerals and Vitamins  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/421/)
Nutritional implications and metabolic roles of minerals and vitamins in animal metabolism. The course is designed to instill a basic understanding of vitamin and mineral functions, absorption, metabolism, and excretion. Research methodologies used in the study of vitamin and mineral nutrition will also be discussed. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 223 or equivalent, credit or concurrent registration in MCB 450 or ANSC 350, or consent of instructor.

ANSC 223  Advanced Dairy Nutrition  credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/423/)
All aspects of dairy cattle nutrition will be discussed including nutrients, phase feeding (milk curve analysis, dry matter intake, and body weight loss), dry and transition cow programs, forage feeding systems, feed delivery approaches, metabolic disorders related to nutrition, and application of various dairy feeding guides. 2 undergraduate hours. 2 graduate hours. Prerequisites: ANSC 201 or equivalent, or consent of instructor.

ANSC 224  Pet Food & Feed Manufacturing  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/424/)
Integrates principles of animal nutrition with various aspects pertaining to pet food and animal feed manufacturing. Topics discussed in this course include processing technologies (e.g., extrusion, retorting, baking) involved in the manufacturing of pet foods and animal feeds, principles of diet formulation and nutritional guidelines, and an overview of regulatory affairs, quality control, and good manufacturing practices. This course includes two field trips to a pet food manufacturing facility and a food and feed ingredient company. Same as NUTR 424. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 223 or equivalent.

ANSC 225  Population Dynamics in Animal Welfare  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/425/)
Population dynamics and management will be heavily emphasized. Utilizes practical resources available through local and national animal welfare organizations. Two class sessions will take place at the Champaign County Humane Society. One Saturday field trip is required. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 207 or ANSC 307.

ANSC 226  Animal Shelter Management  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/426/)
Basic management concepts related to maintaining the physical and behavioral health of companion animals in a shelter setting will be addressed. Population dynamics and management will be heavily emphasized. Utilizes practical resources available through local and national animal welfare organizations. Two class sessions will take place at the Champaign County Humane Society. One Saturday field trip is required. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 207 or ANSC 307.

ANSC 227  Animal Shelter Management  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/427/)
Basic management concepts related to maintaining the physical and behavioral health of companion animals in a shelter setting will be addressed. Population dynamics and management will be heavily emphasized. Utilizes practical resources available through local and national animal welfare organizations. Two class sessions will take place at the Champaign County Humane Society. One Saturday field trip is required. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 207 or ANSC 307.

ANSC 228  Animal Shelter Management  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/428/)
Basic management concepts related to maintaining the physical and behavioral health of companion animals in a shelter setting will be addressed. Population dynamics and management will be heavily emphasized. Utilizes practical resources available through local and national animal welfare organizations. Two class sessions will take place at the Champaign County Humane Society. One Saturday field trip is required. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 207 or ANSC 307.

ANSC 229  Animal Shelter Management  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/429/)
Basic management concepts related to maintaining the physical and behavioral health of companion animals in a shelter setting will be addressed. Population dynamics and management will be heavily emphasized. Utilizes practical resources available through local and national animal welfare organizations. Two class sessions will take place at the Champaign County Humane Society. One Saturday field trip is required. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 207 or ANSC 307.

ANSC 230  Animal Shelter Management  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/430/)
Basic management concepts related to maintaining the physical and behavioral health of companion animals in a shelter setting will be addressed. Population dynamics and management will be heavily emphasized. Utilizes practical resources available through local and national animal welfare organizations. Two class sessions will take place at the Champaign County Humane Society. One Saturday field trip is required. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 207 or ANSC 307.

ANSC 231  Animal Shelter Management  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/431/)
Basic management concepts related to maintaining the physical and behavioral health of companion animals in a shelter setting will be addressed. Population dynamics and management will be heavily emphasized. Utilizes practical resources available through local and national animal welfare organizations. Two class sessions will take place at the Champaign County Humane Society. One Saturday field trip is required. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 207 or ANSC 307.

ANSC 232  Animal Shelter Management  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/432/)
Basic management concepts related to maintaining the physical and behavioral health of companion animals in a shelter setting will be addressed. Population dynamics and management will be heavily emphasized. Utilizes practical resources available through local and national animal welfare organizations. Two class sessions will take place at the Champaign County Humane Society. One Saturday field trip is required. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 207 or ANSC 307.

ANSC 233  Animal Shelter Management  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/433/)
Basic management concepts related to maintaining the physical and behavioral health of companion animals in a shelter setting will be addressed. Population dynamics and management will be heavily emphasized. Utilizes practical resources available through local and national animal welfare organizations. Two class sessions will take place at the Champaign County Humane Society. One Saturday field trip is required. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 207 or ANSC 307.

ANSC 234  Animal Shelter Management  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/434/)
Basic management concepts related to maintaining the physical and behavioral health of companion animals in a shelter setting will be addressed. Population dynamics and management will be heavily emphasized. Utilizes practical resources available through local and national animal welfare organizations. Two class sessions will take place at the Champaign County Humane Society. One Saturday field trip is required. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 207 or ANSC 307.

ANSC 235  Animal Shelter Management  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/435/)
Basic management concepts related to maintaining the physical and behavioral health of companion animals in a shelter setting will be addressed. Population dynamics and management will be heavily emphasized. Utilizes practical resources available through local and national animal welfare organizations. Two class sessions will take place at the Champaign County Humane Society. One Saturday field trip is required. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 207 or ANSC 307.

ANSC 236  Animal Shelter Management  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/436/)
Basic management concepts related to maintaining the physical and behavioral health of companion animals in a shelter setting will be addressed. Population dynamics and management will be heavily emphasized. Utilizes practical resources available through local and national animal welfare organizations. Two class sessions will take place at the Champaign County Humane Society. One Saturday field trip is required. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 207 or ANSC 307.

ANSC 237  Animal Shelter Management  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/437/)
Basic management concepts related to maintaining the physical and behavioral health of companion animals in a shelter setting will be addressed. Population dynamics and management will be heavily emphasized. Utilizes practical resources available through local and national animal welfare organizations. Two class sessions will take place at the Champaign County Humane Society. One Saturday field trip is required. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 207 or ANSC 307.
ANSC 440  Applied Statistical Methods I  credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/440/)
Same as ABE 440, CPSC 440, FSHN 440, NRES 440, and NUTR 440. See CPSC 440.

ANSC 441  Human Genetics  credit: 3 or 4 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/441/)
Prerequisite: ANSC 224 or equivalent.

ANSC 442  Introduction to Data Analytics  credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/442/)
Prerequisites: ABE 440 or CPSC 440; at least one of IB 150, MATH 220, or MATH 221; and two additional courses from biology, environmental sciences, computer sciences, or economics.

ANSC 443  Economic Aspects of Animal Production  credit: 3 or 4 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/443/)
Prerequisites: MATH 220, MATH 221, or equivalent.

ANSC 444  Applied Animal Genetics  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/444/)
Prerequisites: ANSC 222 or permission of instructor.

ANSC 445  Statistical Methods  credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/445/)
Prerequisites: One of ABE 445, CPSC 440, MATH 220, or equivalent.

ANSC 446  Population Genetics  credit: 3 or 4 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/446/)
Prerequisite: ANSC 222 or permission of instructor.

ANSC 447  Advanced Genetics and Genomics  credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/447/)
Prerequisite: ANSC 222, MCB 300, or IB 150.

ANSC 448  Math Modeling in Life Sciences  credit: 3 or 4 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/448/)
Prerequisite: ANSC 222, MCB 300, or IB 150.

ANSC 449  Biological Modeling  credit: 3 or 4 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/449/)
Prerequisite: ANSC 222, MCB 300, or IB 150.

ANSC 450  Comparative Immunobiology  credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/450/)
Prerequisites: ANSC 222, MCB 300, or IB 150.

ANSC 451  Microbes and the Anim Indust  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/451/)
Prerequisites: MCB 100, MCB 300, MCB 424, or equivalent.

ANSC 452  Animal Growth and Development  credit: 3 or 4 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/452/)
Prerequisite: ANSC 222, ANSC 223, and ANSC 224.

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ANSC 453  Stem Cell Biology  credit: 3 or 4 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/453/)
The history of stem cell biology as well as up-to-date topics in stem cell research will be presented and discussed with emphasis on experimental approaches. Each student is expected to present research articles relative to each focus area and lead the discussion for the whole class every week. Topics include Molecular Reproductive Biology, Genetics, Physiology of both adult- and embryo-derived stem cells, and their application to Biotechnology and Regenerative Medicine. 3 undergraduate hours. 4 graduate hours. Prerequisite: STAT 100 or equivalent, MCB 316, ANSC 221, ANSC 224, or equivalent; or consent of instructor.

ANSC 454  Neuroimmunology  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/454/)
Provides current information about the fundamental structures and functions of the 'neuroimmune' system. Later sessions address applied and contemporary neuroimmunology through research-focused lectures paired with 'journal club-style' discussions of recent, transformative publications. A working knowledge of basic immunology, anatomy, physiology, and cell and molecular biology is recommended. Same as NEUR 454. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 221, ANSC 222, ANSC 450 or equivalents.

ANSC 460  The Secret Life of Animals: How Technology Can Help You Observe It and Take Action  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/460/)
Fundamentals of animal-environment interactions as the basis for Precision Management of Animals (PMA) Systems' design. The course will explore the value added by those technologies, challenges, and opportunities. Students will develop a PMA project to uncover the hidden details of animal production. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 360.

ANSC 467  Applied Animal Ecology  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/467/)
An in-depth multidisciplinary approach (physiology, behavior, immunology, neuroscience) to understanding animal-environment interactions (including thermal, air, microbial, photic and behavioral factors) as basis for prescribing practical environments for keeping animals. Courses in physiology, biology, nutrition, microbiology, and genetics are recommended. 3 undergraduate hours. 3 graduate hours. Prerequisite: ANSC 221 or equivalent, ANSC 222 or equivalent, and ANSC 223 or equivalent; or consent of instructor.

ANSC 470  Companion Animal Cruelty Investigations  credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/470/)
Animal cruelty is an unfortunate reality across the country and around the world. Proper investigation and prosecution of these cases is crucial to the prevention of these acts in the future. This course will teach the concepts and processes of animal cruelty investigations and prosecution, largely focusing on companion animals. 2 undergraduate hours. 2 graduate hours. Prerequisite: ANSC 250.

ANSC 471  ANSC Leaders & Entrepreneurs  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/471/)
Designed to familiarize students with the tools and skills necessary for successful business operation in industry and entrepreneurial environments including food animal production farms. The overall aim is to explore how enhanced interpersonal and leadership skills facilitate positive relations in business. Students will design a business plan, an entrepreneurial enterprise, that will be read by an external committee of professors, community members, and business owners and evaluated for its viability and creativity. This course is relevant for leaders as well as future entrepreneurs interested in acquiring valuable skills that may be applied to many careers. 3 undergraduate hours. 3 graduate hours. Prerequisites: Any advanced composition course.

ANSC 498  Integrating Animal Sciences  credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/498/)
Introduction to the theoretical basis of and skills associated with leadership, inquiry, and collaborative learning. Capstone experience in integrating knowledge, practicing skills, and applying theory through collaborative projects that address current issues in animal sciences. Projects relate to the impact of animals and animal use on humans and societal issues facing the world today. 2 undergraduate hours. No graduate credit. Prerequisite: ANSC 298. Restricted to Animal Sciences major(s). Restricted to students with Senior class standing.

ANSC 499  Seminar  credit: 1 to 4 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/499/)
Group discussion or an experimental course on a special topic in animal sciences. 1 to 4 undergraduate hours. 1 to 4 graduate hours. May be repeated if topics vary.

ANSC 509  Muscle Biology  credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/509/)
Microstructure and chemical composition of muscle tissue; chemistry and biosynthesis of muscle and connective tissue proteins; and biochemical aspects of muscle contraction and rigor mortis. Prerequisite: ANSC 452, ANSC 409, and ANSC 350 or MCB 450.

ANSC 520  Protein and Energy Nutrition  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/520/)
Physiological aspects of protein and amino acids, fats and fatty acids, and carbohydrates as applied to higher animals; includes classification, digestion, absorption, utilization, metabolism, and dietary deficiencies and excesses. Same as NUTR 520. 3 graduate hours. No professional credit. Prerequisite: MCB 450 or equivalent and ANSC 222 or equivalent.

ANSC 521  Regulation of Metabolism  credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/521/)
Same as FSHN 511 and NUTR 511. See NUTR 511.

ANSC 522  Advanced Ruminant Nutrition  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/522/)
Physiological and microbiological aspects of ruminant digestion and their influence on the metabolism of the extraruminal tissues; interpretation of nutritive requirements in terms of rumen microbial activities; and evaluation of research techniques. Offered in alternate years. Prerequisite: ANSC 420 or equivalent, and ANSC 350, MCB 450, or equivalent.

ANSC 523  Techniques in Animal Nutrition  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/523/)
Discusses and applies methods of laboratory analysis and animal experimentation frequently used in nutrition research. Same as NUTR 523. 3 graduate hours. No professional credit. Prerequisite: Courses in nutrition, physiology, and biochemistry and consent of instructor.
ANSC 524 Nonruminant Nutrition Concepts  credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/524/)
Review of literature in nonruminant nutrition. Emphasizes basic concepts associated with food intake, carbohydrate and fat utilization, protein quality, bioavailability of nutrients, and diet formulation. Same as NUTR 524. 2 graduate hours. No professional credit. Prerequisite: Consent of instructor.

ANSC 525 Topics in Nutrition Research  credit: 1 to 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/525/)
Same as FSHN 510 and NUTR 510. See NUTR 510.

ANSC 526 Adv Companion Animal Nutrition  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/526/)
Students will learn how to effectively apply advanced concepts related to pet nutrition and disease, including the metabolism within healthy and diseased dogs and cats, how nutrition may aid in preventing and treating disease, and the science behind pet food formulation and production. Students will develop critical-thinking and problem-solving skills by writing and reviewing grant proposals and delivering an oral presentation. Same as NUTR 526. 3 graduate hours. No professional credit. Prerequisite: ANSC 422 or consent of instructor.

ANSC 533 Repro Physiology Lab Methods  credit: 1 to 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/533/)
Laboratory methods used in reproductive physiology studies, such as blood sampling, large animal surgery, collection of tissues and gametes, embryo recovery, in vitro fertilization, tissue culture, hormone measurements, and directed individual research problems. Same as MCB 533 and CB 533. Prerequisite: Consent of instructor.

ANSC 541 Regression Analysis  credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/541/)
Same as CPSC 541. See CPSC 541.

ANSC 542 Applied Bioinformatics  credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/542/)
Introduction to theoretical and applied aspects of bioinformatics. Topics include genomic and proteomic databases, sequence alignment and search algorithms (e.g., BLAST, FASTA, CLUSTAL W), predictive methods in DNA sequence, machine-learning techniques (e.g., Hidden Markov Models) and data mining, biomolecular structure and its prediction, molecular evolution and phylogenetic reconstruction, structural genomics and phylogenomics. Concepts are complemented with hands-on experience with computational biology databases and bioinformatic tools. Same as CPSC 569 and IB 506. Prerequisite: Graduate level status or consent of instructor.

ANSC 543 Bioinformatics  credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/543/)
Same as CHBE 571, MCB 571, and STAT 530. See CHBE 571.

ANSC 545 Statistical Genomics  credit: 3 or 4 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/545/)
This course presents current statistical approaches to analyze DNA microarray, quantitative trait loci and proteomic data and understand the genetic architecture of complex phenotypes including health, performance and behavior. DNA microarray studies measure the expression of thousands of genes simultaneously. Quantitative trait loci (QTL) mapping studies detect associations between genomic regions and phenotypes. Results from these and proteomic studies help identify and quantify genes, regulators and products leading to drug, biotechnology and scientific discoveries. Same as CPSC 545 and IB 507. Prerequisite: Graduate level course in Statistics and graduate level course in Molecular Biology.

ANSC 554 Immunobiological Methods  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/554/)
Same as PATH 544. See PATH 544.

ANSC 561 Animal Stress Physiology  credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/561/)
Examines animal’s physiological and behavioral adaptations to stress. Prerequisite: Consent of the instructor.

ANSC 590 Animal Sciences Seminar  credit: 0 to 2 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/590/)
Discussions of current research and literature. Registration for 0 to 2 hours each term is expected for animal sciences graduate students. Same as NUTR 591. 0 to 2 graduate hours. No professional credit. Approved for Letter and S/U grading. May be repeated to a maximum of 2 hours for Masters students and 4 hours for PhD students.

ANSC 591 Grad Bioinformatics Seminar  credit: 0 to 2 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/591/)
Same as CPSC 591 and INFO 591. See INFO 591.

ANSC 592 Adv Topics in Animal Science  credit: 1 to 4 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/592/)
Selected topics associated with teaching, research, and production related to the animal industry. Prerequisite: Consent of instructor.

ANSC 593 Res Studies in Animal Sciences  credit: 1 to 8 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/593/)
Directed and supervised study of selected research topics in Animal Sciences. 1 to 8 graduate hours. No professional credit. May be repeated in separate terms to a maximum of 8 hours. Prerequisite: Consent of instructor.

ANSC 599 Thesis Research  credit: 0 to 16 Hours. (https://courses.illinois.edu/schedule/terms/ANSC/599/)
Approved for S/U grading only. May be repeated.

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