# ANIMAL SCIENCES (ANSC)

**ANSC 401 - Animals and Society**  
**Credits:** 0 or 4  
Through an interdisciplinary and historical lens, students delve into the interaction and interdependence of animals and people, the changes and patterns over time, and the resulting implications for the animal industry and the quality of life for animals, people, and the planet. Topics covered include agricultural production, organic farming, sustainability, global agriculture, Community Supported Agriculture (CSAs), research, nutrition, food safety, genetics, animal health, aquaculture, animal welfare, breeding, recreation, companionship, and the reproduction of domestic animals. What are the major changes in meat consumption by humans? What is the effect of these changes on the environment and large and small farm operations? What are the effects of biotechnological research performed on animals for human benefits? What is the difference between animal welfare and animal rights? Why should we care? In what ways does this affect us?.  
**Attributes:** Biological Science(Discovery); Discovery Lab Course

**ANSC 402 - Horsemanship Lab**  
**Credits:** 1  
For beginning, intermediate, and advanced riders. Lab (lesson) format with required co-requisite (hybrid or on-line). Correct position and technique for dressage and combined training with application of appropriate theory. Allow time before and after lab for horse care. For the safety of horse and rider, there is a rider weight limit of 200 pounds for all mounted activities in the UNH Equine Program, including ANSC 402.  
**Repeat Rule:** May be repeated for a maximum of 8 credits.

**ANSC 405 - Theory of Horsemanship**  
**Credits:** 2  
Principles and theory of horsemanship, dressage and jumping, including biomechanics of the horse and rider, rider position and aids, cross-country jumping and conditioning, and the horse’s instincts, senses, behavior and training as they relate to riding. Online only.

**ANSC 406 - Careers in Animal Science**  
**Credits:** 1  
Students explore a variety of career opportunities within the fields of biotechnology, agriculture, animal science and veterinary medicine. Through class presentations and guest speakers students will learn about steps they could take to enhance their prospects for career success, including the internships, career related employment, research, and study abroad opportunities. Students will also prepare a draft and final resume, articulate a career plan, and write reviews about each of the guest speakers and panelists.

**ANSC 411 - Freshman Seminar in Equine Science**  
**Credits:** 1  
Seminar format class. This introductory level class provides students with an overview of the equine industry, its economic impact and pressures and the job opportunities available. Class also includes investigation of the requirements and options within the UNH Equine Program and exploration of the opportunities and resources available for students. Cr/F.

**ANSC 419 - Horse Power**  
**Credits:** 4  
Students explore the enduring bond between the horse and man and the effect of that bond on civilization by considering: How has the horse and man’s use of the horse shaped civilization and contributed to societal change? How has the progress of civilization and societal change affected the horse and its role in society? What does our use of the horse say about us as individuals and as a society? Cannot receive credit if credit received for ANSC 444B.  
**Attributes:** Humanities(Disc)  
**Equivalent(s):** ANSC 444B

**ANSC 421 - Introduction to Animal Science**  
**Credits:** 4  
This course provides an overview of the scope and diversity of animal agriculture at the global, national and local levels. It also provides an introduction to the animal sciences through which students 1) learn basic animal science terminology 2) acquire an appreciation of the objectives of various animal enterprises and 3) gain understanding of contemporary trends, challenges and opportunities within animal agriculture. Special fee.

**ANSC 422 - Introduction to Horsemanship Theory**  
**Credits:** 3  
For beginning and intermediate riders enrolled in ANSC 402. Hybrid format, includes face-to-face and on-line content, with required lab co-requisite (ANSC 402). Correct theory of basic horsemanship skills, including safe handling practices, introduction to equipment and horse sports, overview of equine senses and behavior, and correct rider position and technique for dressage and jumping. See ANSC 402 (co-requisite) for details on required lab activities. Permission required.  
**Co-requisite:** ANSC 402

**ANSC 426 - Equine Conformation and Lameness**  
**Credits:** 4  
The study of conformation as it relates to soundness and performance. Students learn to recognize the components of good conformation as they relate to the athletic functions of the horse. Field trips highlight varying disciplines and how conformational changes make horses appropriate for differing activities. Students will also use the University herd to practice assessing conformation and its evaluation for performance types. Students will also learn how conformational faults impact long term soundness. Special fee.  
**Equivalent(s):** AAS 426

**ANSC 437 - Equine Husbandry Techniques**  
**Credits:** 0 or 4  
Course familiarizes students with different aspects of equine management through a practical and hands-on approach. Topics include selection, fit and care of English tack, bits, grooming, clipping, wound care, safe bandaging techniques, equine behavior, farm layout, basic health care and monitoring, parasite control, and equine transportation. Students will have hands-on experience in the UNH stable. Responsibilities include feeding, cleaning, turnout, and basic care of the University herd. Special Fee.  
**Equivalent(s):** AAS 437
ANSC 500 - Equine Assisted Activities and Therapies
Credits: 4
Comprehensive examination of Equine Assisted Activities and Therapies including types of therapeutic riding and its physical, cognitive, and emotional benefits for clients with a variety of disabilities. Topics include hippotherapy, therapeutic riding, equine-facilitated mental health, youth at risk, therapeutic vaulting, carriage driving, equipment needs/modifications, special considerations for selecting and training the therapy horse, and the role of the volunteer therapist and instructor. Students have the opportunity to work with horses and riders in the UNH Therapeutic Riding Program during labs, as well as view other programs on mandatory field trips. Special fee.

ANSC 504 - Equine Physiology
Credits: 4
A fundamental equine science course including anatomy, sports medicine, nutrition and preventative care. Students present oral and written journal reviews on equine science topics pertinent to lecture. Prereq: BIOL 412. Special Fee.
Equivalent(s): ANSC 404

ANSC 507 - Survey of Equine Training Techniques
Credits: 3
Physiological development, control, and education; biting, lunging, driving, and equine gymnastics. Special fee. Lab.

ANSC 510 - Integration of Culture and Agriculture in Ireland: Past, Present, and Future
Credits: 2 or 4
What was the worst natural disaster in 19th century Europe? What characterizes Ireland's agriculture in the 21st century? In this interdisciplinary course, students examine the cultural, historical, political, economical, and religious influences on Ireland's agriculture, fisheries, and forestry. The growing experience of the course, a 10-day study abroad in late May, provides students with a window to the world as they experience the culture, agriculture, and topography of Ireland. Students will immerse themselves in local history and culture as they tour working agricultural farms, university research facilities, and cultural landmarks. Permission required. Not open to freshmen. Special fee. Writing intensive. 2 or 4 credits.
Co-requisite: INCO 589
Attributes: World Cultures(Discovery); Writing Intensive Course

ANSC 511 - Anatomy and Physiology
Credits: 0 or 4
Discussion/comparison of the principles of mammalian form and function. Includes molecular and cellular mechanisms of major processes (such as muscle contraction, neural transmission, and signal transduction) and systematic aspects of the nervous, endocrine, cardiovascular, respiratory, gastrointestinal, and renal systems. Prereq: BIOL 411 and BIOL 412. Special fee. Lab. Not open to freshmen.
Mutual Exclusion: No credit for students who have taken BMS 507.

ANSC 512 - Anatomy and Physiology
Credits: 0 or 4
Discussion/comparison of the principles of mammalian form and function. Includes molecular and cellular mechanisms of major processes (such as muscle contraction, neural transmission, and signal transduction) and systematic aspects of the nervous, endocrine, cardiovascular, respiratory, gastrointestinal, and renal systems. Prereq: BIOL 411 and 412 and ANSC 511. Special fee. Lab. Not open to freshmen.
Equivalent(s): ZOOL 508, ZOOL 518
Mutual Exclusion: No credit for students who have taken BMS 508.

ANSC 522 - Intermediate Horsemanship Theory
Credits: 3
For intermediate and advanced riders, and beginners who have completed ANSC 422. Hybrid format, includes face-to-face and online lectures/content with required lab (ANSC 402) as co-requisite. Correct theory of more advanced horsemanship skills and concepts, including equine behavior and learning, horse and rider biomechanics, correct rider techniques for dressage and combined training, and systematic athletic development of the horse for dressage and jumping. Permission required.
Co-requisite: ANSC 402
Equivalent(s): ANSC 405

ANSC 536 - Preparation and Competition Techniques for the Modern Sport Horse
Credits: 4
Course addresses the safe handling and appropriate grooming and clipping techniques for modern sport horses as they are prepared for competition. Additional topics include trailering, studding, post-workout care an other industry skills. Students will evaluate selection and movement of sport-horses while in-hand and demonstrate knowledge by showing horses in best practice for the type and style. Students will demonstrate horse-handling proficiency while showing their assigned horse in-hand at the annual Little Royal Livestock & Horse Show. Lecture and lab format, including industry guest speakers and demonstration. Prereq: ANSC 437, ANSC 422/ANSC 522/ANSC 402.L or instructor permission.
Equivalent(s): AAS 536

ANSC 538 - Equine Handling/Longeing
Credits: 1
This seven-week intensive course provides students with the opportunity to learn to longe a variety of University horses in an enclosed arena under private instruction. The emphasis is on safety and welfare of the horse and handler. Proper equipment and fit are addressed along with different training techniques used to improve the horse's quality of movement.
Equivalent(s): AAS 538

ANSC 543 - Technical Writing in Animal Sciences
Credits: 2
Emphasis on writing scientific articles and articles for the end user on subjects pertaining to the animal science industry. Students are expected to make several oral presentations. Resume preparation is also included. Prereq: ENGL 401 or equivalent; permission. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): ANSC 743

ANSC 546 - Animal Business Applications
Credits: 4
Survey of the various elements of managing an animal and/or agricultural operation regardless of commodity. Topics include: financial statements, credit and interest, insurance considerations, labor management, marketing, promotions, advertising, and sales.
Equivalent(s): AAS 546

ANSC 547 - Equine Stable Management
Credits: 3
Students learn how to make equine management decisions based upon science and business principles. Topics covered include evaluating health parameters, hoof care, vaccination and parasite control, nutrition, accurate record keeping and housing. Students monitor horse health, vaccinate, pull shoes and do fecal exams using the University herd. Business topics include; the importance of contracts, efficient staffing, stable/arena design for function. Field trips highlight different sized equine enterprises. Prereq: ANSC 437. Special Fee.
Equivalent(s): AAS 547
ANSC 548 - Agricultural Business Management
Credits: 4
This course is designed to give students an opportunity to focus on the agricultural industry relative to specific, operational concepts such as small business start-up, creating a business plan, funding strategies, business development including SWOT analysis, market analysis, branding, product placement and pricing strategy, advertising and using social media, employee hiring and management, supply chain management and analyzing financial statements. An examination of sustainable and socially and environmentally responsible business practices will also be included. The course involves lecture and field study allowing students to examine similar agricultural operations in order to enhance practical understanding of topics covered.
Equivalent(s): AAS 548, ANSC 635

ANSC 600 - Field Experience
Credits: 1-4
A supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty adviser selected by the student. Permission of supervising faculty member required. CI/F.
Repeat Rule: May be repeated for a maximum of 8 credits.

ANSC 602 - Animal Rights and Societal Issues
Credits: 4
To explore all aspects of human-animal interaction and welfare, emphasizing social, ethical, biological, historical and economic aspects of animal care and use. (Juniors and seniors only.) Special fee. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): ANSC 407

ANSC 603 - Introduction to Livestock Management
Credits: 4
This course explores the economic, scientific, and practical aspects of livestock management in New England, related to swine, beef, cattle, sheep, goats, and rabbits. This will include breed selection, feeding, reproduction, health, and housing systems. Product harvesting and food safety regulations related to sales and marketing are explored. Students will also be required to manage and care for a flock of sheep at UNH as part of their weekly laboratory exercises. Prereq: ANSC 421, or instructor permission.

ANSC 605 - Poultry Production and Health Management
Credits: 4
This course focuses on understanding how the management practices used in raising domestic poultry can promote the production of healthy birds. Discussion centers on chickens in both large and small commercial flocks. Topics covered include breed and stock selection, anatomy & physiology, hatcher and brooder management, commercially important diseases, biosecurity and preventative health care, applicable food safety practices, and welfare. Students will gain hands-on experience working with live poultry during this course. Prereq: ANSC 421, AAS 431, or permission.

ANSC 609 - Principles of Animal Nutrition
Credits: 4
Applied animal nutrition and nutrient metabolism. Prereq: one year of chemistry; one semester of physiology.

ANSC 612 - Genetics of Domestic Animals
Credits: 0 or 4
Application of basic and molecular genetics to the diagnosis and control of inherited diseases of domestic animals and application of quantitative genetics for the improvement of economically important traits of farm animals. Prereq: BIOL 411 or permission.

ANSC 622 - Further Explorations in Horsemanship Theory
Credits: 2
For intermediate and advanced riders who have already completed ANSC 522. Online format, with required lab (ANSC 402) as a co-requisite. Students will use online content and independent study projects for in-depth explorations of more advanced topics related to the theory of dressage, jumping, and horsemanship, with particular attention to the application of correct theory to the individual rider's current skills, goals, and lab activities. May be repeated, with a different focus in subsequent semesters. Prereq: ANSC 522 and Permission.

Repeat Rule: May be repeated for a maximum of 10 credits.

ANSC 625 - Animal Diseases
Credits: 4
This course focuses on concepts of animal health and disease primarily as they relate to domestic agricultural species. Basic principles of diagnosis, transmission treatment, and prevention are introduced and applied to the presentation of specific disease conditions. The course is divided into sections that focus on the primary body system that is affected by the disease or disorder and a heavy emphasis is placed on learning the skills necessary to recognize and prevent disease. Prereq: AAS 439, ANSC 511, ANSC 512.

ANSC 635 - Nonprofit Management for Agriculture Business
Credits: 4
This course is designed to give students an opportunity to focus on the agriculture industry relative to specific operational topics for nonprofit businesses. Case studies will include therapeutic riding, agricultural nonprofits, animal welfare/rescue field, animal or agricultural educational programs and nonprofit foundations and the growing field of animal and plant therapy. Topics include: legal structure and organization, credentialing, developing a strategic plan, creating and managing a board of directors, staff and volunteer management, risk management and insurance, fundraising, marketing and public relations, using social media and public accountability. Special consideration will be given to understanding and utilizing financial statements to drive the business and fundraising efforts. The course will involve lecture and project management allowing student to examine similar agricultural business operations in order to enhance practical understanding of topics covered for a final project. Course is offered biennially, in the Fall semester of even-numbered years.
Equivalent(s): ANSC 548, CSL 402, CSL #508

ANSC 640 - Principles of Riding Instruction
Credits: 4
Introduction to the principles, theory and practice of Riding Instruction. Includes discussion of styles of learning and instruction as applied to a riding environment, student assessment, skill acquisition, lesson planning, horse selection and principles of group and private riding instruction. Students will use lab time to observe, assist and practice teaching in sections of ANSC 402, which will be matched according to their abilities and interests. Students will prepare for ARIA licensing examinations as part of class. Fall semester only. Lab. Prereq: ANSC 405 or ANSC 522.
Attributes: Writing Intensive Course
ANSC 641 - Principles of Dressage Instruction  
Credits: 2  
Advanced principles and theory of dressage and advanced concepts in teaching and coaching dressage. Students will use lab time to observe, assist and practice teaching in dressage-only sections of ANSC 402. Students will prepare for ARIA licensing examinations as part of class. Spring semester only. Lab. Prereq: ANSC 640.

ANSC 642 - Principles of Jumping Instruction  
Credits: 2  
Advanced principles and theory of jumping and advanced concepts in teaching and coaching over fences in the arena and cross-country. Students use lab time to observe, assist and practice teaching in intermediate I and II level sections of ANSC 402. Lab. Prereq: ANSC 640. Offered spring semester of every odd numbered year.

ANSC 643 - Principles of Therapeutic Riding Instruction  
Credits: 4  
Principles and theory of teaching therapeutic riding, including special considerations of teaching in a therapeutic environment and methods of instruction for individuals with a variety of disabilities. Lab consists of observing, assisting and practice-teaching in UNH Therapeutic Riding Program as preparation for PATH International CTRI instructor certification. Spring semester only, biannually, odd numbered years. Prereq: ANSC 500 and ANSC 437 or ANSC 402 or equivalent.

ANSC 650 - Dairy Industry Travel Course  
Credits: 1  
Extended field trip to a variety of dairy farms and dairy related businesses in the Northeast with students and faculty from other New England land grants. Includes discussion sessions, case study, problem solving, and journal report. Prereq: permission. Special fee. 
Repeat Rule: May be repeated for a maximum of 2 credits.

ANSC 665 - Principles of Horse Trials Management  
Credits: 2  
Theory and hands-on involvement in the organizational process of managing an event competition. Topics will include budgeting, logistical needs, working with entries, sponsorship, awards, publicity, facilities management, course design and committee management. Students will actively participate in the management and preparation of the UNH Horse Trials, overseeing the committees working in the phases of the event and also performing other responsibilities. 1-credit, half semester course. (During the fall semester, the class will meet for the first half of the semester; during the spring semester, the class will meet for the second half of the semester)
Equivalent(s): ANSC 565

ANSC 670 - Exotic Companion Species Health and Management  
Credits: 4  
This course focuses on concepts of health and disease as they relate to companion zoological species (i.e. exotic pets and those species kept in small, living collections) management. Developing an understanding of species specific needs and utilizing this knowledge to promote physical and mental health in a captive environment will be core themes of the course. Prereq: BIOL 411 & BIOL 412, previous coursework in animal anatomy & physiology recommended.

ANSC 690 - Livestock and Wildlife in Namibia: Challenges, Opportunities and Geography  
Credits: 4  
This course explores the economic, historic, geographic, scientific and cultural aspects of livestock and wildlife management in Namibia. Its people developed unique models of conversation, as alternatives to national parks and private land in managing wildlife and livestock. Students will gain insight into this unique country and its animals, through lecturers, research, writing and direct interaction with practitioners in the study abroad component. Special Fee. 
Attributes: World Cultures(Discovery); Writing Intensive Course

ANSC 695 - Supervised Teaching Experience  
Credits: 1-2  
Participants are expected to perform such functions as leading discussion sections, directing and assisting in laboratories, and assisting students with their problems in courses that participants have completed successfully. Enrollment is limited to juniors and seniors who have a minimum 3.00 cumulative average. Prereq: permission of instructor and department chairperson. Cr/F. 
Repeat Rule: May be repeated for a maximum of 4 credits.

ANSC 698 - Cooperative for Real Education in Agricultural Management (CREAM)  
Credits: 4  
CREAM (Cooperative for Real Education in Agricultural Management) is a 2-semester course in which students perform the work and make the financial management decisions associated with the CREAM dairy herd. Students assume complete responsibility for the management and care of the 25-cow herd for the entire academic year. CREAM provides students with a unique experiential learning model that will help them understand how to work together to manage and operate a small business, the decision-making skills required in production agriculture and the application of science to the management of a dairy herd. Two semesters of 4 cr. each are required. Prereq: AAS 425 or permission. 
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): AAS 275, ANSC 615

ANSC 701 - Physiology of Reproduction  
Credits: 4  
Comparative aspects of embryology, anatomy, endocrinology, and physiology of reproduction. Lab.

ANSC 708 - Ruminant Nutritional Physiology  
Credits: 3  
Anatomy of the ruminant gastrointestinal tract, physiological factors related to rumen function, and microbial and whole-body metabolism of carbohydrates, protein, and lipids. Prereq: BMS 503 and BMS 504 or equivalent.

ANSC 710 - Dairy Nutrition  
Credits: 4  
Feeding management of dairy cattle. Emphasis on feedstuffs, nutritional requirements, and diet formulation for efficient production and optimum health. Prereq: ANSC 609 or NUTR 750; permission.

ANSC 715 - Physiology of Lactation  
Credits: 4  
Examines the biological and biochemical influences of the lactation process. Emphasis on the physiological effects of environments, hormones, and nutrition on milk synthesis and secretion, mammary physiology, and maternal response. Prereq: ANSC 701, permission.
ANSC 724 - Reproductive Management and Artificial Insemination
Credits: 4
Focus on goals and fundamentals of reproductive management of horses, dairy and livestock animals, and through actual experience, development of competency in performing modern breeding techniques for equine and bovine reproduction. Permission required. Special fee. Lab.
Equivalent(s): ANSC 652

ANSC 725 - Equine Sports Medicine
Credits: 4
Course focuses on equine anatomy and physiology in relation to athletic performance and injury. Students write an independent paper assessing the use of an equine heart rate monitor on either a UNH or private horse during the semester. (Juniors and seniors only.) Prereq: ANSC 504, 512, 620. Special fee.

ANSC 727 - Advanced Dairy Management I
Credits: 4
Advanced management evaluation of milking procedures, reproduction, genetics, herd health, feeding, housing, and milking systems. Prereq: junior or senior standing; permission.
Equivalent(s): ANSC 615

ANSC 728 - Advanced Dairy Management II
Credits: 4
Advanced management evaluation of record keeping, financial and business management, personnel management, waste management, and marketing. Prereq: junior or senior standing; permission. Special fee.
Writing intensive.
Attributes: Writing Intensive Course

ANSC 744 - Advanced Concepts in Therapeutic Riding Instruction
Credits: 4
This course combines weekly lectures and practice teaching in the UNH Therapeutic Riding Program. Advanced concepts will be explored for mounting and dismounting participants with a higher degree of disability as well as teaching techniques for riders with less mobility and / or significant behaviors. Upon completion of this course, students will be prepared to sit for the national Certified Therapeutic Riding Instructor (CTRI) exam at an additional cost paid to the Professional Association of Therapeutic Horsemanship International (PATH International). Course is not offered every year. Prereq: ANSC 643.

ANSC 750 - Collaborative Farm Design and Development
Credits: 4
As a semester long group project, students will design an economically feasible, fully operational, diversified small farm. Students will need to consider site selection, infrastructure, equipment, labor, animal production and health, financing options, marketing and sales, etc. in their design. The final project will be presented in both an oral and a written format. Independent initiative and group collaboration are both integral to success in this project. Writing intensive.
Attributes: Writing Intensive Course
Equivalent(s): ANSC 750W, NUTR 750, NUTR 750W

ANSC 795 - Investigations
Credits: 1-4
Investigations in genetics, nutrition, management, diseases, histology, equine management/agribusiness, physiology, cell biology, microbiology, dairy management, or teaching experience. Prereq: permission.
Repeat Rule: May be repeated for a maximum of 4 credits.
Equivalent(s): ANSC 795W

ANSC 795W - Investigations
Credits: 1-4
Investigations in genetics, nutrition, management, diseases, histology, equine management/agribusiness, physiology, cell biology, microbiology, dairy management, or teaching experience. Prereq: permission.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 4 credits.
Equivalent(s): ANSC 795

ANSC 796 - Equine Senior Seminar
Credits: 2
This course is geared to prepare graduating seniors for professional work experience, including skills related to job seeking, resume preparation and interviewing for work in the equine field. In addition, students will engage in dialogue regarding current and relevant controversial topics within the equine industry. Through guided group discussion, selected readings and guest speakers, student are exposed to subjects which equine professionals must confront and address within the equine industry. This course serves as a preparation for and pre-requisite to the Equine Capstone Experience, ANSC 797.
Equivalent(s): ANSC 697, ANSC 796W

ANSC 797 - Equine Capstone Experience
Credits: 4
This course allows students to review critical professional skills, concepts and theories necessary for success within the equine industry and then to demonstrate competence in these areas, to a panel of equine program faculty. Students also coordinate logistics and content of an outreach Equine Education Day. Successful completion allows students to showcase professional skills and abilities to the non-academic equestrian community. Prereq: ANSC 796.

ANSC 799 - Honors Senior Thesis
Credits: 1-4
Independent research culminating with a written honors thesis in A) Genetics; B) Nutrition; C) Management; D) Diseases; E) Histology; F) Light Horsemanship; G) Physiology; H) Cell Biology; I) Microbiology; J) Dairy Management. Prereq: permission. IA.
Attributes: Honors course; Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.