ANIMAL SCIENCES (AN SCI)

AN SCI 1 — COOPERATIVE EDUCATION/CO-OP IN ANIMAL SCIENCES
1 credit.

Full-time off-campus work experience which combines classroom theory with practical knowledge of operations to provide students with a background upon which to base a professional career. Students receive credit only for the term in which they are actively enrolled and working. The same work experience may not count towards credit in An Sci 399.

Requisites: So st, and consent of supervising instructor and academic advisor.
Repeatable for Credit: No

AN SCI/DY SCI 101 — INTRODUCTION TO ANIMAL SCIENCES
4 credits.

Anatomy physiology, nutrition, genetics, reproduction, marketing, meats and management of dairy and beef cattle, swine, sheep, poultry and horses; lectures, laboratories and discussion. Field trips.

Requisites: None

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Elementary
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No

Last Taught: Fall 2017

AN SCI 110 — ANIMAL HANDLING
1 credit.

Hands-on course that gives students an understanding of livestock handling techniques, proper restraint, administering injections, and drawing blood samples. Students also learn about animal response to human presence and the effect of facility design on animal behavior.

Requisites: An Sci/Dy Sci 101
Repeatable for Credit: No

Last Taught: Spring 2017

AN SCI 150 — CAREER ORIENTATION ANIMAL/POULTRY SCIENCES
1 credit.

An introduction to resume preparation, student employment, internships, and graduate and professional school programs with presentations by numerous graduates who discuss their career path following a B.S. degree in Animal Science or Poultry Science.

Requisites: AN SCI/DY SCI/AN SCI 101
Repeatable for Credit: No

AN SCI 200 — THE BIOLOGY AND APPRECIATION OF COMPANION ANIMALS
3 credits.

A systematic coverage of many of the animals (including birds) that humans keep as their social companions. The classification, nutritional requirements, environmental considerations, reproductive habits, health, legal aspects and economics of companion animals and their supportive organizations. Open to Fr

Requisites: Crse in zoo or equiv or cons inst.

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Elementary
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No

AN SCI 220 — GROWTH, COMPOSITION AND EVALUATION OF MEAT ANIMALS
4 credits.

Principles and application of objective and subjective techniques for identifying quantitative and qualitative traits associated with breeding animals, market animals and meat. Statistics, growth, anatomy, genetics. Field trips to livestock farms and meat processing plants.

Requisites: An Sci/Dy Sci 101 or cons inst
Repeatable for Credit: No

Last Taught: Fall 2017

AN SCI 221 — ADVANCED MEAT ANIMAL EVALUATION LAB
2 credits.

Review and practical application of subjects covered in Animal Sciences 220. Field trips to livestock farms, meat processing plants and to the National Meat Animal Evaluation Contest.

Requisites: An Sci 220 cons inst
Repeatable for Credit: No

AN SCI 250 — HORSE SCIENCE AND MANAGEMENT
3 credits.

General principles. Emphasis on anatomy and physiology, management, behavior, reproduction, health, and nutrition. Lab period offers hands-on learning opportunities and short field trips. Mandatory field trip on a weekend day.

Requisites: Completion of Animal Sciences/Dairy Sciece 101 is required.

Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Elementary
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No

Last Taught: Spring 2017

AN SCI 289 — HONORS INDEPENDENT STUDY
1-2 credits.

Inter-Ag 288

Requisites: Enrolled in the CALS Honors Program Sophomore or Junior standing.

Course Designation: Honors - Honors Only Courses (H)
Repeatable for Credit: Yes, unlimited number of completions
AN SCI 299 — INDEPENDENT STUDY
1-3 credits.

Requisites: Open to Freshmen, Sophomore or Junior standing written consent of instructor
Repeatable for Credit: Yes, unlimited number of completions

AN SCI/Food SCI 305 — INTRODUCTION TO MEAT SCIENCE AND TECHNOLOGY
4 credits.
Application of biological, technological, and economical principles to muscle and related tissue utilized for food.
Requisites: Zoo 101102, or Zoo 151152, CHEM 103
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

AN SCI/DY SCI/Nutr SCI 311 — COMPARATIVE ANIMAL NUTRITION
3 credits.
Nutrients and their source, assimilation, function and requirement.
Requisites: BmolChem 314 or CHEM 341 or CHEM 343 or cons inst
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No

AN SCI/DY SCI 313 — ANIMAL FEEDS AND DIET FORMULATION
1 credit.
Designed as a companion course for Dairy Science 311 (comparative animal nutrition) with emphasis on quantitative and practical aspects of animal feeds and diet formulation.
Requisites: MATH 112, Dy Sci/An Sci 101, or consent of instructor; concurrent registration in Dy Sci/An Sci/Nutr Sci 311 recommended
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No

AN SCI 314 — POULTRY NUTRITION
3 credits.
Provides a conceptual understanding of nutrient requirements for optimal growth and production of commercial poultry species. The use of computer programming for feed formulation is emphasized. Field trips are planned.
Requisites: An Sci/Dy Sci 101 or Poul Sci 101
Repeatable for Credit: No
Last Taught: Summer 2017

AN SCI 315 — POULTRY ENTERPRISE MANAGEMENT
3 credits.
Fundamental business and economic principles and practices for successful poultry production with emphasis on problem solving in flock management. Software application core programs will be Microsoft Office for Windows suite. Open to Freshmen
Requisites: An Sci/Dy Sci 101 or Poul Sci 101, Ag Econ 215 or ECON 101 or equivalent.
Repeatable for Credit: No
Last Taught: Summer 2017

AN SCI/DY SCI 320 — ANIMAL HEALTH AND DISEASE MANAGEMENT
3 credits.
Principal causes and identification of animal diseases, common diseases of farm animals, zoonoses and public health, disease prevention and management including biosecurity measures and host immune responses.
Requisites: ZOOLOGY/BIOLOGY 101/102, BIOLOGY/BOTANY/ZOOLOGY 152, Biocore or cons inst
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2016

AN SCI/Food Sci 321 — FOOD LAWS AND REGULATIONS
1 credit.
Food laws and regulations, regulatory and commercial grading standards used in the food industry.
Requisites: Jr st or cons inst
Repeatable for Credit: No

AN SCI/DY SCI 361 — INTRODUCTION TO ANIMAL AND VETERINARY GENETICS
2 credits.
The molecular basis for inheritance of monogenic and polygenic traits related to animal disease and production. An introduction to the principles of improving animal health and performance by selection and mating systems in companion animals, horses, livestock, and poultry.
Requisites: Genetics 160 or 466 or con reg course in statistics
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

AN SCI/DY SCI 362 — VETERINARY GENETICS
2 credits.
The genetic basis for predisposition to disease or resistance to disease in livestock and companion animal species. Genetic defects, their discovery, diagnosis and treatment.
Requisites: Dy Sci/An Sci 361; or Genetics 160 or 466 Zool/Bot 152
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
AN SCI/DY SCI 363 — PRINCIPLES OF ANIMAL BREEDING
2 credits.

Application of the principles of quantitative genetics to the improvement of livestock and poultry; breeding value estimation and selection techniques; effects of inbreeding and hybrid vigor; crossbreeding systems.

Requisites: Dy Sci/An Sci 361
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

AN SCI/DY SCI 370 — LIVESTOCK PRODUCTION AND HEALTH IN AGRICULTURAL DEVELOPMENT
3 credits.

Physical, biological and social nature of animal agriculture systems and their improvement in developing countries; analysis of the state of livestock research and development in the developing countries and the world role of U.S. animal agriculture.

Requisites: An Sci/Dy Sci 101 or cons inst
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017

AN SCI/DY SCI 373 — ANIMAL PHYSIOLOGY
3 credits.

Students will develop an understanding of physiological processes that regulate the body, learn the anatomy and function of different physiological systems, describe interactions between organ systems, study regulation of an organ system from the molecular to whole animal level, and identify differences between species in the same systems.

Requisites: Biology/ZOOLOGY/BIOLOGY 101 or (Biology/Zoology/BOTANY/BIOLOGY/ZOOLOGY 151 and Biology/Zoology/BOTANY/BIOLOGY/ZOOLOGY 152)
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

AN SCI 375 — SPECIAL TOPICS
1-4 credits.

Requisites: None
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2018

AN SCI 399 — COORDINATIVE INTERNSHIP/COOPERATIVE EDUCATION
1-8 credits.

Requisites: So or Jr or Sr st cons of supervising inst, advisor, and internship program coordinator
Course Designation: Level - Advanced
L&S Credit: Counts as Liberal Arts and Science credit in L&S Workplace - Workplace Experience Course
Repeatable for Credit: Yes, unlimited number of completions

AN SCI 400 — STUDY ABROAD IN ANIMAL SCIENCES
1-6 credits.

Provides an area equivalency for courses taken on Madison Study Abroad Programs that do not equate to existing UW courses. Enroll Info: Current enrollment in a UW-Madison study abroad program
Requisites: None
Repeatable for Credit: Yes, unlimited number of completions

AN SCI/DY SCI 414 — RUMINANT NUTRITION
2 credits.

Integrates basic nutrition concepts and ration balancing skills by teaching students to balance and troubleshoot rations for various domesticated ruminants. An Sci/Dy Sci 313 is recommended.

Requisites: AN SCI/DY SCI/NUTR SCI/AN SCI/DY SCI 311
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017

AN SCI 415 — APPLICATION OF MONOGASTRIC NUTRITION PRINCIPLES
2 credits.

Nutrient requirements for growth and production of monogastric animals. Discuss concepts of establishing nutrient requirements and feeding strategies. Laboratory exercises are designed to develop problem solving skills required for the assessment of nutritional adequacy and economical soundness of feeding programs.

Requisites: An Sci/Dy Sci 311 313
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017

AN SCI 430 — SHEEP PRODUCTION
3 credits.

Application of recent research in breeding, feeding, health, and management to develop an efficient sheep production system. Includes an active, hands-on laboratory working with sheep. Prior completion of AN SCI/DY SCI/AN SCI 313 highly recommended.

Requisites: AN SCI/DY SCI/NUTR SCI/AN SCI/DY SCI 311, AN SCI/DY SCI/AN SCI 361, or AN SCI/DY SCI/AN SCI 434
Repeatable for Credit: No
Last Taught: Spring 2016

AN SCI 431 — BEEF CATTLE PRODUCTION
3 credits.

Application of genetics, systems of mating, physiology, nutrition and economics to the production of beef. Prior completion of AN SCI/DY SCI/AN SCI 313 highly recommended.

Requisites: AN SCI/DY SCI/NUTR SCI/AN SCI/DY SCI 311, AN SCI/DY SCI/AN SCI 361, or AN SCI/DY SCI/AN SCI 434
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017
AN SCI 432 — SWINE PRODUCTION
3 credits.
Application of research findings in breeding, feeding, management and marketing to modernize production. Lab: Farm visits, practical exercises in testing changes, "tools" used by producers. Prior completion of AN SCI/DY SCI/AN SCI 313 highly recommended.
Requisites: AN SCI/DY SCI/NUTR SCI/AN SCI/DY SCI 311, AN SCI/DY SCI/AN SCI 361, or AN SCI/DY SCI/AN SCI 434
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
AN SCI 433 — EQUINE BUSINESS & MANAGEMENT
3 credits.
Application of diseases, health care, feeding, exercise physiology and business management relevant to horse industry. Students will develop problem solving skills and be exposed to equine businesses.
Repeatable for Credit: No
AN SCI/DY SCI 434 — REPRODUCTIVE PHYSIOLOGY
3 credits.
Principles of reproductive physiology, improvement of fertility, and artificial insemination.
Requisites: Jr st, An Sci/Dy Sci 101, or Zool 101 102; Zool 151 152 recommended
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017
AN SCI 435 — ANIMAL SCIENCES PROSEMINAR
2 credits.
Methods of assessing information quality are studied. Each student develops an analytical and critical seminar on a topic of personal interest in the animal sciences.
Requisites: Sr st
Repeatable for Credit: No
Last Taught: Fall 2017
AN SCI 444 — LABORATORY TECHNIQUES IN MAMMALIAN GAMETE AND EMBRYO BIOLOGY
3 credits.
This course is designed as an immersion experience based on the gradual release methodology of information delivery. Students are engaged in active/process learning whereby the principles and themes presented in the lecture portion of the course are immediately put into practice in the laboratory component of the course. Expected learning outcomes and learning objectives are therefore integrated into each lecture and laboratory. Each subsequent learning objective builds upon the knowledge acquired from the previous learning objective thus developing a scaffold or framework from which to proceed. This course will present students with challenges from cognitive and affective domains as they process information from both biological and ethical perspectives. Problem solving and conflict resolution skills will be displayed as students challenge themselves with the development of fine motor/coordinated skills as well as understanding that the outcome of their efforts has the potential to result in a live offspring. The bovine (cow/bull) will serve as our model in this performance-based course as students are expected to demonstrate competency in the nuances and complexities associated with the production of embryos in a completely artificial (in vitro) environment. The student will be expected to demonstrate critical thinking by developing a simulated professional enterprise involving one or more of the assisted reproductive technologies they are exposed to. Students will demonstrate proficiency in and competency of in vitro maturation, fertilization, embryo development, cell culture, sterile bench technique, synchronization of the female estrus cycle, embryo transfer, non-surgical embryo recovery and cryopreservation by completing 2 complete cycles of embryo production in vitro. Students work in teams of 3-4 individuals. During the first production cycle students will perform all tasks while observing and working alongside of the instructor. The second production cycle will require the students to perform independently (of the instructor) who will only intervene in the event that the actions of the student will be lethal to the process and/or outcome. Each week (Monday) students will be presented with a controversial subject or topic related to cellular biology and/or reproduction. These ethical dilemmas are almost entirely within the realm of human assisted reproduction. Using any means and/or media desired, students are required to formulate responses in favor and in opposition of said topic. Each Friday, following the course quiz, students will be randomly selected to defend one side of the argument by articulating their viewpoint from the assigned perspective even if it is not their personal opinion. The objective of this exercise is to demonstrate the nature and influence bioethics may have on policy decisions impacting future research endeavors and/or science based initiatives. As well, students will grapple with representing a viewpoint they may be in personal conflict with.
Requisites: Animal Sciences 434 or consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Summer 2017
AN SCI/DY SCI/FOOD SCI/SOIL SCI 472 — ANIMAL AGRICULTURE AND GLOBAL SUSTAINABLE DEVELOPMENT
1 credit.
This course examines issues related to global agriculture and healthy sustainable development. Using a regional approach and focusing on crops and livestock case studies, students will learn the interdependence between U.S. agriculture and agriculture in emerging economies. Some topics covered include population and food, immigration, the environment; crop and livestock agriculture; global trade; sustainability; food security, the role of women in agriculture, and the role of dairy products in a healthy diet.
Requisites: None
Repeatable for Credit: No

AN SCI/DY SCI/FOOD SCI/SOIL SCI 473 — INTERNATIONAL FIELD STUDY IN ANIMAL AGRICULTURE AND SUSTAINABLE DEVELOPMENT
2 credits.
This course is the field study component to DY SCI/AN SCI/FOOD SCI/SOIL SCI 472, which examines issues related to global agriculture and healthy sustainable development. Using a regional approach and focusing on crops and livestock case studies, students will learn the interdependence between U.S. agriculture and agriculture in emerging economies. Some topics covered include population and food, immigration, the environment; crop and livestock agriculture; global trade; sustainability; and the role of women in agriculture and the role of dairy products in a healthy diet.
Requisites: DY SCI/AN SCI/FOOD SCI/SOIL SCI 472
Repeatable for Credit: No

AN SCI 503 — AVIAN PHYSIOLOGY
3 credits.
Principles of organ and system function with emphasis on male and female reproduction, embryonic development and factors affecting hatchability.
Requisites: An Sci/Dy Sci 101 or consent of instructor
Repeatable for Credit: No
Last Taught: Summer 2017

AN SCI 508 — POULTRY PRODUCTS TECHNOLOGY
3 credits.
Procurement, processing and distribution of poultry meat, eggs and derived products; factors affecting quality, including methods of determining quality.
Requisites: None
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Summer 2017

AN SCI 511 — BREEDER FLOCK AND HATCHERY MANAGEMENT
3 credits.
Requisites: An Sci/Dy Sci 101 Zool 101 102 or Zool 151 or equiv
Repeatable for Credit: No
Last Taught: Summer 2017

AN SCI 512 — MANAGEMENT FOR AVIAN HEALTH
3 credits.
The occurrence, etiology, clinical signs, control and prevention of infectious and noninfectious diseases commonly affecting domestically reared poultry. Instruction in avian necropsy, zoonosis, sanitation and regulation.
Requisites: An Sci/Dy Sci 101 Zool 101 102 or Zool 151 or cons inst
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Summer 2017

AN SCI/FOOD SCI 515 — COMMERCIAL MEAT PROCESSING
2 credits.
Principles and procedures in the commercial manufacture of processed meat products; sausage manufacturing, curing, smoking, freezing and packaging. Zool 101 102, or Zool 151 152 (recommended); CHEM 103
Requisites: An Sci 305 or Food Sci 410 or cons inst.
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

AN SCI/F&W ECOL/ZOOLOGY 520 — ORNITHOLOGY
3 credits.
Introduction to bird biology, ecology, and behavior. Topics include the evolutionary origin of birds and flight, anatomy and physiology, functional morphology, migration, communication, reproductive strategies, ecological adaptations and roles, and biogeographical patterns.
Requisites: BIOLOGY/ZOOLOGY/BIOLOGY 101 and 102, BIOLOGY/BOTANY/ZOOLOGY/BIOLOGY/BOTANY 151 and 152 or BIOCORE 381 and 382
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

AN SCI/F&W ECOL/ZOOLOGY 521 — BIRDS OF SOUTHERN WISCONSIN
3 credits.
Outdoor and indoor labs/lectures emphasizing identification of southern Wisconsin birds by sight and vocalization. Two required Saturday field trips in Southern Wisconsin.
Requisites: BIOLOGY/ZOOLOGY/BIOLOGY 101 and 102, BIOLOGY/BOTANY/ZOOLOGY/BIOLOGY/BOTANY 151 and 152 or BIOCORE 381 and 382
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
AN SCI/GENETICS 610 — QUANTITATIVE GENETICS
3 credits.

An advanced approach with emphasis on statistical foundations. Classical theory with extensions to maternal and paternal effects. Selection theory is considered in depth.
Requisites: GENETICS 466 and Statistics 572 or cons inst
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017

AN SCI/NUTR SCI 626 — EXPERIMENTAL DIET DESIGN
1 credit.
Discuss nutrient requirements, composition of ingredients used to meet requirements and the mathematical steps involved in diet formulation with emphasis on research animals and human subjects.
Requisites: Graduate student; Stats 301 or equivalent Nutr Sci 510 or concurrent enrollment or consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017

AN SCI/ANATOMY 660 — ELECTRON MICROSCOPY: THEORY & PRACTICE
3 credits.
Requisites: None
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Summer 2011

AN SCI 681 — SENIOR HONOR THESIS
2-4 credits.
Requisites: Honors program candidacy
Course Designation: Honors - Honors Only Courses (H)
Repeatable for Credit: No

AN SCI 682 — SENIOR HONORS THESIS
2-4 credits.
Continuation of 681.
Requisites: Honors program candidacy An Sci 681
Course Designation: Honors - Honors Only Courses (H)
Repeatable for Credit: Yes, unlimited number of completions

AN SCI 691 — THESIS
2 credits.
Requisites: Sr st cons inst
Repeatable for Credit: No

AN SCI 692 — THESIS
2 credits.
Requisites: Consent of instructor
Repeatable for Credit: No

AN SCI 699 — SPECIAL PROBLEMS
1-3 credits.
Requisites: Sr st and cons inst
Course Designation: Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: Yes, unlimited number of completions

AN SCI/FOOD SCI 710 — CHEMISTRY OF THE FOOD LIPIDS
2 credits.
Chemical constitution, structures, reactions, stereochemistry of fats, phospholipids, related compounds; methods of isolation, characterization; synthesis; relation of structure to physical properties.
Requisites: BIOCHEM 601; CHEM 341 or cons inst
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017

AN SCI 799 — PRACTICUM IN ANIMAL SCIENCES TEACHING
1-3 credits.
Instructional orientation to teaching at the higher education level in the agricultural and life sciences, direct teaching experience under faculty supervision, experience in testing and evaluation of students, and the analysis of teaching performance.
Requisites: Consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No

AN SCI/DY SCI 824 — RUMINANT NUTRITIONAL PHYSIOLOGY I
4 credits.
Focuses on rumen microbiology, metabolite modeling, as well as protein and VFA nutrition and metabolism. Students should have undergraduate coursework in ruminant nutrition, biochemistry, and microbiology as background.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2017

AN SCI/DY SCI 825 — RUMINANT NUTRITIONAL PHYSIOLOGY II
4 credits.
Focuses on calf and heifer nutrition, regulation of dry matter intake, plant and forage chemistry, vitamins, lipids, and starch. Students should have undergraduate coursework in ruminant nutrition, biochemistry, and microbiology as background.
Requisites: Graduate or professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
AN SCI/GENETICS/POP HLTH 849 — GENETIC EPIDEMIOLOGY
3 credits.

This course will provide an introduction to genetic epidemiology. Topics will include a general overview of genetics and Mendelian and complex inheritance, as well as various elements of study design, including participant ascertainment; phenotype definition; biologic sample selection; genotyping, sequencing, and quality control; measurement of covariates, and choice of analytic methods. We will briefly discuss some of the original study designs and then focus on current study designs for the remainder of the class. Additional emerging topics will be briefly touched upon. Students will complete short homework assignments to enforce concepts learned during lectures, discuss journal articles, and prepare a very short grant application for the mid-term project. In the final weeks of class, students will work together to analyze data from a real genetic study, prepare tables, interpret the findings, and present their project to their peers.

**Requisites:** Graduate or professional standing

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** No

_Last Taught:_ Fall 2017

AN SCI 875 — SPECIAL TOPICS
1-4 credits.

**Requisites:** Graduate or professional standing

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** Yes, unlimited number of completions

_Last Taught:_ Spring 2018

AN SCI/DY SCI 931 — SEMINAR IN ANIMAL NUTRITION
1 credit.

Discussion of literature that has a bearing on animal nutrition. Students are to survey the literature and present a seminar.

**Requisites:** Graduate or professional standing

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** Yes, unlimited number of completions

AN SCI/DY SCI 950 — SEMINAR IN ANIMAL GENOMICS
1 credit.

Study of current literature in gene mapping, study designs, and application of markers in genetic improvement programs.

**Requisites:** Graduate or professional standing

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** Yes, unlimited number of completions

AN SCI/DY SCI/GENETICS 951 — SEMINAR IN ANIMAL BREEDING
1 credit.

**Requisites:** Graduate or professional standing

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** No

AN SCI/OBS&GYN/ZOOLOGY 954 — SEMINAR IN ENDOCRINOLOGY-REPRODUCTIVE PHYSIOLOGY
1 credit.

**Requisites:** Graduate or professional standing

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** Yes, unlimited number of completions

AN SCI 990 — RESEARCH
1-12 credits.

**Requisites:** Consent of instructor

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** Yes, unlimited number of completions