ANIMAL SCIENCE (ASCI)

ASCI 806 Animal Science Graduate Seminar
Description: Orientation in the animal science graduate program involving introduction to departmental research program, philosophy, and policies. Discussion of elements of an effective seminar; experience and critique in oral presentation of research data.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 2
Grading Option: Grade Pass/No Pass Option
Offered: FALL

ASCI 810 Processed Meats
Crosslisted with: ASCI 410
Prerequisites: ASCI 210 or FDST 205.
Description: Science and technology of modern meat processing. Utilization of meat, non-meat ingredients, and processing techniques and their impact on processed meat characteristics. Laboratory provides hands-on application with the preparation, development, and evaluation of processed meats products.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option
Offered: SPRING
Course and Laboratory Fee: $40

ASCI 817 Meat Technology
Prerequisites: ASCI 410 or permission
Description: Meat processing and fabrication technology. Practical application of tenderization, restructuring, freezing, dehydration, flavor modification, composition control and quality control technology to manufactured and processed meat products.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Grading Option: Grade Pass/No Pass Option
Course and Laboratory Fee: $40

ASCI 819 Meat Investigations
Crosslisted with: ASCI 419, FDST 419, FDST 819
Prerequisites: ASCI 210
Description: Conduct independent research and study meat industry problems in processing, production, storage, and preparation of meat and meat products.
Credit Hours: 1-3
Min credits per semester: 1
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option

ASCI 820 Feedlot Nutrition and Management
Prerequisites: CHEM 831
Notes: Offered odd-numbered calendar years.
Description: Nutritional requirements of and complete ration formulation for feedlot cattle. Management practices needed for successful feedlot operation.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option

ASCI 821 Advanced Animal Nutrition
Crosslisted with: ASCI 421
Prerequisites: ASCI 320
Description: Advanced course dealing with the nutrition of domestic animals. In-depth coverage of nutrients, nutrient metabolism, and nutrient requirements. Biochemical and physiological functions of nutrients in life processes.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option
Prerequisite for: ASCI 925, NUTR 925; ASCI 926, NUTR 926; ASCI 927, NUTR 927

ASCI 822 Advanced Feeding and Feed Formulation
Crosslisted with: ASCI 422
Prerequisites: ASCI 320 or equivalent.
Description: Feeding practices for domestic animals. Applied animal nutrition and feed formulation.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option

ASCI 824 Forage Quality
Crosslisted with: AGRO 846
Prerequisites: AGRO/RNGE 240 and ASCI 320, or equivalents; 3 cr hrs of introductory statistics; and permission
Description: The chemical characteristics of forage components. The interactions with ruminant physiology and digestion that influence forage feeding value. The laboratory procedures used to evaluate forages for grazing livestock.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option

ASCI 831 Advanced Animal Breeding
Crosslisted with: ASCI 431
Prerequisites: ASCI 330
Description: Application of genetic principles to animal breeding. Critical examination of current and potential selection programs and crossbreeding systems. Determination of performance objectives. Expected responses to selection methods and dissemination of improvement in an industry.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option

ASCI 832 Genome Analysis
Crosslisted with: ASCI 432
Prerequisites: PLAS 215 and BIOC 401 or equivalent
Description: Theoretical and practical aspects of: structure and function of eukaryotic genomes; genome sequencing and assembling, polymorphism and isoform detection and genotyping; gene and genome annotation; strategies used to identify genetic variants responsible for phenotypic differences; and personalized genomics, social and ethical aspects associated with genomic information.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded
Offered: SPRING

ASCI 841 New Techniques in Reproductive Biology
Crosslisted with: ASCI 441
Prerequisites: ASCI 341 or equivalent.
Description: Mammalian early embryonic development. Basic aspects of embryology and development biology. Modern technologies in animal reproductive biology, in vitro maturation and fertilization, embryo transfer, cloning, assisted reproductive technologies, transgenic animals, and embryonic stem cells.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option

ASCI 842 Endocrinology
Crosslisted with: ASCI 442, BIOS 442, BIOS 842, VBMS 842
Prerequisites: A course in vertebrate physiology and/or biochemistry.
Description: Mammalian endocrine glands from the standpoint of their structure, their physiological function in relation to the organism, the chemical nature and mechanisms of action of their secretory products, and the nature of anomalies manifested with their dysfunction.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option

ASCI 843 Physiology of Animal Cells and Tissues
Crosslisted with: ASCI 443
Prerequisites: ASCI 240 or ASCI 340 or BIOS 213
Description: Molecular, cellular, and tissue dependent functions of neurons, skeletal and smooth muscle, vasculature, and immune cells. Cellular regulation of important physiological processes including blood flow, gas exchange, inorganic solute homeostasis, acid-base balance, water balance, appetite control, and thermal regulation will also be studied. Understand cellular and molecular processes that ensure homeostasis and promote integration of physiological systems.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded
Offered: SPRING

ASCI 844 Domestic Animal Immunology
Crosslisted with: ASCI 444
Prerequisites: LIFE 120; LIFE 121; ASCI 240 or BIOS 213 or ASCI 340
Description: Learn the fundamental knowledge of the animal immune system, and how to utilize immunology to improve animal health and production. Become familiar with common immunoassays, immunological diseases and immunotherapy.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded
Offered: FALL
Groups: Biology,Psychology,& Politics

ASCI 845 Animal Physiology I
Crosslisted with: VMED 645, VBMS 845
Prerequisites: Undergraduate courses in biochemistry, biology and physiology.
Notes: Primarily for students in animal or biological sciences or veterinary medicine.
Description: Mammalian physiology and cellular mechanisms. Physiology of the cell, embryology, and neuro-sensory, neuromuscular, endocrine, and reproductive systems.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Grading Option: Grade Pass/No Pass Option

ASCI 846 Animal Physiology II
Crosslisted with: VMED 646, VBMS 846
Prerequisites: ASCI/VBMS 845 or BIOS 813
Notes: ASCI/VBMS 846/BIOS 814/VMED 646 is designed for students in animal or biological sciences or veterinary medicine.
Description: Mammalian physiology and cellular mechanisms. Physiology of the digestive, cardiovascular, respiratory, and renal systems.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Grading Option: Graded

ASCI 847 Interdisciplinary Concepts in Beef Production
Crosslisted with: VBMS 847
Prerequisites: Degree in veterinary medicine or animal science, or allied agricultural degree
Notes: Classroom attendance is required during each of the modules. Between modules distance education technologies (laptop computer, Internet access, a computer operating system with a word processor, spreadsheet, and presentation software, email, etc.) are used and required for discussion and assignments.
Description: The contributions and interactions of the major academic disciplines upon the production, performance, health, profitability, and sustainability of beef cow and cattle feeding operations.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 6
Grading Option: Grade Pass/No Pass Option

ASCI 847A Interdisciplinary Concepts in Beef Production I
Crosslisted with: VBMS 847A
Description: The contributions and interactions of the major academic disciplines upon the production, performance, health, profitability, and sustainability of beef cow and cattle feeding operations.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option
Prerequisite for: ASCI 847B, VBMS 847B

ASCI 847B Interdisciplinary Concepts in Beef Production II
Crosslisted with: VBMS 847B
Prerequisites: VBMS 847A
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option

ASCI 851 Livestock Management on Range and Pasture
Crosslisted with: PLAS 445, AGRO 845, ASCI 451, RNGE 445, GRAS 445
Prerequisites: ASCI 250 and PLAS 240 or PLAS 340; AECN 201 recommended.
Notes: AECN 201 recommended. Capstone course. All students required to participate in a one-week field trip in central or western Nebraska prior to beginning of fall semester. Therefore, students must notify instructor at time of early registration (Dates are given in class schedule.)
Description: Analyzing the plant and animal resources and economic aspects of pasturage. Management of pasture and range for continued high production emphasized.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option
Offered: FALL
Course and Laboratory Fee: $200

ASCI 860 Quantitative Genetics Applications of Matrix Algebra
Prerequisites: Graduate Standing in the College of Agricultural Sciences and Natural Resources.
Notes: This is a five week course taught by Lewis (UNL)
Description: Principles in matrix algebra to describe and solve problems in the agricultural and life sciences, and particularly quantitative genetics. Material includes vocabulary, concepts, and, to a lesser extent, theory of matrix algebra, with application to ecological systems, genotypic transition matrices, selection indices, and the numerator relationship matrix. With matrix algebra, use least squares procedures and canonical transformation to solve problems in biological sciences.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded
Prerequisite for: ASCI 861U

ASCI 861U Primer to Quantitative Genetics
Prerequisites: ASCI 860
Notes: This is a 5 week course taught by Lewis (UNL).
Description: Language and foundational principles of quantitative genetics. Material includes basic model for quantitative genetics (additive and non-additive genetic effects, including Mendelian sampling, and environmental effects), sources of variation, heritability, family resemblance and repeatability, selection response, and family selection. Define expected values and concepts in applied statistics.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded
Prerequisite for: ASCI 861V; ASCI 944, STAT 844

ASCI 861V Selection Index Theory and Application
Prerequisites: ASCI 861U
Notes: This is a 5-week course taught by Lewis (UNL).
Description: Theory and application of selection indices. Material includes design of animal breeding programs, estimating selection response, constructing economic selection indices, and developing multiple-stage selection strategies. Introduces approaches for deriving economic weights, and predicting economic response to selection.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded
Prerequisite for: ASCI 861W; ASCI 862U; ASCI 866

ASCI 861W Economic Breeding Programs
Prerequisites: ASCI 861V
Notes: This is a 5-week course taught by MacNeil (Delta G) and Lewis (UNL).
Description: Principles for developing an economic basis for multiple-trait selection to improve the profitability of production. Material includes review of concepts relevant to the selection index, introduction to the concept of systems analysis, linear programming, and simulation with emphasis on economic values useful for selection index. Critically analyze relevant literature.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded

ASCI 862U Linear Models in Animal Breeding
Prerequisites: ASCI 861V
Notes: This is a 5-week course taught by Spangler (UNL).
Description: Principles of linear models used in animal breeding. Models discussed in the context of the random variable that is to be predicted. Material includes animal models, sire/maternal grandsire models, and sire models, models with a single and repeated records, and models with both direct and maternal effects.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded
Prerequisite for: ASCI 862V

ASCI 862V Genetic Prediction
Prerequisites: ASCI 862U
Notes: 5-week course taught by Enns (Colorado State University). Permission required before registering. Contact the Animal Science Department at 402-472-6440.
Description: Principles for using best linear unbiased prediction (BLUP) in genetic prediction. Material includes data integrity diagnosis, contemporary grouping strategies, adjusting for known non-genetic effects, the AWK Programming Language, UNIX/Linux scripting, and use of modern computational tools to perform genetic evaluations. Emphasis on real-world datasets designed to develop applied analytical skills in animal breeding.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded
Prerequisite for: ASCI 862W, STAT 862W; ASCI 863U; ASCI 867

ASCI 862W Applied Variance Component Estimation in Livestock Genetics
Crosslisted with: STAT 862W
Prerequisites: ASCI 862V
Notes: This is a 5-week course taught by Speidel and Enns (Colorado State University). Permission required before registering. Contact the Animal Science Department at 402-472-6440.
Description: Principles in the estimation of (co)variance components and genetic parameters required to solve mixed models typical in livestock genetics. Focus on applied knowledge of approaches used to estimate the G and R sub-matrices of the mixed model equations. Demonstrate models commonly used in parameter estimation. Introduce scientific literature concerning implementation, and attributes of the solutions, of variance component estimation strategies.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded

ASCI 863U Marker-Assisted and Gene-Assisted Selection
Prerequisites: ASCI 862V
Notes: This is a 5-week course taught by Enns (Colorado State University). Permission required before registering. Contact the department at 402-472-6440.
Description: Methods for incorporating genetic marker information into selection decisions in livestock. Consider statistical methodologies necessary to analyze large data available from new DNA technologies related to livestock genomes. Material includes recombination, single-gene tests, molecular breeding values, suggested producer guidelines for use of the technologies, and incorporation of genomic information into genetic prediction procedures.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded
Prerequisite for: ASCI 863V

ASCI 863V Introduction to Marker Association Analysis and QTL Detection
Prerequisites: ASCI 863U
Notes: This is a 5-week course taught by Dekkers (Iowa State University). Permission is required before registering. Contact the department at 402-472-6440.
Description: Methodologies for using genetic markers to identify Quantitative Trait Loci (QTL) and for estimating marker-trait associations in livestock populations. Material includes the basics of linkage and linkage disequilibrium, alternate designs or population structures for QTL mapping, and statistical methods for QTL detection and genome-wide association analyses. Introduce properties and requirements of alternate designs and analysis strategies.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded
Prerequisite for: ASCI 863W

ASCI 863W From Markers to Gene Function: Functional Change
Prerequisites: ASCI 863V
Notes: This is a 5-week course taught by Thomas and Enns (Colorado State University).
Description: Extend concepts of marker association analyses to the translation of genetic markers into functional changes in the animal genome, and impacts on animal performance, in livestock genetic improvement programs. Material includes introduction to the tools used to generate genomic data, and application of key bioinformatics websites and databases to identify causative genetic variation, and to develop gene pathways and networks
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded

ASCI 864 CyberSheep: a Genetic Simulation Game
Prerequisites: Graduate Standing
Notes: This is a 10 week course taught by Lewis (UNL).
Description: Principles of genetic selection and mating strategies applied in livestock breeding programs. Through use of a web-based genetic simulation game (CyberSheep), develop skills in implementing a virtual animal breeding program, assess the outcomes of decision-making in terms of genetic response, inbreeding, and economic returns, and experience stochastic elements inherent to livestock systems.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded

ASCI 865 History and Perspectives in Animal Breeding and Genetics
Prerequisites: Graduate Standing
Notes: This is a 5 week course taught by Spangler and Lewis (UNL).
Description: Historical perspective to the discipline of animal breeding and genetics. Introduction to the contributions of geneticists who have significantly impacted the discipline. Material includes pre-recorded interviews of scientists that have had an international impact in animal breeding and genetics. Critique key papers.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded

ASCI 866 Heterosis and Crossbreeding Systems
Prerequisites: ASCI 861V
Notes: This is a 5-week course taught by Cassady (South Dakota State University).
Description: Principles of heterosis and mating systems utilizing crossbreeding. Material includes models for breed and crossbreeding effects, genetic basis of heterosis, recombination effects, composite populations, estimation of crossbreeding parameters, applications of line breeding and line crossing, and evaluation and utilization of crossbreeding systems.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded

ASCI 867 Prediction and Control of Inbreeding in Breeding Programs
Prerequisites: ASCI 862V
Notes: This is a 5-week course taught by Dekkers (Iowa State University).
Description: Principles in the prediction and control of inbreeding in livestock breeding program. Material includes definition of inbreeding and identity by descent, impacts of inbreeding on genotype frequencies, trait means and variances, random drift, computation of inbreeding coefficients in pedigreed populations, prediction of rates of inbreeding in closed populations, and control and management of inbreeding in breeding populations.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded

ASCI 868 An Introduction to R Programming
Crosslisted with: STAT 868
Prerequisites: Graduate Standing
Notes: This is a 5-week course taught by Maltecca (North Carolina State University).
Description: Introduction to the R environment for statistical computing, including use of R as a high-level programming language and as a gateway for more formal low-level languages. Material includes language structure, basic and advanced data manipulation, statistical analysis with R, and using R as a programming language.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded
Prerequisite for: ASCI 869, STAT 869

ASCI 869 MCMC Methods in Animal Breeding: A Primer
Crosslisted with: STAT 869
Prerequisites: ASCI 868
Notes: This is a 5-week course taught by Maltecca (North Carolina State University).
Description: Principles of Markov Chain Monte Carlo (MCMC) methods in animal breeding. Materials include random variable generation, Monte Carlo integration, stochastic search, Expectation-maximization (EM) algorithm and Monte Carlo EM, Markov Chain principles, Metropolis-Hastings algorithm, Gibbs sample, and MCMC for genomic data. Illustrations developed using R software.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Graded

ASCI 896 Independent Study in Animal Science
Crosslisted with: ASCI 496
Prerequisites: 12 hrs animal science or closely related areas and permission
Description: Individual or group projects in research, literature review, or extension of course work under the supervision and evaluation of a departmental faculty member.
Credit Hours: 1-5
Min credits per semester: 1
Max credits per semester: 5
Max credits per degree: 12
Grading Option: Grade Pass/No Pass Option

ASCI 897 Master of Applied Science Project
Crosslisted with: AGRI 897, AGRO 897, HORT 897, NRES 897
Prerequisites: Admission to Master of Applied Science degree program
Notes: Project activity for the Master of Applied Science degree.
Description: Design, develop and complete a project that requires synthesis of the course topics covered in the primary area of emphasis.
Credit Hours: 1-6
Min credits per semester: 1
Max credits per semester: 6
Max credits per degree: 6
Grading Option: Grade Pass/No Pass Option

ASCI 899 Masters Thesis
Prerequisites: Admission to masters degree program and permission of major adviser
Credit Hours: 1-10
Min credits per semester: 1
Max credits per semester: 10
Max credits per degree: 99
Grading Option: Pass No-Pass

ASCI 905 Animal Industry Seminar
Prerequisites: Permission
Description: Current problems in the field of animal industry.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 4
Grading Option: Grade Pass/No Pass Option

ASCI 917 Advanced Meat Science
Prerequisites: CHEM 831 and FDST 848
Description: Molecular events occurring during the conversion of muscle to meat. Molecular and cellular properties of meat responsible for the functional and palatability properties of meat products.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option

ASCI 918 Growth and Development of Meat Animals
Prerequisites: Strong background in biological sciences
Notes: ASCI/VBMS 845 and 846 recommended. BIOC, BIOS, and CHEM 831 and 832 advised.
Description: Growth and development of livestock animals with emphasis on the prenatal and postnatal differentiation and development of skeletal muscle, bone, and adipose tissue; organ growth discussed. Recent literature as well as classical concepts of animal growth discussed along with the genetic, hormonal, and nutritional factors that affect growth.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option

ASCI 921 Interdepartmental Nutrition Seminar
Crosslisted with: NUTR 921
Prerequisites: Permission
Description: Presentation and discussion of current literature and research in the field of nutrition.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Grading Option: Grade Pass/No Pass Option

ASCI 922 Advanced Animal Nutrition (Ruminant)
Description: Nutrient metabolism and utilization by ruminant animals for maintenance, growth, finishing, reproduction and lactation. Major emphasis on protein and energy.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option

ASCI 924 Forage Evaluation
Crosslisted with: AGRO 940
Prerequisites: Permission
Description: Offered even-numbered calendar years. Analytic procedures and research methods used in evaluating biochemical components and nutritive value of forages. An evaluation of the impact of forage quality on forage breeding and animal performance.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option

ASCI 925 Energy Metabolism
Crosslisted with: NUTR 925
Prerequisites: ASCI 821, BIOC 831, or NUTR 455 or 950
Notes: Offered odd-numbered calendar years.
Description: Critically evaluate how research in bioenergetics has contributed to scientific discoveries in the fields of nutrition, biochemistry, and physiology. Methodologies for determination of human and animal energy expenditure and body composition. Specifically, direct calorimetry, indirect calorimetry and comparative slaughter techniques. Emphasis on components of organ and tissue energy expenditures. Background information important in other nutrition courses.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option

ASCI 926 Carbohydrate and Lipid Nutrition
Crosslisted with: NUTR 926
Prerequisites: BIOC 831, ASCI 821 or NUTR 455 or 950
Notes: Offered even-numbered calendar years.
Description: Nutrition and metabolism of carbohydrates and lipids by animals and humans. Emphasis on fundamental principles and current concepts.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option

ASCI 927 Protein and Amino Acid Nutrition
Crosslisted with: NUTR 927
Prerequisites: ASCI 421/821 or NUTR 455 or 950; BIOC/BIOS/CHEM 431/831
Notes: Offered even-numbered calendar years.
Description: Nutrition and metabolism of proteins and amino acids by animals and humans. Fundamental principles and current concepts.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option

ASCI 931 Population Genetics
Crosslisted with: AGRO 931, HORT 931
Prerequisites: AGRO 215 and STAT 801A
Description: Structure of populations, forces affecting gene frequency and frequency of genotypes, continuous variation, population values and means, genotypic and environmental variances and covariances.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option
Prerequisite for: AGRO 932, STAT 847; ASCI 932; ASCI 933; ASCI 944, STAT 844

ASCI 932 Quantitative Animal Genetics I
Prerequisites: ASCI 931 or equivalent
Notes: Offered even-numbered calendar years.
Description: Use of biometrical and population genetics and related physiology, nutrition, pathology, meats, and economics, to develop intrapopulation breeding methods capable of increasing the net bio-economic efficiency of animal production.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option

ASCI 933 Quantitative Animal Genetics II
Prerequisites: ASCI 931
Notes: Offered odd-numbered calendar years.
Description: Evaluation of methods for developing and exploiting genetic diversity among animal populations to improve bio-economic efficiency of animal production.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option

ASCI 944 Quantitative Methods for Genomics of Complex Traits
Crosslisted with: STAT 844
Prerequisites: ASCI 861U or AGRO/ASCI/HORT 931 or BIOS 818 or equivalent; STAT 802 or 821 or equivalent.
Description: Quantitative genetic analysis of complex traits. Quantitative methodologies for connecting phenotypes with high-dimensional genomic information to understand polygenic traits from both prediction and inference perspectives.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded
Offered: SPRING

ASCI 945 Complications of Maternal Obesity
Crosslisted with: NUTR 945
Description: Introduction to overnutrition and its complications during maternal obesity and metabolic syndrome.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded
Offered: FALL

ASCI 949 Biochemistry of Nutrition
Crosslisted with: BIOC 949, BIOS 949, NUTR 949
Prerequisites: BIOC 832 or 839
Notes: Offered odd-numbered calendar years.
Description: Offered odd-numbered calendar years. Interrelationships of nutrients, nutritional state and metabolic processes. Energy metabolism, integration of nutrition and metabolism and nutritional regulation of gene function.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Grade Pass/No Pass Option
Offered: FALL

ASCI 996 Problems in Animal Production
Prerequisites: Permission
Description: Methods employed in livestock production research. Planning and conducting experiments, keeping records, and analysis of data.
Credit Hours: 1-24
Min credits per semester: 1
Max credits per semester: 24
Max credits per degree: 24
Grading Option: Grade Pass/No Pass Option

ASCI 999 Doctoral Dissertation
Prerequisites: Admission to doctoral degree program and permission of supervisory committee chair
Credit Hours: 1-24
Min credits per semester: 1
Max credits per semester: 24
Max credits per degree: 99
Grading Option: Pass No-Pass