

## Animal Science Graduate Course Descriptions

**\*806. Animal Science Graduate Seminar** (1 cr per sem,max 2 cr I) Lec/disc. Prereq: Permission. Orientation in the animalscience graduate program involving introduction to departmentalresearch program, philosophy, and policies. Discussion of elements of an effective seminar: experience and critique in oral presentation of research data.

**816. Veterinary Entomology/Ectoparasitology** (ENTO,NRES, VBMS 816) (2 cr II) Lec 2. Prereq: 10 hrs entomology or biological science or related fields or permission. For course description, see ENTO 816.

**816L. Veterinary Entomology/Ectoparasitology Lab** (ENTO, NRES, VBMS, 816L) (1 cr II) Prereq: ENTO, NRES, VBMS 816: or parallel. For course description, see ENTO 816L.

**\*817. Meat Technology** (4 cr I) Lec 2, lab 6. Prereq: ASCI 410 or permission. 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.

**818. Eggs and Egg Products** (FDST 818) (3 cr I) Lec2, lab 3. Prereq: FDST 203 or permission. Offered odd-numbered calendar years. For course description, see FDST 818.

**819. Meat Investigations** (FDST 819) (1-3 cr I, II,III) Prereq: ASCI 210 or permission. Conduct independent research and study meat industry problems in processing, production, storage, and preparation of meat and meat products.

**\*820. Feedlot Nutrition and Management** (3 cr II) Lec 3. Prereq: CHEM 831. Offered odd-numbered calendar years. Nutritional requirements of and complete ration formulation for feedlot cattle. Management practices needed for successful feedlot operation.

**821. Advanced Animal Nutrition** (3 cr I) Lec 3. Prereq: ASCI 320. An 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.

**831. Advanced Animal Breeding** (3 cr II) Lec 2, rec1. Prereq: ASCI 330. 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.

**842. Endocrinology** (BIOS, VBMS 842) (3 cr I) Lec3. Prereq: A course in vertebrate physiology and/or biochemistry. 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.

**\*845. Animal Physiology I** (BIOS \*813, VBMS \*845)(4 cr I) Lec 3, lab 3. Prereq: CHEM 251; BIOS 112 or

ASCI 240. Primarily mammalian physiology with discussion of cellular mechanisms designed for students in animal and biological sciences. Topics include physiology of the cell, body fluids, nervous systems, muscle and the cardiovascular system.

**\*846. Animal Physiology II** (BIOS \*814, VBMS \*846) (4 cr II) Lec 3, lab 3. Prereq: ASCI \*845 or permission. Primarily mammalian physiology with discussions of cellular mechanisms designed for students in animal and biological sciences. Topics include physiology of the respiratory, renal, gastrointestinal and endocrine systems.

**\*847. Interdisciplinary Concepts in Beef Production** (VBMS \*847) (3 cr. Max 6) Prereq: Degree in veterinary medicine or animal science, or allied agricultural degree, or permission. 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. For course description, see VBMS \*847.

A. Interdisciplinary Concepts in Beef Production I (3 cr)

B. Interdisciplinary Concepts in Beef Production II (3 cr) Prereq: VBMS \*847A.

**851. Livestock Management on Range and Pasture** (AGRO 845, RNGE \*445) (3 cr I) Lec 2. Prereq: AGRO/RNGE 240 or 340; ASCI 250. AECN 201 recommended. Students required to participate in a one-week field trip in the Halsey area prior to beginning of fall semester. (Dates are given in class schedule.) Analyzing the plant and animal resources and economic aspects of livestock on range and pasture. Management of pasture and range for continued high production is emphasized.

**896. Independent Study in Animal Science** (1-5 cr I, II, III) Prereq: 12 hrs animal science or closely related areas and permission. Individual or group projects in research, literature review, or extension of course work under supervision and evaluation of a departmental faculty member.

**\*899. Masters Thesis** (6 - 10 cr) Prereq: Admission to masters degree program and permission of major adviser.

**905. Animal Industry Seminar** (1 cr per sem, max 4 cr I, II) Prereq: Permission. Current problems in the field of animal industry.

**917. Advanced Meat Science** (3 cr II) Lec 3, lab 1. Prereq: CHEM 831 and FDST 848 or permission. 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.

**918. Growth and Development of Meat Animals** (3 cr II) Lec 3. Prereq: Strong background in biological sciences. ASCI/VBMS \*845 and \*846 recommended. BIOC, BIOS, and CHEM 831 and 832 advised. 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.

**921. Interdepartmental Nutrition Seminar (NUTR 921)** (1 cr per sem, max 4, I, II) Prereq: permission. For course description, see NUTR 921.

**922. Advanced Animal Nutrition (Ruminant)** (3 cr I) Prereq: ASCI 821 and BIOC 831 or permission. Offered even-numbered calendar years. Nutrient metabolism and utilization by ruminant animals for maintenance, growth, finishing, reproduction and lactation. Major emphasis on protein and energy.

**924. Forage Evaluation (AGRO 940)** (3 cr II) For course description, see AGRO 940.

**925. Energy Metabolism (NUTR 925)** (3 cr I) Prereq: BIOC 831, or ASCI 821 or NUTR 455 or 950; or permission. Offered odd-numbered calendar years. For course description, see NUTR 925.

**926. Carbohydrate and Lipid Nutrition (NUTR 926)** (3 cr II) Prereq: BIOC 831, ASCI 821 or NUTR 455 or 950. Offered even-numbered calendar years. For course description, see NUTR 926.

**927. Protein Nutrition (NUTR 927)** (2 cr II) Prereq: ASCI 821 or NUTR 455 or 950 and BIOC 831; or permission. Offered even-numbered calendar years. For course description, see NUTR 927.

**927L. Protein Nutrition Laboratory (NUTR 927L)** (1 cr II) Prereq: Parallel registration in ASCI or NUTR 927. Laboratory experiments that complement material covered in ASCI 927.

**928. Mineral Nutrition (NUTR 928)** (2 cr I) Prereq: ASCI 821 or NUTR 455 or 950 and BIOC 831; or permission. Offered even-numbered calendar years. For course description, see NUTR 928.

**928L. Mineral Nutrition Laboratory (NUTR 928L)** (1 cr I) Prereq: Parallel registration in ASCI or NUTR 928. Laboratory experiments that complement material covered in ASCI 928.

**929. Vitamin Nutrition (NUTR 929)** (3 cr II) Prereq: BIOC 831, ASCI 821 or NUTR 455 or 950. Offered odd-numbered calendar years. For course description, see NUTR 929.

**931. Population Genetics (AGRO, HORT 931)** (3 cr II) Lec 3. Prereq: AGRO 315 and BIOM 801. For course description, see AGRO 931.

**932. Quantitative Animal Genetics** (3 cr I) Lec 2, lab 2. Prereq: ASCI 931 or equivalent. Offered even-numbered calendar years. 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.

**933. Quantitative Animal Genetics II** (3 cr I) Lec 2, lab 2. Prereq: ASCI 931. Offered odd-numbered calendar years. Evaluation of methods for developing and exploiting genetic diversity among animal populations to improve bio-economic efficiency of animal production.

**934. Application of Biotechnology in Animal Science** (4 cr) Lec 1, lab 9. Prereq: Permission. Offered only

during 8-week summer session. Strategies and applications of DNA/RNA base methodologies in animal production systems and animal research programs. Practical and experimental approaches. Back-ground, theory, and statistical methods underlying applications emphasized.

**943. Advanced Avian Physiology (NRES 943) (3 cr I)** Lec 3. Prereq: One semester of physiology or ornithology, or permission. Anatomical and physiological aspects of the major body systems of birds; discussions cover both domesticated and other species and their adaptations. Comparison with mammalian systems is included, especially to illustrate divergent evolution of structure and function. Behavior is related to adaptations of both anatomy and physiology, and environmental influences are emphasized. Selected techniques (anesthesia, some surgical procedures, artificial insemination, embryo manipulations) are incorporated as laboratory session as needed.

**949. Biochemistry of Nutrition (BIOC, BIOS, NUTR 949) (3 cr I)** Lec 3. Prereq: BIOC 832 or \*839, or permission. Offered odd-numbered calendar years. For course description, see BIOC 949.

**995. Current Topics in Nutrition (NUTR 995) (1 cr per sem, max 4)** Prereq: NUTR 350 or 950 or ASCI 821. For course description, see NUTR 995.

**996. Problems in Animal Production (1-24 cr I, II, III)** Prereq: permission. Methods employed in livestock production research. Planning and conducting experiments, keeping records, and analysis of data.

**999. Doctoral Dissertation (1-24 cr, max 55)** Prereq: Admission to doctoral degree program and permission of supervisory committee chair.