Courses

449. Technical Report Writing
Winter, Spring. 4(4) Completion of ATL requirement, Juniors or approval of instructor.
Use and understanding of language through writing and editing clear, concise, purposeful technical reports, letters, instructions, proposals.

451. Veterinary Histology
Fall. 5(3-8) First-term Veterinary Medicine students.
A general histology course for veterinary students which includes a survey of the tissue of the animal body.

452. Veterinary Neuro Anatomy
Winter. 2(2-6) Second-term Veterinary Medicine students.
Gross anatomy of the central nervous system in animals emphasizing functional and dysfunctional aspects of pathways and nuclei in dogs as a foundation for clinical neurology.

511. Veterinary Microscopic Anatomy
Winter. 4(2-4) Second-term Veterinary Medicine students.
Microscopic anatomy of the digestive, urinary, respiratory, male and female reproductive systems, circulatory system, central nervous system and special sense organs of domesticated animals.

560. Medical Histology
Summer. 4(3-4) Admission to a college of medicine or approval of department.
Structural and functional characteristics of basic cells, tissues and organ systems. Emphasis on core concepts and visual discrimination.

563. Osteopathic Medical Neuroanatomy
Fall. 4(3-4) Admission to a college of medicine; graduate students with approval of department.
Medically oriented problem-solving neuroanatomy with laboratory. Structure of the human nervous system is correlated with normal function, clinical syndromes and clinical lesions encountered in medical practice.

ANATOMY

College of Human Medicine
College of Osteopathic Medicine
College of Veterinary Medicine

216. Applied Human Anatomy
Fall, Spring. 5(4-3) BHR major or minor.
Structural anatomy of the various systems of the human body. Concepts of kinesiological applications.

316. General Anatomy
Fall, Spring. 5(5-0) B S 211 or B S 212 or approval of department.
Designed to impart the basic concepts of the broad field of anatomy. Special requirements of the various disciplines will be met in their respective laboratories.

420. Microscopic Anatomy
Winter. 5(2-8) Medical Technology students or approval of department.
Microscopic study of the structure of cells, tissues and organs.

480. Special Problems
Fall, Winter, Spring, Summer. 1 to 5 credits. May reenroll for a maximum of 15 credits. Approval of department.
Individual study or project under the direction of a faculty member in biomedical research, gross anatomy, histology, neurology, or embryology.

505A. Anatomy in Physical Diagnosis
Fall. 1 to 3 credits. HM 505 concurrently.
Exercises in which students study systemic anatomy in a physical diagnosis context. Preparatory self-instruction precedes exercises.

505B. Anatomy in Physical Diagnosis
Winter. 1 to 3 credits. ANT 505A or approval of department.
Exercises in which students study regional anatomy in a physical diagnosis context. Preparatory self-instruction precedes exercises.

505C. Anatomy in Physical Diagnosis
Spring. 1 to 3 credits. ANT 505B or approval of department.
Exercises in which students study regional anatomy in a physical diagnosis context. Preparatory self-instruction precedes exercises.

510. Veterinary Gross Anatomy
Fall. 6(3-9) First-term Veterinary Medicine students.
Gross anatomy of a representative animal, the dog, is studied. Lecture, dissection of embalmed specimens, study of prosections, slides, models and living animals.
245. Meat Evaluation and Grading

In depth evaluation of the current concepts in tumorigenesis emphasizing the experimental results from which these concepts evolved.

898. Master’s Thesis Research
Fall, Winter, Spring, Summer. Variable credits. Majors.

899. Doctoral Dissertation Research
Fall, Winter, Spring, Summer. Variable credit. Majors.

**ANIMAL HUSBANDRY**

See Animal Science.

**ANIMAL SCIENCE**

College of Agriculture and Natural Resources

**Animal Husbandry - A H**

111. Livestock and Meat Industry
Fall, Spring. 4(3-4)

Livestock utilization of renewable resources in producing products for man. Adaptation, economics of production and management systems of beef cattle, swine, sheep and horse enterprises. Evaluation of market livestock.

214. Introduction to Horses and Horsemanship
Fall. 3(2-1)

The horse industry in today’s society. Relationship of form to function. Selection, breeding, feeding, foot care, health, and management of the pleasure horse. Proper horsemanship methods.

235. Live Animal and Carcass Evaluation and Selection
Fall. 3(1-4) A H 111 or concurrently.

Evaluation of breeding stock, market animals, and carcasses. Emphasis on production records and soundness of breeding animals, quality grading, yield grading and pricing market animals and carcasses.

242. Meats, Poultry and Fishery Products I
Fall. 3(2-2) Interdepartmental with and administered by Food Science.

Principles of evaluation and nutritive value. Identification of grades and cuts of beef, pork, lamb and poultry products.

245. Meat Evaluation and Grading
Fall, Winter. 1 to 3 credits. May reenroll for a maximum of 4 credits subject to a maximum of 10 credits in A H 245 and A H 335 combined. A H 335.

Evaluation of beef, pork, and lamb carcasses and wholesale cuts according to industry and consumer demands and federal grading regulations. Numerous field trips to meat packing operations.

335. Livestock Selection
Fall, Winter, Spring. 1 to 3 credits.

May reenroll for a maximum of 9 credits subject to a maximum of 10 credits in A H 245 and A H 335 combined. A H 335.

Evaluation of productive merit of individual animals. Comparison of type with a standard. Relationship of form to function. Field trips to prominent livestock breeding establishments and to major livestock events.

341. Principles of Meat Science
Fall, Winter, Spring. 3(3-0) BCH 200, PSL 240.

Structure, composition and function of muscle, its conversion to meat, animal growth and fattening, properties of fresh and processed meat, microbiology, preservation, palatability, inspection and sanitation, by-products, nutritive value.

344. Meat Science Laboratory
Fall. 2(0-5) A H 341 or concurrently.

Exercises in meat animal slaughter, meat cutting, wholesale and retail cut identification, processing, inspection, quality control and merchandizing.

415. Special Problems
Fall, Winter, Spring, Summer. 1 to 3 credits. May reenroll for a maximum of 8 credits. Approval of department.

Special problems in: animal breeding, ruminant nutrition, nonruminant nutrition, management, meat science, or reproduction.

426. Swine Nutrition
Spring of odd-numbered years. 3(3-4) A H 451; ANS 325 or ANS 325.

Digestive and metabolic development and nutrient requirements of swine. Interactions of genetics, disease, endocrinology and environment with nutrition. Critical evaluation of swine feeds and feed formulation. Recent swine nutrition research.

451. Swine Production
Fall. 4(3-2) ANS 325 or approval of department.

Historical aspects with emphasis on current trends. Breeds, breeding, selection, nutrition requirements, management practices, marketing, housing and environmental needs, disease and parasite problems. Visits to representative farms.

452. Sheep Production
Winter. 4(3-2) ANS 325 or approval of department.

Management of sheep enterprises. Using the tools of selection, reproduction, nutrition, flock health, housing and marketing to increase returns. Practice in trimming, showing and management skills.

453. Beef Production
Fall, Spring. 4(3-2) ANS 325 or approval of department.

Feeding, breeding management, marketing. Emphasis on growth and development, costs and returns, feed requirements, reproduction, crossbreeding, performance testing, housing, diseases. Practice in management skills.

462. Meat Animal Breeding
Spring. 3(2-2) ANS 361.

Uses and effects of different breeding systems with beef cattle, sheep, and swine. Formulating breeding plans.

827. Research Methods in Nutrition
Fall, 2(2-0) Approval of department.

Experimental techniques in nutrition: ration formulation, animal management, sampling procedures, balance trials, bioassays, tracer methodology, determination of nutrient requirements.

890. Advanced Special Problems
Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 8 credits. Approval of department.

Investigation of animal husbandry areas of special interest to individual graduate students.

999. Master’s Thesis Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

912. Seminar
Fall, Winter, Spring. 1 credit.

926. Comparative Nutrition-Lipids and Carbohydrates
Winter of odd-numbered years. 4(4-0) BCH 452 and a previous course on principles of nutrition. Interdepartmental with and administered by Human Nutrition and Foods.

Regulatory aspects of carbohydrate and lipid metabolism as influenced by nutrition in mammals. Emphasis on normal and abnormal physiological states such as obesity, ketosis and diabetes.

927. Comparative Nutrition-Protein Metabolism and Developmental Biology
Winter of odd-numbered years. 4(4-0) BCH 452, PSL 902 or concurrently. Interdepartmental with and administered by Human Nutrition and Foods.

Protein quality assessment, protein status, protein calorie malnutrition, amino acid metabolism, protein turnover, digestion and absorption, hormonal control of protein metabolism, developmental aspects of protein metabolism and growth.

928. Comparative Nutrition-Minerals
Spring of even-numbered years. 3 credits. BCH 452, PSL 962. Interdepartmental with Human Nutrition and Foods.

Forms and location in body, metabolic roles, deficiency and toxicity signs, interrelationships, requirements and biological availability of sources.

929. Comparative Nutrition-Vitamins
Spring of odd-numbered years. 3(3-0) BCH 452 and a previous course on principles of nutrition. Interdepartmental with Human Nutrition and Foods.

Chemical and physical properties, standards of activity, occurrence, metabolic roles, antivitamins, deficiency and toxicity signs, requirements and factors affecting requirements.

963. Genetics of Breed Improvement
Winter of odd-numbered years. 3(3-0) ANS 361, STT 421.


964. Breeding Systems and Plans
Spring of odd-numbered years. 3(3-0) A H 963.

Biometric relations between related animals. Role of selection in changing populations. The effects of different mating systems.