

522. Veterinary Anatomy

Fall. 4(2-6) 520.

Microscopic anatomy of the digestive, urinary, respiratory, male and female reproductive systems, integumentary system, central nervous system and special sense organs of domesticated animals.

523. Veterinary Anatomy

Winter. 4(2-6) 521 or approval of department.

Lecture, dissection of embalmed specimens and the study of prosections, models and live animals related to the anatomy of the domestic animals.

540. Cross Biomedical Structure

Fall, Winter, Spring. Variable credit. May re-enroll for a maximum of 15 credits. Human Medicine students; approval of department for graduate students.

Human structure, systemic and regional, is studied in self-instructional and dissection sequences. Application of this knowledge to recognition of normal and abnormal structure in appropriate medical contexts is accomplished through self-instructional and clinical sessions.

543. Microscopic Anatomy

Winter. 3(1-3) Human Medicine students; approval of department for graduate students.

The principles of microscopic anatomy, utilizing self-instructional units and laboratory experience with organ sections viewed through the light microscope.

545. Neuroanatomy

Spring. 3(3-0) Admission to medical school or approval of Neuroscience Committee.

Introduction to gross and microscopic anatomy of the human nervous system, to related basic neurophysiologic concepts and to a problem-solving approach to the diagnosis of nervous system disease.

560. Microbiomedical Structure

Fall. 2(1-3) Approval of department.

The purpose of this course is to assist the student in learning to better understand the various activities of the human body through interpretation of the microscopic structure of tissues.

565. Survey of Anatomy I

Fall. 5(5-0) Osteopathic Freshmen, or approval of department.

Core concepts in regional, systemic and topographical human gross anatomy: Prosection, discussion and lecture methods using audiovisual aids and frequent review.

801. Seminar

Fall, Winter, Spring. 1(1-0) Approval of department.

813. Problems in Anatomy

Fall, Winter, Spring, Summer. Variable credit. May re-enroll for a maximum of 15 credits. Basic disciplines in various areas and approval of department.

Various anatomical fields such as gross anatomy, histology, hematology, tissue culture, cytology, neurology and embryology will be studied.

815. Anatomy of the Nervous System

Fall. 5(3-5) Approval of department.

Developmental, gross and microscopic anatomy of the nervous system. Organizational and functional aspects of the peripheral and central nervous system are stressed. Gross demonstrations include brain and dog dissections.

899. Research

Fall, Winter, Spring, Summer. Variable credit. Majors.

901. Seminar

Fall, Winter, Spring. 1(1-0) Approval of department.

999. Research

Fall, Winter, Spring, Summer. Variable credit. Majors.

453. Beef Production

Spring. 4(3-3) ANS 325 or approval of department.

History, breeds, breeding, selection, nutrition and feeding, commercial systems of production, diseases and parasites. Visits to purebred herds and to feed lots. Practice in management skills.

454. Horse Production

Fall of even-numbered years. 3(1-3) ANS 325 or approval of department by interview.

Horse selection, breeding, feeding, management and merchandising. Arranged class hours to be spent at the Horse Farm.

462. Meat Animal Breeding

Spring. 3(2-2) ANS 461.

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

488. The Impact of Animal Resource Management Upon the World's Developing Nations

Winter. 3(4-0)

For course description, see Interdisciplinary Courses.

825. Techniques in Nutrition Research

Winter of odd-numbered years. 1 to 3 credits. CEM 333; approval of department. Interdepartmental with Human Nutrition and Foods.

Use of specialized instruments and techniques. Laboratory safety. Management of laboratory animals. Development of abilities in areas of particular interest to individual students.

890. Advanced Special Problems

Fall, Winter, Spring, Summer. 1 to 4 credits. May re-enroll for a maximum of 8 credits. Approval of department.

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

899. 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 even-numbered years. 4(4-0) BCH 452, PSL 502 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 502. Interdepartmental with Human Nutrition and Foods.

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

ANIMAL HUSBANDRY A H

College of Agriculture and Natural Resources

111. Livestock and Meat Industry

Fall, Winter, Spring. 4(3-4)

Adaptation, distribution and numbers of livestock throughout the world; significance and economic importance. Trends in livestock production. Evaluating, grading, classifying and marketing of livestock and meat. Relationship of live animal conformation to carcass merit.

241. Meat Production

Winter. 5(3-6) 111.

Principles of meat evaluation and selection. Carcass certification programs. Influence of production factors on carcass desirability. Practice in slaughtering, cutting and meat processing.

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, Spring. 1 to 3 credits. May re-enroll for a maximum of 4 credits subject to a maximum of 10 credits in 245 and 335 combined. 241.

Evaluation of carcasses and wholesale cuts of beef, pork, veal and lamb in accordance with federal and commercial grading standards. Inspection trips through large meat packing plants.

335. Livestock Selection

Fall, Winter, Spring. 1 to 3 credits. May re-enroll for a maximum of 9 credits subject to a maximum of 10 credits in 245 and 335 combined. 111.

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.

415. Special Problems

Fall, Winter, Spring. 1 to 3 credits. May re-enroll for a maximum of 5 credits. Seniors and approval of department.

Special studies in fields not covered by other animal husbandry courses.

451. Swine Production

Fall. 4(3-3) 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 of even-numbered years. 4(3-3) ANS 325 or approval of department.

History, modern breeds, breeding, selection, nutrition and feeding, management, marketing, housing, diseases and parasites, wool. Visits to farm flocks. Practice in management skills.

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. 3(3-0) ANS 461, STT 421.
Breed improvement. Changing gene frequency.
Genetic and environmental subdivision of
phenotypic variance.

964. Breeding Systems and Plans
Spring. 3(3-0) 963.
Biometric relations between related animals.
Role of selection in changing populations. The
effects of different mating systems.

999. Research
Fall, Winter, Spring, Summer. Variable
credit. Approval of department.

ANIMAL SCIENCE ANS

College of Agriculture and Natural Resources

101. Animal Science
Fall. 5(4-2)
Survey of the animal industries including history,
economic geography, anatomy and physiology,
nutrition and feed usage, and systems of
commercial livestock and poultry production.

213. Animal Science Seminar
Fall. 1(2-0)
Animal science industries. Industry representatives
will be utilized to discuss particular areas.

325. Principles of Animal Nutrition
Spring. 5(5-0) CEM 132; BCH 200
recommended.
Livestock feeds and their nutrients. Functions
of and requirements for nutrients. Evaluation
of feeds. Feeding practices. Formulation of
rations for beef and dairy cattle, horses, poultry,
sheep and swine.

461. Principles of Animal Breeding
Winter. 3(3-0) CSC 250.
Quantitative inheritance. Gene frequency. Statistical
tools used in animal breeding. Effect of
selection and mating systems on animal population.

525. Animal Nutrition
Winter, Summer. 5(4-2) BCH 401.
Principles of nutrition. Nutrients and their metabolism.
Nutritive requirements for maintenance,
growth, reproduction, lactation and work.
Nutrient sources and their use in preparing diets
for domestic animals.

826. Animal Nutrition
Spring. 4(4-0) One course each:
biochemistry, physiology; and approval of
department.
Nutrition basic to animal feeding. Application of
chemistry and physiology to nutrition. Nutrient
requirements for normal body functions. Techniques
involved in nutrition research; readings in
current literature.

854. Design of Animal Experiments
Spring. 4(4-0) STT 423.
Choice, implementation and statistical analysis
of experimental plans for research with animals.
Designs for reduction of experimental error.
Analysis of experiments with complex structure
or unequal subclass numbers.

965. Biometrical Genetics
Fall. 4(4-0) One course in quantitative
or population genetics.
Genetic expectations in random mating and in-
bred populations. Estimation of genetic parameters.
Relation of gene frequency to population
mean and variance. Components of genetic
variance. Correlation of relatives. Selection
theory.

ANTHROPOLOGY ANP

College of Human Medicine College of Osteopathic Medicine College of Social Science

100. The Origin of Man and Culture
Fall, Winter, Spring, Summer. 4(3-1)
Introduction to physical anthropology; the position
of man in the animal kingdom, the genetic
mechanisms of evolution, human beginnings
and the fossil record, racial evolution and
racial types among modern man, the anticipation
of culture among other animals and the development
of human culture, and culture as an adaptive
mechanism.

171. Introduction to Anthropology
Fall, Winter, Spring, Summer. 4(3-1)
Comparison of ways of life among primitive,
peasant and civilized peoples. Implications of
these styles of life for understanding of human
behavior in general and exotic cultures in
particular.

200. Resource Ecology and Man
For course description, see Interdisciplinary
Courses.

**221. Introduction to Social and
Cultural Analysis**
Fall, Spring. 4(3-1) 171.
Basic theoretical framework of socio-cultural
analysis; structural functionalism, evolutionism,
and cultural ecology.

**250. Culture, Environment and
Adaptation**
Fall. 4(3-1) 100.
Culture as an adaptive process—as developed in
the million years of human history and still
influencing environmental quality, population
control, and allocation of resources in primitive
and modern societies.

**263. Origin of Civilization:
Archaeology**
Spring. 4(3-0) 100.
The rise, development and spread of culture in
the period before written history. Archaeological
evidence is used to trace the evolution of culture
as it has been reconstructed from the excavation
of pre-historic sites in the Old and New World.

275. The Anthropology of Asia
Fall. 4(3-0) Sophomores or approval
of department.
Several cultural complexes and cultures types—
from hunting and gathering through complex
civilization—of East, Southeast, and South Asia.
The cultures and nature of their development
will be examined. Past and present significance
of cultural stability and change will be seen
in a comparative framework.

281. The Africans and Their Cultures
Fall, Spring. 4(3-0) Sophomores or
approval of department.
Racial and cultural problems confronting the
African peoples.

**285. Anthropology and the Modern
World**
Spring. 4(2-2) 171.
Interwoven nature of cultural traditions in the
modern world. Consideration of how people of
developing nations respond to the dominant
cultural forces of industrialized nations.

350. Peasant Society
Fall. 4(3-1) 171.
Anthropological study of peasantry. Comparative
examination of the rural societies and
cultures of Asia, Europe, and Latin America.

356. Culture, Health and Illness
Spring. 4(3-1) 171.
Anthropological study of health behavior. Comparative
view of primitive, folk and scientific
medical systems and their effect on the individual
and the community in the illness situation.

381. Anthropology and Education
Winter. 4(3-1) 171 or other Social
Science. For Education and Anthropology
majors.
Maturation and socialization in various societies
of Asia, Africa, and Latin America. These will
be compared with educational institutions in the
U.S. and Europe. It is expected to be a contribution
to the broader cross-cultural investigation of
the teaching/learning process.

384. Contemporary Problems of Japan
For course description, see Interdisciplinary
Courses.

387. Ethnicity and Nation Building
Spring. 4(2-2) 171.
Ethnic minorities and the roles they play in
fostering and/or hindering nation building
processes in Third World countries. A theoretical
framework is utilized to compare systematically
these roles in various areas of the world.

**389. Continuing Revolution in China:
Problems and Approaches**
For course description, see Interdisciplinary
Courses.

390. Survey of Subsaharan Africa
For course description, see Interdisciplinary
Courses.

391. Survey of Subsaharan Africa
For course description, see Interdisciplinary
Courses.

400H. Honors Work
Fall, Winter, Spring, Summer. 1 to
16 credits. May re-enroll for a maximum of 20
credits. Approval of department.

**411. Studies in the Anthropology of
Asia**
Fall, Winter, Spring. 4(3-0) May re-
enroll for credit for Part II in an area and/or
for another area. 171; 275 or approval of
department.
Separate courses in Asian cultures: China; Ja-
pan; Southeast Asia; South Asia; Central Asia.
A two part course sequence is usually given.
Part I: Ethnographic survey. Part II: Sub-areas,
special problems and approaches.