

523. Anatomy of Areas of Surgical and Clinical Importance in Domestic Animals

Winter, Summer. 8(3-14) Sixth-term Veterinary Medicine students.

Lectures, dissection of fresh material and the study of prosections, models, radiographs and reprints related to areas of surgical and clinical importance in domestic animals.

540. Gross 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

Fall. 5(3-6) Human Medicine students; approval of department for graduate students.

The normal structure of cells, tissues and organs as they appear under the light and electron microscope.

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

(415.) 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.

902. Comparative Histology

Fall of even-numbered years. 5 credits. Approval of department.

Comparative histology of digestive, respiratory, urinary, and integumentary systems of domestic and laboratory animals.

903. Comparative Histology

Winter of odd-numbered years. 5 credits. 902 or approval of department.

Continuation of 902 to include the muscular, skeletal, circulatory, male and female reproductive systems, placentation, and endocrine organs.

999. Research

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

ANIMAL HUSBANDRY A H

College of Agriculture and Natural Resources

111. Livestock and Meat Industry

Fall, 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

(141.) Winter. 4(2-6) 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 the Food Science Department.

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 6 credits. 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 8 credits. 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

Spring. 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.

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(2-2) ANS 325 or approval of department.

Selection, breeding, feeding, management, marketing, diseases and parasites. Relationship of body structure to performance.

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.

825. Techniques in Nutrition Research

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

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.

927. Comparative Nutrition I

Winter. 2 or 4 credits. BCH 402; PSL 502 or concurrently. Interdepartmental with and administered by the Foods and Nutrition Department.

Mammalian nutrition based on biochemical and physiological phenomena. Proteins are studied in the first half of the term; carbohydrates, fats and macro-minerals in the last half.

928. Comparative Nutrition II

Spring. 2 or 4 credits. BCH 402, PSL 502. Interdepartmental with the Foods and Nutrition Department.

Mammalian nutrition based on biochemical and physiological phenomena. Micro-minerals are studied in the first half of the term; vitamins in the last half.

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. Applied Animal Nutrition

Spring. 5(4-2) 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.

Use and importance of selection, inbreeding and outbreeding in controlling inheritance.

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 inbred 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 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.

263. Origin of Civilization: Archaeology
Spring. 4(3-0) 100 or 171.

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.

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

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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, Summer. 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; Japan; 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.

415. Studies in the Anthropology of Africa

Fall, Winter, Spring, Summer. 4(3-0) May re-enroll for credit for Part II in an area and/or for another area. 171; 281 or approval of department.

Separate courses on African cultures: West Africa; Central Africa; East Africa. A two part course sequence is usually given. Part I: Ethnographic survey. Part II: Sub-areas, special problems and approaches.

419. Studies in the Anthropology in the New World

Fall, Winter, Spring, Summer. 4(3-0) May re-enroll for credit for Part II in an area and/or for another area. 171 or approval of department.

Separate courses on New World cultures: Arctic; North America; Middle America; South America. A two part course sequence is usually given. Part I: Ethnographic survey. Part II: Sub-areas, special problems and approaches.

423. Studies in the Anthropology of the Near East

Winter, Spring. 4(3-0) May re-enroll for credit for Part II in an area and/or for another area. 171 or approval of department.

Separate courses on Near East cultures: North Africa and Southwest Asia. A two part course sequence is usually given. Part I: Ethnographic survey. Part II: Sub-areas, special problems and approaches.

434. Ethnic Minorities Around the World

Spring. 3(3-0)

Examination of ethnic minorities, their problems and patterns of adaptation in Asia, Africa and Latin America. Emphasis is placed on social structure of the minorities and the dominant attitudes of both the majority and minority peoples.

450. Area Courses in Prehistory

Fall, Winter. 4(4-0) 100 or 171, and 263; 6 additional credits in anthropology.

Archaeology of different areas with emphasis on prehistoric adaptations to natural and social environments. Settlement patterns, subsistence, technology, and style will be considered. Areas covered will vary with staff and student interest.

463. Social Anthropology
Fall. 4(3-0) 171 or approval of department.

Organization and structure of non-Western societies, ranging from simpler tribal and peasant societies to complex civilizations. Social institutions, such as those based upon kinship, sex, age and status, analyzed for specific groups.

464. Religion and Culture
Winter. 4(3-0) 171 or SOC 241 or approval of department.

Religious beliefs and magical practices of primitive peoples and functions of magic and folklore in contemporary society. Religion as an institution in society.

466. Cross-Cultural Relations in the Modern World

Winter of even-numbered years. 3(3-0) 171 or SOC 241. Interdepartmental with the Sociology Department.

Relationship of native peoples to world-wide forces and reactions of native peoples to world struggle for power. Problems involved in administration of programs for non-Western societies.

467. Language and Culture
Fall, Spring. 4(3-0) Approval of department. Interdepartmental with the English Department.

A survey exploring the interconnectedness of language and culture. Special areas to be emphasized include: Child Language Learning; Linguistic and Cultural Contact Phenomena; "Specialized" Languages, such as Cant, Argot, Trade Jargon, Lingua Franca; "Hybridization" and "Substratum"; Language and Cultural Change; a brief examination of Theories of Origins and of the Sapir-Whorf Hypothesis.

469. Cultural Areas of the World

Fall, Winter, Spring, Summer. 4(3-0) May re-enroll for credit when new area is given. 100 or 171 or SOC 241 or approval of department.

Social character of people, social organization, culture of area in relationship to social heritage, local conditions and world affairs. Areas emphasized will vary with staff and student's interest: Africa, American Indian, Latin America, Near East, Northeast Asia, Pacific, and Southeast Asia.

473. Culture and Personality
Fall, Spring, Summer. 4(3-0) 171 or SOC 241. Interdepartmental with the Sociology Department.

Human nature in evolutionary and cross-cultural perspective. Special attention to relating theories of anthropology and psychology to methods of studying personality in non-Western societies.

474. Culture and Economic Behavior
Winter. 4(4-0) 463 or approval of department.

Economic systems of changing cultures in Asia, Africa and Latin America. The cultural matrix of economic transactions and relations of economic and other social and cultural institutions seen in a comparative framework. Emphasis is placed on traditional agricultural or tribal communities.

475. Culture and Political Behavior
Spring. 4(4-0) 463 or approval of department.

Political systems of changing cultures in Asia, Africa and Latin America. Relation between political and other social institutions and analysis of the organization of conflict in non-Western societies. The relation of tribal and peasant politics to national politics in developing countries seen in a comparative framework.

476. Canadian-American Studies
For course description, see Interdisciplinary Courses.