

**Descriptions – Animal Husbandry  
of  
Courses**

**ANIMAL HUSBANDRY      A H**

**College of Agriculture and Natural  
Resources**

**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(3-1)*

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.

**241.    Principles of Meat Science**  
*Winter. 3(3-0) Sophomores.*

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.

**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.

**244.    Meat Science Laboratory**

*Winter, Spring. 2(0-5) Sophomores; A H 241 or concurrently.*

Principles of meat animal and carcass evaluation, slaughter, meat cutting, retail cut identification, processing, inspection and quality control.

**245.    Meat Evaluation and Grading**

*Fall, Spring. 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 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 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 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, Summer. 1 to 3 credits. May reenroll for a maximum of 5 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(3-0) A H 451; ANS 325 or ANS 525.*

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.

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

*For course description, see Interdisciplinary Courses.*

**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.

**899.    Research**

*Fall, Winter, Spring, Summer. Variable credit. Approval of department.*

**912.    Seminar**

*Fall, Winter, Spring. 1 credit.*

**921.    Pathology of Nutritional and  
Metabolic Diseases**

*Summer of even-numbered years. 4(3-2) Approval of department; PTH 404 or ANT 420. ANS 525, BCH 452, HNF 462 recommended. Interdepartmental with the departments of Large Animal Surgery and Medicine and Pathology and Human Nutrition and Foods. Administered by Human Nutrition and Foods.*

Development, physiopathology and morphologic pathology of nutritional and metabolic diseases including carbohydrate, protein, fatty acid, vitamin and mineral deficiencies, their experimental induction and their medical or economic significance.

**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 802 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 802. 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, antivitamin, 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.*

Breed improvement. Changing gene frequency. Genetic and environmental subdivision of phenotypic variance.

**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.

**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.

**361. Principles of Animal Breeding**  
(461.) Winter. 3(3-0) B S 211 or a course in Mendelian genetics.

Quantitative inheritance. Gene frequency. Statistical tools used in animal breeding. Effect of selection and mating systems on animal population.

**433. Ruminant Nutrition**  
(DRY 433.) Winter. 4(3-2) ANS 325. Interdepartmental with and administered by the Department of Dairy Science.

Principles of ruminant nutrition and application to actual feeding practices in commercial dairy and beef operations. Rumen fermentation as related to feed utilization, growth, milk production and milk composition.

**525. Animal Nutrition**  
Fall. 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.

**855. Analysis of Unbalanced Multifactor Data**  
Spring. 4(4-0) STT 423.

Applied analysis techniques of field or survey data with unbalanced subclass numbers in field of biological sciences: predictions utilizing several variables; estimation of effects of factors and their interactions.

**965. Biometrical Genetics**

Fall of odd-numbered years. 4(4-0) ANS 855 and one course in quantitative genetics.

Genetics models for quantitative traits: estimation of components of variance; correlation of relatives; Selection Index theory; multi-factor and multivariate responses in designed experiments.

## **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 Sociocultural 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.

**IDC. Resource Ecology and Man**

For course description, see Interdisciplinary Courses.

**IDC. Introduction to Latin America I**

For course description, see Interdisciplinary Courses.

**221. Introduction to Social and Cultural Analysis**

Fall, Spring. 4(3-1) ANP 171.

Basic theoretical framework of socio-cultural analysis: structural functionalism, evolutionism, and cultural ecology.

**250. Culture, Environment and Adaptation**

Fall. 4(3-1)

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.

**IDC. Continuing Revolution in China: Problems and Approaches**

For course description, see Interdisciplinary Courses.

**262. Status of Women in Culture and Society: A Comparative View**

Fall. 3(3-0)

Comparative analysis of the status of women emphasizing non-Western cultures and societies. Economic and domestic division of labor between the sexes as a factor underlying division of status, power and authority.

**263. Origin of Civilization: Archaeology**

Winter. 4(4-0)

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 prehistoric sites in the Old and New World.

**265. Vanished Peoples and Lost Civilizations**

Fall, Spring. 4(4-0)

Concepts of cultural evolution and origins of civilization as found in popular literature ranging from Atlantis to Chariots of the Gods.

**266. War and Aggression**

Fall, Spring. 3(3-0)

The question "What makes friends and what makes enemies?" is examined from the standpoint of cultural anthropology. Violence-prone cultures and peaceful ones are compared for factors influencing human aggression.

**275. The Anthropology of Asia**

Fall. 4(4-0)

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(4-0)

Racial and cultural problems confronting the African peoples.

**285. Anthropology and the Modern World**

Spring. 4(2-2) ANP 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.

**IDC. Contemporary Problems of South Asia**

For course description, see Interdisciplinary Courses.

**343. Introduction to Physical Anthropology**

Fall. 4(3-2)

Problems, data and techniques associated with the main topical areas of physical anthropology: human genetics, hominid evolution, primate behavior, human osteology and human diversity. Field trips may be required.

**350. Peasant Society**

Fall. 4(3-1) ANP 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) ANP 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.

**380. Methods of Sociocultural Anthropology**

Spring. 4(4-0) ANP 171, one upper division sociocultural ANP course, approval of department.

Field research and analysis methods and techniques in anthropology; development of research problems and questions; alternate models of validation; ethics of research and presentation of findings.

**381. Anthropology and Education**

Winter. 4(3-1) ANP 171 or other social science. For Education and Anthropology majors.

Maturation and socialization in various societies of Asia, Africa, and Latin American. 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.

**IDC. Contemporary Problems of Japan**

For course description, see Interdisciplinary Courses.

**388. The Anthropology of Social Movements**

Winter. 4(2-2) ANP 171 or approval of department.

Analysis of how different cultures around the world organize and create (or impede) change on the basis of class, religion, race, ethnicity, language, and territory.

**IDC. Survey of Sub-Saharan Africa**

For course description, see Interdisciplinary Courses.