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

454. Horse Production
Fall of even-numbered years. 3(1-3)
ANS 335 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 491.
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 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 451 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 602 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 602. 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. 3(3-0) ANS 461, STT 421.

964. Breeding Systems and Plans
Fall. 3(0-0) 286.
Biometric relations between related animals. Role of selection in changing populations. The effects of different mating systems.

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

ANIMAL SCIENCE ANS
College of Agriculture and Natural Resources

101. Animal Science
Fall. 5(4-3)
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(3-0)
Animal sciences industries. Industry representa­tives will be utilized to discuss particular areas.

325. Principles of Animal Nutrition
Spring. 5(5-0) CEM 133; BCH 300 recommended.

461. Principles of Animal Breeding
Winter. 3(3-0) CSC 250.

525. Animal Nutrition
Winter. 5(4-2) BCH 401.

526. 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.

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

985. Biometrical Genetics
Fall. 4(4-0) One course in quantitative or population genetics.

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.

1DC. 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—developed in the million years of human history and still influencing environmental quality, population control, and allocation of resources in primitive and modern societies.

1DC. Continuing Resolution in China: Problems and Approaches
For course description, see Interdisci­plinary Courses.

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.