

**Descriptions — Animal Husbandry
of
Courses**

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(1-3)
ANS 325 or approval of department by inter-
view.
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.

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 spe-
cial interest to individual graduate students.

899. Research

Fall, Winter, Spring, Summer. Varia-
ble 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 ad-
ministered by Human Nutrition and Foods.
Regulatory aspects of carbohydrate and lipid
metabolism as influenced by nutrition in mam-
mals. 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. Interde-
partmental with and administered by Human
Nutrition and Foods.
Protein quality assessment, protein status, pro-
tein calorie malnutrition, amino acid metabolism,
protein turnover, digestion and absorption, hor-
monal control of protein metabolism, develop-
mental 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, antivita-
mins, 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. Varia-
ble 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 his-
tory, economic geography, anatomy and physi-
ology, nutrition and feed usage, and systems of
commercial livestock and poultry production.

213. Animal Science Seminar

Fall. 1(2-0)
Animal science industries. Industry representa-
tives 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. Sta-
tistical tools used in animal breeding. Effect of
selection and mating systems on animal popu-
lation.

525. Animal Nutrition

Winter. 5(4-2) BCH 401.
Principles of nutrition. Nutrients and their me-
tabolism. Nutritive requirements for mainten-
ance, 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 de-
partment.*
Nutrition basic to animal feeding. Application of
chemistry and physiology to nutrition. Nutrient
requirements for normal body functions. Tech-
niques 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 quanti-
tative or population genetics.
Genetic expectations in random mating and in-
bred populations. Estimation of genetic param-
eters. 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 po-
sition of man in the animal kingdom, the
genetic mechanisms of evolution, human begin-
nings and the fossil record, racial evolution and
racial types among modern man, the anticipation
of culture among other animals and the devel-
opment 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.

IDC. Resource Ecology and Man

For course description, see Interdisci-
plinary 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.

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

For course description, see Interdisci-
plinary 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.