

**AGRICULTURAL ENGINEERING
TECHNOLOGY**

See Agricultural Engineering.

**AGRICULTURE AND NATURAL
RESOURCES ANR**

**College of Agriculture and Natural
Resources**

220. Plants and Their Environment
*Winter. 3(3-0) Interdepartmental with
and administered by the Department of For-
estry.*

Relationships between plants and fundamental climatic, edaphic, and biotic factors; structure and function of different ecosystems in relation to environmental factors.

**275. Exploring International
Agriculture**
Spring. 3(3-0)

Exploration of overseas assignments with international agencies; potential world food actualities and potentialities; special problems of the tropics compared with those in temperate regions.

280. Selected Topics
*Fall, Winter, Spring, Summer. 1 to 4
credits. May reenroll for a maximum of 6 credits
if different topics are taken. Approval of depart-
ment.*

341. Energy in the Food System
*Winter. 3(3-0) Juniors or approval of
department. Interdepartmental with and ad-
ministered by Agricultural Engineering Tech-
nology.*

Energy flow in the food system. Conversion principles and processes—solar, engines, fertilizers, pesticides, electrical, waste heat utilization. Environmental considerations, economic and social implications related to the food system. Alternatives. Conservation.

**350. Leadership Development for
Agriculture and Natural Resources**
*Winter, Spring. 3(3-0) May reenroll for
a maximum of 6 credits. Approval of depart-
ment.*

Leadership development. Preparation for community leadership. Firsthand look at social, economic, and political problems. Series of seminars, interviews, field trips. Emphasis on awareness, action, and involvement. Field trips required.

**399. Professional Internships in
Agriculture and Natural Resources**
*Fall, Winter, Spring, Summer. 6 to 12
credits. May reenroll for a maximum of 12 cred-
its. Juniors and approval of department.*

Professionalized experiences in a student's major. Supervision and evaluation by faculty and cooperating agencies.

410. Environmental Toxicology
*Winter. 4(4-0) B S 212, BCH 401. Inter-
departmental with and administered by the
College of Natural Science.*

Fate and effects of toxic chemicals in soil, plants, wildlife, and aquatic systems. Interactions between chemicals and the environment which influence their fate and ecological importance.

**425. Agriculture and Natural Resources
Seminar**
Spring. 2(2-0)

Current agricultural, natural resources, and environmental problems and solutions as presented by discussion leaders from various disciplines, arranged by undergraduate students.

**445. Pest Management: Pesticide
Chemistry and Application
Systems for Plant Protection**
*Fall. 5(3-4) CEM 143, ENT 425, HRT
402 or CSS 402, BOT 405 or concurrently or
approval of instructor. Interdepartmental with
and administered by the College of Natural Sci-
ence.*

A broad overview of pesticide chemistry, efficient usage, environmental fate, legislation and application techniques.

**446. Pest Management: Biological
Systems for Plant Protection**
*Fall. 3(3-0) ENT 425, HRT 402 or CSS
402, BOT 405 or concurrently or approval of
instructor. Interdepartmental with and admin-
istered by the College of Natural Science.*

Management of plant pests utilizing host resistance, cultural practices, legislation, and biological systems.

**447. Pest Management: Systems
Management for Plant Protection**
*(ANR 444.) Winter. 4(3-2) NSC 445,
NSC 446 or approval of instructor. Interdepart-
mental with and administered by the College of
Natural Science.*

Designed to integrate knowledge and improve ability in arriving at pest management decisions of varying complexity involving the fields of agronomy, wildlife, horticulture, entomology, and plant pathology.

450. Natural Resource Administration
*Winter. 4(4-0) Seniors; not open to for-
estry majors. Interdepartmental with the de-
partments of Fisheries and Wildlife, Forestry,
Park and Recreation Resources and Resource
Development. Administered by the Department
of Forestry.*

Concepts and methods of administering wildland properties. The legal, economic and social environment. Benefit-cost analysis of management changes. Unit organization, personnel management and accounting. Presents a systems view of administration.

455. Natural Resource Economics
*Fall. 4(4-0) Approval of department.
Interdepartmental with the departments of
Fisheries and Wildlife, Forestry, Park and Rec-
reation Resources and Resource Development.
Administered by the Department of Forestry.*

Basic economic and political principles and techniques that govern the production and consumption of forest land products, including basic forest valuation procedures.

**462. Agricultural and Rural
Development in Developing
Nations**
*Fall. 3(3-0) PAM 201 or EC 201; PAM
260 recommended. Interdepartmental with
Public Affairs Management, and Food Systems
Economics and Management. Administered by
Food Systems Economics and Management.*

Traditional agricultural systems and the incentive environment for economic growth in rural areas. Adjustment to technological, institutional and human change. Strategies for rapid agricultural transformation.

**475. International Studies in
Agriculture and Natural Resources**
*Spring, Summer. 3 to 9 credits. Ap-
proval of college.*

Study-travel experience emphasizing contemporary problems affecting agriculture in the world, national, and local communities. Field trips, case studies, interviews with leading experts, government officials, community leaders. Supervised individual study.

480. Selected Topics
*Fall, Winter, Spring, Summer. 1 to 4
credits. May reenroll for a maximum of 9 credits
if different topics are taken. Approval of depart-
ment. Juniors.*

Exposition of special topics in agriculture and natural resources.

**491. Natural Resources and Modern
Society**
*Spring. 3(3-0) Juniors. Interdepart-
mental with the departments of Forestry, and
Resource Development. Administered by the
Department of Forestry.*

A survey of the social and economic significance of natural resources in modern industrial and urban society. Current problems of natural resources management and use are examined in terms of the society in which they exist.

**821. Agricultural Education in Rural
Development**
*(ED 821F.) Winter. 3(3-0) Approval of
department.*

Agricultural education at various levels and in different forms for rural development. Formal and non-formal education: planning, conducting and evaluating. Case studies from selected developing countries.

AMERICAN STUDIES AMS

College of Arts and Letters

301. Issues in American Civilization
*Fall. 3(3-0) May reenroll for a maxi-
mum of 9 credits. Sophomores.*

Selected issues in American life past and present, with materials drawn from such disciplines as history, social sciences, philosophy, literature and the arts. Topics vary.

**378. Popular Culture and Technical
Change**
*Winter. 4(4-0) Juniors or approval of
department. Interdepartmental with and ad-
ministered by Lyman Briggs School.*

Interrelationships among elements of mass culture and technical change. Introduction to relevant research methods.

410. Perspectives in American Studies
*Winter. 3(3-0) Juniors, approval of
American Studies adviser.*

Methods and significant works, for majors in the American Studies program. Offered by members of the relevant departments.

411. Problems in American Civilization
*Spring. 3(3-0) May reenroll for a maxi-
mum of 6 credits if different topic is taken. Jun-
iors, approval of American Studies adviser.*

Seminar approach to selected problems in American life employing the objectives and approaches of interdisciplinary studies. Offered by members of relevant departments, for majors in the American Studies program.