FOOD SYSTEMS ECONOMICS AND MANAGEMENT

See Agricultural Economics

FOREIGN LANGUAGES

See German and Russian, Linguistics and Oriental and African Languages, and romance and classical languages.

FORESTRY

College of Agriculture and Natural Resources

In 305, 306, 402 and 430, field trips are scheduled for several consecutive days away from the campus for integrated field experience, primarily in the second half of the spring term of the junior year, so that these courses must be taken concurrently. This precludes enrollment in other courses during that term. The approximate cost of these field trips is $230.

IDC. Resource Ecology and Man

For course description, see Interdisciplinary Courses.

202. Introduction to Forestry

Fall, Spring. 3(3-0)

Forestry in its broadest sense, including: historic development, forest growth, protection and management, products, national and world economy and policy. Emphasis on multiple use concepts. One-day field trip required.

204. Forest Vegetation

Fall, Spring. 3(3-4)

Nomenclature, classification, and identification of important trees, shrubs, and herbaceous plants of forest and field.

220. Plants and their Environment

Winter. 3(3-0) Interdepartmental with Agriculture and Natural Resources.

Fundamental ecological relationships between various climatic, edaphic and biotic environmental factors of the ecosystem and plant response, including structure, function and evaluation of species.

301. Quantitative Methods for Natural Resources

Winter. 4(3-2) MTH 100 or MTH 111.

Collection and analysis of information pertaining to natural resources. Survey design, field procedures, equipment, and analytical techniques.

304. Forest Ecology

Fall. 4(3-3) For 204; BOT 205; CSS 210 or concurrently.

Forest is viewed as a biological community. Forest site relationships are quantified by examining the existing physical environment and relating it to the forest species occupying that community.

305. Silviculture

Spring. 4(3-3) For 204, For 304. Must be taken concurrently with For 306, For 402 and For 430.

Natural and artificial forest reproduction methods; intermediate stand treatments; non-timber aspects of silviculture; field studies of silvicultural methods. Extended field trips required.

306. Forest Fire Protection and Use

Spring. 3(3-2) Juniors or approval of department. Must be taken concurrently with For 305, For 402 and For 430.

Causes and effects of forest fires. Combustion, fire behavior and fire weather. Prevention and control planning and techniques. Fire in forest land management. Extended field trips required.

309. Wood Technology

Fall. 4(3-3)

Structure of wood. Mechanical and physical properties of wood. Wood anatomy and relation to growth.

402. Forest Inventory

(302.) Spring. 4(3-4) For 301. Must be taken concurrently with For 305, For 306 and For 430.

Field and office techniques of forest inventory, with primary emphasis on timber resources. Extended field trips required.

409. Forest Hydrology

Fall. 3(3-0) CSS 210.

Hydrologic cycle, with emphasis on soil, water and ground water regimes; instrumentation and measurement of the various components. Effects of forest management on watersheds and water yields.

410. Forest Tree Improvement

Fall. 3(2-2)

Distribution of genetic variation in natural tree populations. Introduction, selection, progeny testing, species hybridization, and polyploidy to obtain superior tree populations.

411. Tree Physiology

Winter. 3(3-0) BOT 301.

The fundamental principles of plant physiology with particular reference to the growth and development of woody plants, and consideration of the influence of genetic and environmental factors on physiological processes in trees.

424. Forest Soils

Spring. 4(3-3) For 220 or For 304, CSS 210. Interdepartmental with the Department of Crop and Soil Sciences.

Interrelationships of forest site and the growth of forests. Classification and productivity of forest soils. Effects of silvicultural and forest management practices on the soil. Two-day field trip required.

430. Timber Harvesting and Utilization

Spring. 4(3-3) For 309. Must be taken concurrently with For 305, For 306 and For 402.

451. Finishing, Preservation and Drying of Wood
Winter. 3(3-0) FOR 369.
Properties, selection, application of decorative and protective coatings, wood preservatives and fire retardants. Air and kiln drying of lumber.

455. Law and Resources
Spring. 3(4-0) RD 417 or BOA 440. Interdepartmental with and administered by the Department of Resource Development.
Legal theories, cases, statutes and constitutional considerations are applied to natural resource utilization. Private and public property interests in natural resources are illustrated through case studies of use conflicts.

461. Urban Forestry
Spring. 3(3-0) FOR 460 or approval of department.
Principles of urban forest management: organizational, legal, economic, cultural and environmental inventories, utility forestry and commercial arboriculture. Field trips required.

465. Forest and Wood Science Problems
Fall, Winter, Spring, Summer. 1 to 5 credits. Seniors with a 2.90 average, or approval of department. Special problems course for students qualified for advanced study in some phase of forestry or wood science.

491. Natural Resources and Modern Society
Spring. 3(4-0) Juniors. Interdepartmental with the Department of Resource Development and Agriculture and Natural Resources.
A survey of the social and economic significance of natural resources in modern industrial and urban society. Current problems of natural resource management and use are examined in terms of the society in which they exist.

504. Forest Ecology
Winter. 3(3-0) Approval of department.
Theories, methods of analysis, and discussion of current investigations of energy, nutrients, and biomass dynamics in forest ecosystems.

507. Special Problems
Fall, Winter, Spring, Summer. 2 to 5 credits. May reenroll for credit with a maximum of 10 credits. Approval of department.
Advanced study in administration, biometrics, photogrammetry, dendrology, silviculture, management, economics, ecology, genetics, arboriculture, hydrology, soils, recreation, physiology, policy, entomology, products harvesting, wood preservation, timber mechanics, wood conversion, fire, range management, extension and pathology.

509. Natural Resource Economics
Winter. 3(3-0) Approval of department. Interdepartmental with the Department of Agriculture and Natural Resources.
Basic economic and political principles and techniques that govern the production and consumption of forest land products, including basic forest valuation procedures.

804. Forest Ecology
Winter. 3(3-0) Approval of department.
Theories, methods of analysis, and discussion of current investigations of energy, nutrients, and biomass dynamics in forest ecosystems.

825. Seminar
Winter. 1(1-0)
Critical study and discussion of advanced forestry topics.

830. Physiological Genetics
Winter. 3(3-0) Approval of department. Interdepartmental with the Department of Crop and Soil Sciences.
Physiological bases for genetic variation in higher plants including adaptive physiology, quantitative genetics, growth correlations, biochemical genetics, hybrid physiology, and geneology.

909. Timber Economics
Fall of odd-numbered years. 3(3-0)
FOR 457, FOR 506, EC 800, EC 801, EC 802.
Economic theory relevant to study of timber production, regional and national timber supply, demand and price, the effect of institutional factors, and other topics by review of past research.

910. Resource Economics Proseminar
Spring. 3(3-0) May reenroll for a maximum of 9 credits. Approval of department. Interdepartmental with the departments of Agricultural Economics and Resource Development.
A seminar wherein advanced graduate students in the fields of resource economics participate with faculty in the joint conduct of a major research project in resource economics and policy.

960. Simulation Models in Natural Resource Management
Winter of odd-numbered years. 3(3-0)
RD 855 and knowledge of FORTRAN programming or approval of department. Interdepartmental with and administered by the Department of Resource Development.
The role of simulation models in developing management strategies. Applications of computer simulation in natural resources. Modeling of decision systems in natural resources management.
806. Population and Quantitative Genetics

Spring (3-0) GEN 441 or approval of instructor.

606. Population and Quantitative Genetics

Gene action and its measurement, mating systems, and selection.

975. Least Squares Analysis and Linear Programming in Forestry Research

Fall of odd-numbered years. 4(4-0)

MTH 112, STT 423, CPS 110 or CPS 120.

976. Multivariate Methods in Forestry Research

Winter of even-numbered years. 4(4-0)

FOR 975 or approval of department.

999. Doctoral Dissertation Research

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

400. Genetics Seminar

Fall, Winter, Spring. 1(1-0) May re-enroll for a maximum of 12 credits. Approval of instructor.

College of Natural Science

GENETICS

College of Social Science

GEO

FRENCH

See Romance and Classical Languages

900. Genetics Seminar

Fall, Winter, Spring. 1(1-0) May re-enroll for a maximum of 12 credits. Approval of instructor.

800. Genetics Seminar

Fall, Winter, Spring. 1(1-0) May re-enroll for a maximum of 12 credits. Approval of instructor.

Students with special interests and abilities may study published literature in a selected genetics topic or they may carry on research in the laboratory on a selected subject in collaboration with genetics faculty.

890. Selected Topics in Genetics

Fall, Winter, Spring. 2 to 5 credits. May reenroll for a maximum of 9 credits. ZOL 441 and approval of instructor.

Topics will be selected from molecular genetics, physical and regulatory genetics, quantitative genetics, evolution, radiology and mutagenesis, microbial genetics, somatic cell genetics, behavioral genetics, and human genetics.

999. Doctoral Dissertation Research

Fall, Winter, Spring, Summer. 3 to 12 credits. Major's approval of instructor.

Research for the doctoral dissertation in genetics.

GEOGRAPHY

College of Social Science

Courses are classified as follows:

Cultural—170, 401, 404, 401, 401

Economic—213, 406, 413, 413, 454, 806, 809, 853, 905

Field Methods—415, 815

Geographic Education—458, 870

Historical—310, 810, 910

Independent Research—400H, 411, 419, 818, 899, 915, 950

Medical—470, 870, 905

Physical—206, 206L, 429, 430, 431, 432, 451, 801, 929

Political—170, 416, 909

Population—215, 320, 825, 831

Quantitative Methods—247, 829, 811

Regional—294, 300, 310, 815, 319, 321, 323, 340, 324, 350, 360, 362, 363, 364, 812, 912

Recreational and Environmental—100, 309, 929

Theory and Philosophy—150, 280, 435, 829, 825, 826, 827

Urban—439, 401, 402, 403, 466, 806

Visual Media and Techniques—122, 223, 224, 424, 426, 446

100. Man, Location and Environment

Fall, Winter, Spring. 3(0-0)

Concepts, theory, and methods of modern Geography.

122. The World of Maps

Fall, Spring. 3(0-0)

Discussion of types, practical applications, and sources of maps.

150. Geography of Selected Current Problems

Fall, Winter, Spring. 2(2-0)

The geographic perspective is used to examine U.S. and world problems of major concern such as international conflicts, environment quality, spatial change, and economic development.

170. Future Worlds (S)

Fall, Spring, Summer. 3(0-0)

Geographical approach to environmental, biological, economic, social and political problems facing mankind between now and year 2000.

IDC. Resource Ecology and Man

For course description, see interdisciplinary Courses.

201. Geography of Culture

Fall, Winter, Spring. 4(3-0)

A systematic discussion of cultural geography, stressing cultural processes and relationships.

204. World Regional Geography (S)

Fall, Winter, Spring. 4(4-0)

Man's relationship with natural and cultural environments.

206. Physical Geography

Fall, Winter, Spring. 4(4-0)

Analysis of weather, climate, landforms, soils, water and biotic factors of man's environment, including their spatial, genetic, and functional interrelationships.

206L. Physical Geography Laboratory

Fall, Winter. (10-2) GEO 206 or concurrently

Laboratory study of geographic aspects of map interpretation, aerial photographs, weather, climate, soils, landforms, and vegetation.

IDC. Introduction to Latin America I

For course description, see interdisciplinary Courses.

213. World Economic Geography

Fall, Winter, Spring. 4(4-0)

Emphasis on distribution of natural resources, industries and service activities, stressing factors of location and economic concepts of locational change.

215. World Food Issues

Spring. 3(3-0) Interdepartmental with Food Science.

Food resources as related to world distributions of population, soil, water, fuel and minerals. Special attention to urbanization, irrigation, and future food needs and global constraints.

223. Introduction to Cartography

Fall, Winter, Spring. 4(2-4)

Principles and techniques of constructing maps and other geographic devices. Types of map reproduction.

224. Remote Sensing: Airphoto Interpretation

Fall, Winter. 4(2-4) Sophomores.

Use of aerial photographs in the identification and interpretation of physical and cultural features of the terrestrial environment. Includes principles of photogrammetry, and stresses application and practice.

IDC. Continuing Revolution in China: Problems and Approaches

For course description, see interdisciplinary Courses.

280. Perspectives on Geography

Spring. 2(2-0)

Introduction to the profession of geography for majors.

300. North America

Fall, Winter, Summer. 4(3-0)

Human and physical geography of North America, north of the Mexican border.