

- 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.

- 940. Theoretical Population Genetics**  
Winter. 4(4-0) MTH 113, STT 422 or approval of department. Interdepartmental with the departments of Crop and Soil Sciences, and Horticulture.

Discussion of mathematical theories in population genetics and experimental works on natural and laboratory populations.

- 941. Quantitative Genetics in Plant Breeding**

Spring of even-numbered years. 4(4-0) STT 423, CSS 823 or approval of department. Interdepartmental with the departments of Crop and Soil Sciences, and Horticulture. Administered by the Department of Crop and Soil Sciences.

Calculation and implication of genetic parameters. Linkage. Coancestry and inbreeding. Covariance between relatives. Heritability and selection. Genotype by environment interaction. Emphasis on relationship of quantitative genetics to plant breeding.

- 944. Physiological Genetics**

(830.) Winter of odd-numbered years. 3(3-0) BOT 413; CSS 821. Interdepartmental with the departments of Crop and Soil Sciences, and Horticulture.

Control of variation in higher plants including adaptive physiology, quantitative genetics, growth correlation, biochemical genetics, hybrid physiology, and geneecology.

- 960. Simulation Models in Natural Resource Management**

Winter of odd-numbered years. 3(3-0) R D 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.

- 976. Multivariate Methods in Forestry Research**

Winter of even-numbered years. 4(4-0) MTH 334, STT 423.

Application of multivariate techniques such as principal components, canonical analysis, factor analysis, and clustering to problems in forestry research. Case studies drawn from several forestry disciplines.

- 999. Doctoral Dissertation Research**

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

## GENERAL BUSINESS AND BUSINESS LAW GBL

(Name change effective July 1, 1984. Formerly the Department of Business Law and Office Administration.)

### College of Business and Graduate School of Business Administration

- 341. Survey of Business Law**

Fall, Winter, Spring. 4(4-0) Juniors. Not open to students with majors in the College of Business.

Historical development of the law; courts, court procedures and civil remedies, torts, crimes; contracts, agency, sales, negotiable instruments, real and personal property, including bailments and liens. Textbook and lecture rather than case approach.

- 345. Business Ethics**

Fall. 4(4-0) Juniors. Interdepartmental with and administered by the Department of Philosophy.

Ethical dimensions of the relationships between a business and employees, consumers, other businesses, society, government, and the law. Readings from philosophical and business sources.

- 400H. Honors Work**

Fall, Winter, Spring, Summer. 1 to 15 credits. Approval of department.

Independent and informal study in law, office administration or business communications.

- 430. Law and Society**

Fall, Winter, Spring, Summer. 4(4-0) Seniors or approval of instructor.

Legal reasoning and legal institutions. Court systems and court procedures. Contracts and sales. Sources of and limits on legislative and judicial authority. Property, torts, and crimes.

- 431. Law and Business**

Fall, Winter, Spring, Summer. 4(4-0) GBL 430.

Law of business associations, administrative agencies and process, the constitution and the business enterprise, liability to consumers, securities, regulation of business conduct and structure, business ethics and social responsibility.

- 447. Hotel Law**

Winter, Spring. 4(4-0) GBL 430.

Legal aspects of the hospitality industry.

- 450. Contracts and Business Organizations**

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

Law of contracts, including concept of freedom of contract and limitations, agency, and business organizations, including sole proprietorships, partnerships, and corporations. Accountant's professional responsibility.

- 451. Commercial Transactions**

Fall, Winter, Spring. 4(4-0) GBL 450.

Law of sales, commercial paper, secured transactions, negotiable instruments, documents of title, and debtor-creditor relationships.

- 468. Field Studies**

Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 8 credits. Approval of department.

Planned program of observation and work in selected business firms. Analysis and reports.

- 805. Business Ethics**

Spring. 4(4-0) Graduate student in the College of Business or approval of instructor. Interdepartmental with and administered by the Department of Philosophy.

Ethical dimensions of such topics as corporate responsibility, preferential hiring, profit and taxation, deception and bribery, self-regulation versus government regulation, "whistleblowing", and advertising. Readings from philosophical and business sources.

- 848. The Legal Environment of Business**

Fall, Summer. 4(4-0)

Critical examination of the environment in which business operates. Analysis of the component elements of the legal environment of business and the structural framework in which law functions.

- 878A. Seminar in Business Law**

Winter. 4(4-0) GBL 848 or approval of department.

Contracts, sales, secured transactions and consumer legislation viewed from the judicial, legislative and executive vantage points.

- 878B. Seminar in Business Law**

Spring. 4(4-0) GBL 848 or approval of department.

Agency, partnerships and corporations, viewed from legislative, judicial and executive vantage points, as they affect entrepreneurial decision making.

- 890. Special Problems**

Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll for a maximum of 8 credits. Approval of department.

## GENETICS GEN

### College of Natural Science

- 800. Genetics Seminar**

Fall, Winter, Spring. 1(1-0) May reenroll for a maximum of 12 credits. Approval of director.

Student seminar to cover genetics subjects not considered in formal courses. Course is also intended to give students experience in reviewing and organizing literature in a subject, and orally presenting and defending the analysis.

- 842. Chromosome Structure and Genetics**

Winter of even-numbered years. 4(4-0) Introductory genetics course. Interdepartmental with the departments of Botany and Plant Pathology, and Zoology.

Mechanisms of mitosis and meiosis, classical and molecular genetics of chromosome structure, alterations in chromosome number and structure, transposable elements, meiotic drive.

- 844. Plant Organelle Genetics**

Winter of odd-numbered years. 3(3-0) Approval of department. Interdepartmental with and administered by the Department of Botany and Plant Pathology.

Organization, structure, function, heredity, molecular biology and manipulation of chloroplasts and mitochondria. Biological interactions between the nucleus and organelles.

## FRENCH

See Romance and Classical Languages.

## Description — Genetics

### of Courses

**856. Plant Genetics and Molecular Biology**  
*Spring of even-numbered years. 3(3-0)*  
Approval of department and a course in introductory genetics. Interdepartmental with the departments of Biochemistry, and Botany and Plant Pathology. Administered by the Department of Botany and Plant Pathology.  
Recent advances in genetics and molecular biology of higher plants.

**880. Special Problems**  
*Fall, Winter, Spring, Summer. 1 to 4 credits. May reenroll 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, Summer. 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, physiological genetics, population 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. Majors.*  
Research for the doctoral dissertation in genetics.

## GEOGRAPHY GEO

### College of Social Science

**100. People, Location and Environment (S)**  
*Fall, Winter, Spring. 4(4-0) Not open to Geography majors.*  
Relationships between people and environments, their spatial consequences and resulting regional structures across the earth's surface.

**122. The World of Maps**  
*Fall, Winter, Spring. 3(3-0)*  
Discussion of types, practical applications, and sources of maps. Map reading skills:

**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.

**201. Geography of Culture**  
*Fall, Winter, Spring. 3(3-0)*  
A systematic discussion of cultural geography, stressing cultural processes and relationships.

**203. Resource Ecology**  
*(IDC 200.) Fall, Winter, Spring, Summer. 3(3-0) Interdepartmental with the departments of Fisheries and Wildlife, Forestry, Resource Development, and Zoology. Administered by the Department of Fisheries and Wildlife.*  
Basic concepts of ecology which are the unifying basis for resource management, conservation policy and the analysis of environmental quality. Extensive use of guest lecturers.

**204. World Regional Geography (S)**  
*Fall, Winter, Spring, Summer. 4(4-0)*  
Human relationships with natural and cultural environments.

**206. Physical Geography**  
*Fall, Winter, Spring, Summer. 4(4-0)*  
Analysis of weather, climate, landforms, soils, water and biotic factors of the human environment, including its spatial, genetic, and functional interrelationships.

**206L. Physical Geography Laboratory**  
*Fall, Winter, Spring. 1(0-2) GEO 206 or concurrently.*

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

**213. World Economic Geography**  
*Fall, Winter, Spring, Summer. 4(4-0)*  
Emphasis on distribution of natural resources, industries and service activities, stressing factors of location and economic concepts of locational change.

**223. Introduction to Cartography**  
*Fall, Spring. 4(2-4)*  
Principles and techniques of constructing maps. Mapping methods and mapping decisions emphasized.

**224. Remote Sensing: Airphoto Interpretation**  
*Fall, Winter, Spring. 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. Introduction to Contemporary China**  
*For course description, see Interdisciplinary Courses.*

**IDC. Contemporary Japan**  
*For course description, see Interdisciplinary Courses.*

**300. North America**  
*Fall, Winter, Spring. 3(3-0)*  
Human and physical geography of North America, north of the Mexican border.

**309. Geography of Recreation**  
*Winter. 3(3-0)*  
Natural and cultural factors influencing the use of space for recreation. Emphasis on recreation land use in the United States and current problems and conflicts.

**310. Historical Geography of the United States**  
*Spring. 3(3-0)*  
Reconstruction of geographies of the United States as they existed in the past.

**315. South America**  
*Spring. 3(3-0) Sophomores or approval of department.*  
Regional geography of South America with special attention to contemporary geographic problems.

**316. Middle America**  
*Winter. 3(3-0) Sophomores or approval of department.*  
Interpretation of physical and cultural environment of Mexico, Central America, and the West Indies. Special attention to contemporary geographic problems.

**320. Geography of Population**  
*Fall. 3(3-0)*  
Relationship of the size, composition, and distribution of population to geographic variations in the nature of places.

**321. Africa**  
*Fall. 3(3-0) Sophomores or approval of department.*  
Emphasis on continent south of Sahara: environments, peoples, problems, and potentials.

**322. Africa: Contemporary Problems**  
*Spring. 3(3-0) Sophomores or approval of department. GEO 321 recommended.*  
Major development problems examined from environmental, historical, economic, and social perspectives.

**340. Western Europe**  
*Winter. 3(3-0) Sophomores or approval of department.*  
Geographical analysis of physical and human character and resources of Western Europe (Scandinavia, British Isles, Benelux, Germany, France and Switzerland). Emphasis on major problems.

**IDC. Contemporary South Asia**  
*For course description, see Interdisciplinary Courses.*

**342. Eastern and Southern Europe**  
*Spring. 3(3-0) Sophomores or approval of department.*  
A geographical analysis of countries of Eastern and Southern Europe with emphasis on economic, political, social and ethnic problems.

**351. Weather and Climate**  
*Fall. 3(3-0)*  
Non-mathematical treatment of general weather processes and patterns, including surface and middle atmospheric (jet stream) features, with emphasis on the U.S.

**360. The Soviet Union**  
*Fall. 3(3-0) Sophomores or approval of department.*  
A geographical analysis of the Soviet Union and its inhabitants with emphasis on economic, social, political and ethnic problems.

**364. Japan**  
*Fall. 3(3-0)*  
Spatial patterns and processes of Japan's physical and human geography, with emphasis on development problems of the nation, especially since 1950.

**365. China**  
*Winter. 3(3-0)*  
The physical and human geography of China and their relationship to the development problems of the country, with emphasis on the post-1949 period.

**400H. Honors Work**  
*Fall, Winter, Spring. 1 to 16 credits. Approval of department.*