

- 875. Individual Research Projects**
Fall, Winter, Spring, Summer. Variable credits. Approval of department.
- 877. Seminar in Complex Organizations**
Winter. 4(4-0) 321 or 477 or approval of department.
Major theoretical and methodological problems in studying complex organizations. Using a comparative approach, special emphasis will be given to the design and execution of empirical research.
- 880. Individual Readings**
Fall, Winter, Spring, Summer. Variable credits. Approval of department.
- 884. Seminar in Social Stratification**
Spring. 3(3-0) Approval of department.
Theory and research in societal systems of stratification. The articulation of stratification orders to institutional structures. Research design in stratification studies.
- 895. Computer Simulation of Social Behavior**
Winter. 4(3-2) Approval of department.
Survey of research in the simulation of human behavior. Training in the basic technological and conceptual tools necessary for independent research in the area. Working in detail through an operating large simulation program to appreciate how the tools apply in practice. Designing and writing a simulation program.
- 899. Research**
Fall, Winter, Spring, Summer. Variable credit. Approval of department.
- 901. Educational Sociology: Seminar (901D.)** Fall, Winter. 3 to 4 credits. Approval of department. Interdepartmental with the College of Education.
- 930. Sociology of Work**
Spring. 4(4-0) 310, 430, 884 or approval of instructor.
Theory and research problems in occupational structure, work settings, functions and meanings of work, occupational mobility and career patterns.
- 940. Topics in Mathematical Sociology**
Fall, Winter, Spring. 5(5-0) Approval of department.
Seminar in the mathematical analysis of selected topics in sociology, such as, kinship systems, stratification systems, formal organization, social mobility, population and migration, social influence, mass behavior.
- 941. Human Ecology**
Fall. 4(4-0) Approval of department.
The analysis of population aggregates in terms of their place in a total ecosystem, defined as the structure of interdependencies involving population, environment, technology, and patterns of organization.
- 942. Urban Theory**
Winter. 4(4-0) 941; 812 and 967 recommended.
Examination and critique of competing theories of urban structure and process: theories of evolution of human settlement, classic location theories, human ecology, communication and system theories.
- 952. Techniques of Population Analysis**
Spring. 4(3-1) 420; STT 422; or approval of department.
Techniques for the analysis of population size and composition, mortality, fertility, migration, population estimates and forecasts, population and labor force distribution, and selected techniques of ecological analysis.
- 953. Experimental Methods**
Winter. 4(3-2) 860.
The design and analysis of social experiments, with special emphasis on laboratory investigation of social processes.
- 954. Social Survey Methods**
Spring. 4(4-0) 860.
The design and analysis of theoretically oriented survey research. Sampling, questionnaire construction, interviewing, and data processing.
- 955. Field Research Methods**
Spring. 4 credits. 312; approval of department.
An overview of the design and execution of social research.
- 964. Seminar in Small Group Research**
Fall. 3 to 5 credits. Thirty graduate credits including 811, or approval of department.
The experimental and theoretical investigation of organizational processes in small groups.
- 966. Social Structure and Personality**
Winter. 3 credits. 811 or approval of department.
Theoretical and research problems in analysis of influence of social positions on personality, and influence of personality and social factors in allocating persons to different social positions. Stress will be placed upon quantitative research and contemporary theories of social structure and personality.
- 967. Introduction to Formal Theory in Sociology**
Spring. Variable credit. 966.
Analysis of the structure of formal theory in sociology and of the problems of interpretation and verification of deterministic and probabilistic theories. Examination of specific practices of theory construction.
- 968. Symbolic Interactionism: Theory and Research**
Spring. 1 to 4 credits. 811; social psychology concentration.
Theoretical and research problems within the framework of symbolic interaction. The socialization process and the development, maintenance, and enhancement of the self. Critique of the literature and proposals for new research directions.
- 970. Theories of Conflict and Change**
Fall. 3(3-0) Approval of department.
Major theoretical European and American contributions to the study of conflict and change.
- 971. Race, Politics, and Social Structure**
Winter. 3(3-0) Approval of department.
Racism, including the social mechanisms by which it is created, maintained, and lessened, and the variant forms of political action related to racism and social structure.
- 972. War and International Conflict**
Spring. 3(3-0) Approval of department.
Causes, structure and patterns of wars between societies, revolutions within societies and the relation of war and revolution to cross-cultural conflict and change.
- 973. Values, Crises and Utopias in a Post-Modern Society**
Fall. 3(3-0) Approval of department.
Macro-sociological approach to study of social problems and stresses; planned change; and conscious improvement of modern societies.
- 976. Contemporary Social Systems**
Winter. 4 credits. 311 or approval of department.
Comparison and analyses of concepts, conceptual schemes and theories of outstanding social theorists in relation to modern research.
- 978. Comparative Rural Social Organization**
Spring. 4 credits.
Structure and function of social organizations ranging from societies to small groups. The comparative approach will be used in studying phenomena involved in the transitions from agrarian to industrial societies.
- 981. Comparative Sociology**
Fall. 3 or 4 credits. Doctoral student in sociology; completion of core courses.
Macro-sociological studies of societies. The relationship of the whole to the varied parts of societies, the connection between societies, and the patterns of change in different societies. The development of research with respect to the cross-cultural study of social structures, social institutions, and social systems.
- 982. Comparative Social Psychology**
Winter. 3 or 4 credits. 981.
Social psychological research problems involving a comparative methodology. Social psychological functions of education, mobility, mass media use, etc. Comparative study of the social psychology of modernization.
- 983. Comparative Research Methods**
Spring. 3 or 4 credits. 981.
Sampling problems, data collection strategies, problems of translation and concept equivalence. Management, analysis and interpretation of cross-cultural data.
- 991. Research Seminar in Work and Organization**
Winter. 2(2-0) May re-enroll for a maximum of 6 credits. Thirty graduate credits and approval of instructor.
An advanced seminar devoted to analysis of designs used in current research in work and organization.
- 999. Research**
Fall, Winter, Spring, Summer. Variable credits. Approval of department.

SOIL SCIENCE SLS

College of Agriculture and
Natural Resources

- 202. Soils and Man's Environment**
Winter. 3(3-0) Interdepartmental with Fisheries and Wildlife and Resource Development Departments and Natural Resources.
Use of soil-water resources in a technological society as it relates to environmental quality. Nature of pollution problems and their possible solutions. Food production and world population.

**Descriptions — Soil Science
of
Courses**

210. Fundamentals of Soil Science
Fall, Winter. 5 credits.

Principles of the origin and development of soils. Relationship of properties to utilization and soil fertility to plant composition and animal health. Emphasis is placed on changing soils to serve man.

331. Soil Management
Winter. 4(4-0) 210.

Management of soils, drainage and irrigation, organic matter, tillage, rotation, conservation practices, soil reaction, lime, fertilizers, and micronutrients. Soil management vs. soil conservation. Special study in general crops, horticultural crops, greenhouse crops, turf and organic soils.

390. Soil Conservation and Land Use
Spring. 3(3-0) 210.

Soil resources of the United States and methods and plans for soil conservation including control of erosion. Interpretation of soil survey maps and land evaluation for farm crops, fruits, forestry, engineering and wildlife. Soil judging.

410. Special Soil Problems
Fall, Winter, Spring, Summer. 1 to 3 credits. May re-enroll for a maximum of 6 credits. Approval of department.

Independent study topics include: Special soil problems, fertility, geography, classification, conservation, soil management, organic soils and turfgrass soils.

420. Seminar
Winter. 1(1-0) May re-enroll for a maximum of 4 credits. Interdepartmental and administered jointly with Crop Science.

424. Forest Soils
Spring. 4(3-3) 210; FOR 220. Interdepartmental with and administered by the Forestry Department.

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. Soil Fertility and Fertilizers
Spring. 5(4-1) 210.

Assessment of the fertility of soils and alteration of fertility by the use of fertilizers, lime, manure, and cropping systems. The role of colloids in ion fixation and exchange. Soil and tissue tests. The history, technology, and use of fertilizers.

442. Soil Microbiology
Spring. 4(3-2) MPH 200; 301 or 401. Interdepartmental with and administered by the Microbiology and Public Health Department.

Major groups of microorganisms of importance in soils are studied with emphasis on ecological, biochemical, and physical aspects.

470. Soil Classification and Mapping
Fall, Spring; Summer of odd-numbered years. 4(0-3) 210 or approval of department.

Classification of soils. Interpretation of profiles in relation to land utilization for farm crops, fruits, forestry, highway-airfield engineering, county and township planning, urban development and wildlife. Preparation of land use reports based upon soil maps of assigned areas.

480. Soil Geography and Land Use of North America
Spring. 3(2-1) 210 or approval of department.

Properties, geography and dominant land use of the major soils of North America.

IDC. The Impact of Animal Resource Management Upon the World's Developing Nations
For course description, see Interdisciplinary Courses.

810. Advanced Studies in Soil Science
Fall, Winter, Spring, Summer. 1 to 5 credits. May re-enroll for a maximum of 6 credits. Approval of instructor.

Areas of work to include: advanced studies in soil science, chemistry, classification, conservation, fertility, geography, management, microbiology and biochemistry, micronutrients, micropedology, mineralogy, organic soils and physics.

820. Seminar
Winter, Spring. 1(1-0) May re-enroll for a maximum of 3 credits. Interdepartmental and administered jointly with Crop Science.

Studies and presentation of research in crop and soil sciences.

825. Clay Mineralogy
Winter. 4(3-4) 840, 850 or approval of department. Interdepartmental with and administered by the Geology Department.

Structures and properties of clays; their origins, occurrence, and utilization. Methods of studying clays including x-ray diffraction, differential thermal analysis, infrared absorption and other chemical and physical techniques.

830. Soil Fertility and Plant Nutrition
(930.) Winter of even-numbered years. 3(3-0) 430 or approval of department.

Fundamental concepts in soil fertility and mineral nutrition of plants; fate of nutrients applied to soils, nutrient uptake, translocation and utilization by plants; principles of laboratory, greenhouse and field research methods.

835. Organic Soils
Spring. 2(2-0) Approval of department.

Information pertinent to organic soils formation, classification, water control, conservation, plant nutrients, soil testing, commercial utilization, special crops, road construction, and real estate development will be presented. Field trip included.

840. Soil Physics
Fall. 5(3-6) 430; CEM 162 or approval of department.

Physical properties of soil (texture, structure, consistency, aeration, water, temperature, etc.), their quantitative measurement, and relation to plant growth, and agronomic and engineering practices.

850. Soil Chemistry
Winter. 5(3-6) 430; CEM 162, 383; or approval of department.

Chemistry of mineral weathering and soil formation, ion activities, ionic exchange and equilibrium reactions, soil pH, specific elements and their chemical analysis, and availability of nutrients to plants.

860. Soil Biochemistry
Spring of even-numbered years. 4 credits. 850; MPH 442.

Biochemical transformations of mineral nutrients and of natural and exotic organic materials in soils, considered in relation to chemical, physical and ecological systems in the complex soil environment.

870. Origin and Classification of Soils
Winter. 4(3-2) 470, 840, or approval of department.

Genesis, morphology and classification of major soils of the world. Relationships among soils in natural and cultural landscapes. How soil properties affect their use, management and conservation. Land classifications for various purposes.

880. Fertility and Management of Tropical and Subtropical Soils
Winter. 3(3-0) Approval of department.

Fertility and management of tropical and subtropical soils, the use of soil testing techniques with field studies to evaluate the fertility status and develop cropping systems for optimum production.

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

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

SOUTH ASIAN LANGUAGES

See Linguistics and Oriental and African Languages.

SPANISH

See Romance Languages.

STATISTICS AND PROBABILITY STT

College of Natural Science

Introductory courses are further classified as follows:

315, 316—sequence for undergraduate students of Business Administration.

201—survey course.

421, 422, 423—minimal sequence for students planning to use statistical methods in their research.

441, 442, 443—minimal sequence in theory of statistics. Qualified students should take the 861, 862, 863 sequence instead.

861, 862, 863—sequence for students preparing to do advanced work in statistics.

881, 882, 883—sequence in analytic probability theory and stochastic processes at graduate mathematics level.

201. Statistical Methods

Fall, Winter, Spring, Summer. 4(4-0) MTH 108 or 111. Primarily for students in psychology, sociology, anthropology, political science, economics, agriculture, and forestry. Credit may not be earned in more than one of the following: 201, 315, 421.

Descriptive statistics, elementary probability and combinatorics. The binomial distribution. Random variables, their expectations and variances. Central Limit Theorem, estimation and inference. Simple tests based on the binomial, normal, t, chi-square and F distributions.