GEOGRAPHY (GEOG)

GEOG 1000 FUNDAMENTALS OF WORLD REGIONAL GEOGRAPHY (3 credits)
An introductory course designed to acquaint students with the basic concepts of geography and to examine the interrelationships between people and their environments.
Distribution: Social Science General Education course and Global Diversity General Education course

GEOG 1020 INTRODUCTION TO HUMAN GEOGRAPHY (3 credits)
An introductory course which studies the geography of human activity through a topic by topic coverage of cultural traits and complexes that characterize different societies in the world. Major cultural topics of focus are the geography of population, agricultural systems, settlement, language, religion, political patterns, and man's ways of occupying urban and industrial space, among others.
Distribution: Social Science General Education course and Global Diversity General Education course

GEOG 1030 INTRODUCTION TO PHYSICAL GEOGRAPHY (4 credits)
This course is designed to acquaint the student with those processes active in shaping the surface of the earth and their relationship to one another. Includes the study of the atmosphere, river systems and hydrology, glaciers, climate, plate tectonics and landforms. Includes weekly laboratory sessions. One half-day field trip is included.
Distribution: Natural/Physical Sci General Education lecture&lab

GEOG 1050 HUMAN-ENVIRONMENT GEOGRAPHY (4 credits)
Learn about how sustainability and quality of life depend on human interactions with environmental phenomena such as Climate, Drought, Energy, Water, and Biodiversity. These interactions influence patterns of Urbanization, Technology, Consumption, and Agriculture that can improve or degrade quality of life and sustainability. Lecture emphasizes concepts for understanding and explaining human-environment interaction. Labs focus on fundamentals of physical earth science and how these offer possibilities for sustainable development.
Distribution: Natural/Physical Sci General Education lecture&lab

GEOG 1090 INTRODUCTION TO GEOSPATIAL SCIENCES (4 credits)
An introductory lecture/lab that has students learn and apply the principles of geospatial science within the frameworks of Geographic Information Science (GISc), Remote Sensing, Aerial Photography, Photogrammetry, Global Positioning Systems and Cartography/Visualization. The course focuses on the underlying scientific basis that is shared across all of these frameworks. Students will produce both maps and spatial analysis by the end of the course using all of the above frameworks.
Prerequisite(s)/Corequisite(s): Not open to non-degree graduate students.
Distribution: Natural/Physical Sci General Education lecture&lab

GEOG 2500 SPECIAL TOPICS IN GEOGRAPHY-GEOLGY (1 credit)
This course will provide for an in-depth study of a geographical or geological subject (as specified in the course subtitle). Various classes will be offered as sections of GEOG 2500/GEOL 2500, but will be separate from one another. Students may repeat GEOG 2500/GEOL 2500 as often as they like as long as no specific subject is duplicated.
Prerequisite(s)/Corequisite(s): Variable.

GEOG 2620 AERIAL PHOTOGRAPHIC INTERPRETATION (3 credits)
A practical application of various types of air photographs to the interpretation and analysis of both physical and cultural landscapes. Provides a fundamental tool for those interested in geography, geology, ecology and the environment. Recommended: Three hours in geography or geology.

GEOG 3000 TRAVEL STUDY IN GEOGRAPHY (3 credits)
The course examines the development of travel as a human endeavor and the process of planning a trip to a foreign country. A major objective of the course is the use and evaluation of Internet travel resources. This is accomplished by searching for relevant sources and assembling this material for presentation to others through the Internet.
Prerequisite(s)/Corequisite(s): An introductory course in geography is highly recommended along with a basic knowledge of online tools available through the Internet.

GEOG 3020 GEOGRAPHY OF AFRICA (3 credits)
The political, physical, economic and demographic features of Africa with emphasis on the effect of these factors in development. The major features of the broad geographical regions of Africa.
Prerequisite(s)/Corequisite(s): Junior

GEOG 3050 GEOGRAPHY IN FILM (3 credits)
Our views of the world are largely shaped by images that we see through popular media. This course examines contemporary films from around the world and how they depict places, the environment, and the lives of people. Critical and constructive examination of film will enable students to understand how images produce powerful ideological messages and how they shape the representation of entire cultures and people.
Prerequisite(s)/Corequisite(s): Junior standing. Introductory courses in regional, human, physical geography are highly recommended.

GEOG 3060 GEOGRAPHY OF MIDDLE AMERICA (3 credits)
A survey of the physical and cultural landscapes of the Caribbean, Mexico, and Central America. Attention is directed toward the impact of old world culture upon that of the new world, development of plantation economies, settlement of the frontier regions and the evolution of middle America as it exists today.
Prerequisite(s)/Corequisite(s): Junior

GEOG 3070 GEOGRAPHY OF LATIN AMERICA (3 credits)
This course surveys the physical and human environments of Latin America. Emphasis is placed upon the persistence of cultural factors in the use of land and on the difficulty in developing the various areas of Latin America.
Prerequisite(s)/Corequisite(s): Junior

GEOG 3080 EAST & SOUTHEAST ASIA (3 credits)
An introduction to the physical and cultural landscape of East (China, Japan, et al.), and Southeast Asia. Emphasis is placed upon the sequence of occupancy of the land, agrarian traditional economies and contemporary problems of development. Offered infrequently, on demand.
Prerequisite(s)/Corequisite(s): Junior

GEOG 3130 ECONOMIC GEOGRAPHY (3 credits)
A comprehensive study of production, consumption and exchange in primary, secondary and tertiary economic activities as related to spatial factors. (Cross-listed with ECON 3130)
Prerequisite(s)/Corequisite(s): MATH 1310 or MATH 1220, ECON 2200, and ECON 2220, each with a “C” (2.0) or better.

GEOG 3220 GEOGRAPHY OF EUROPE (3 credits)
A comprehensive examination of contemporary Europe from a geographical perspective. The course covers physical, cultural, political, urban, population and economic geography of Europe as well as the recent political and economic transformations in both Western and Eastern Europe.
Prerequisite(s)/Corequisite(s): GEOG 1000, GEOG 1020, or GEOG 1060 or GEOG 1070, and junior.

GEOG 3240 RUSSIA AND FORMER SOVIET REPUBLICS (3 credits)
A comprehensive examination of Russia and the former Soviet republics from a geographical perspective. The course is organized topically to cover physical, historical, political, urban, population and environmental geography. Special attention is given to geographical and environmental effects of the collapse of the former Soviet Union and the post-Communist transformation.
Prerequisite(s)/Corequisite(s): GEOG 1000 or GEOG 1020 or GEOG 3130 and junior, or permission of instructor.
GEOG 3330 UNITED STATES & CANADA (3 credits)
GEOG 3330: UNITED STATES & CANADA involves the analysis of the natural environment, historical development, economic systems, cultural patterns, and political structures of the Canada geographic region. The course provides a regional geographic perspective on these two countries by examining the expression of culture on the landscape. The course is designed for students wishing to gain regional geographical knowledge, while expanding their understanding of the interconnections among people and place within the United States and Canada.
Prerequisite(s)/Corequisite(s): Junior

GEOG 3440 NEBRASKA NATURAL RESOURCES MANAGEMENT (3 credits)
Method and actual application of managing natural resources in Nebraska, with emphasis on individual stewardship. The course will focus on the most current political, physical and economic developments in resources management.
Prerequisite(s)/Corequisite(s): Junior standing or permission of the instructor.

GEOG 3510 METEOROLOGY (3 credits)
A course designed to acquaint the student with the atmospheric environment. The course deals with atmospheric processes, their relationship and variation in both time and space, and their effect on the overall environment of the earth.
Distribution: Natural/Physical Sci General Education lecture

GEOG 3514 INTRODUCTION TO METEOROLOGY LABORATORY (1 credit)
This lab is designed to give students practice with atmospheric processes using scientific principles techniques, procedures and data associated with meteorology. Offered on-line only.
Prerequisite(s)/Corequisite(s): Concurrent or previous enrollment in GEOG 3510
Distribution: Natural/Physical Sci General Education lab course

GEOG 3530 CARTOGRAPHY AND GIS (2 credits)
An introduction to the concepts and techniques of map construction and computer-based geographic information systems. Topics include map scale, map projections, thematic cartography, history of cartography, computer mapping, and global positioning systems. Particular attention is given to the processing and presentation of spatial data by the computer and the distribution of maps through the Internet. (Cross-listed with GEOG 8535).
Prerequisite(s)/Corequisite(s): GEOG 1000 or GEOG 1020 and GEOG 1030 or GEOG 1050 a statistics course, and a programming course.

GEOG 3540 CARTOGRAPHY & GIS LAB (2 credits)
An introduction to the methods and techniques of map construction using both graphic design and geographic information system software. Topics include map design for both general reference and thematic maps. Particular attention is given to the processing, compilation, data classification, and symbolization of various types of spatial data. This course is the lab component of GEOG 3530.
Prerequisite(s)/Corequisite(s): Concurrent registration in GEOG 3530.

GEOG 3930 POLITICAL GEOGRAPHY (3 credits)
An introduction to the basic concepts and approaches in contemporary political geography at the global, national and local scales. Core topics to be examined include geopolitics, imperialism, war and peace, global ecopolitics, states, nationalism and electoral geography.
Prerequisite(s)/Corequisite(s): Junior

GEOG 4010 CONSERVATION OF NATURAL RESOURCES (3 credits)
A study of conservation techniques and problems with particular emphasis on the United States. Includes philosophical and economic aspects of resource management and a systematic survey of traditional conservation topics including soils, forestry, water resources and energy. (Cross-listed with GEOG 8016).
Prerequisite(s)/Corequisite(s): Three hours of geography.

GEOG 4020 QUANTITATIVE ANALYSIS IN GEOGRAPHY (3 credits)
An introduction to multivariate statistical analysis and spatial statistics. Emphasis will be placed on the nature of geographic data, sampling theory and design, descriptive and spatial statistics, inferential statistics, correlation and regression analysis. Students will receive hands-on experience working with statistical data sets, software and scientific visualization of numerical results. (Cross-listed with GEOG 8026).
Prerequisite(s)/Corequisite(s): MATH 1530 or equivalent

GEOG 4030 COMPUTER MAPPING AND VISUALIZATION (3 credits)
Computer techniques in the mapping and visualization of spatial data. Various forms of spatial data manipulation and computer graphic output techniques are examined. Particular attention is given to the the creation of maps for the internet and the incorporation of interaction and animation in their display. (Cross-listed with GEOG 8036).
Prerequisite(s)/Corequisite(s): GEOG 1090 or permission of instructor. Background in programming, particularly JavaScript, highly recommended.

GEOG 4040 GEOARCHAEOLOGY (3 credits)
The study of archaeology with the use of geological and geographical methodology. (Cross-listed with GEOG 8046).
Prerequisite(s)/Corequisite(s): Major in geology or geography; or major in anthropology, philosophy or religion with GEOG 1030, GEOG 1060 or GEOG 1070; or GEOL 1170 or GEOL 1010; or permission

GEOG 4050 GEOGRAPHIC INFORMATION SYSTEMS I (4 credits)
An introduction to the concepts and principles and geographic information systems (GIS). Emphasis will be placed on geographic data inputs, manipulation, analysis, and output functions. Exercises introduce students to GIS software and applications. Usually offered Fall, Spring, Summer. (Cross-listed with GEOG 8056).
Prerequisite(s)/Corequisite(s): GEOG 3530 and GEOG 3540 or 6 credit hours of GEOG course.

GEOG 4100 BIOGEOGRAPHY (3 credits)
This course is intended as an introduction to biogeography, the study of the distribution and evolution of organisms across space and through time. Usually offered every year. (Cross-listed with BIOL 4100, GEOL 4100, BIOL 8106, GEOG 8106, GEOL 8106).
Prerequisite(s)/Corequisite(s): BIOL 1450 and BIOL 1750 or GEOL 3100 or BIOL 3100, junior-senior.

GEOG 4120 URBAN GEOGRAPHY (3 credits)
This course is designed to serve as an introduction to the complex and dynamic urban system, including the physical, economic, political, cultural, social, and environmental forces that shape the form and function of cities, as well as how individuals and groups experience urban life. We make ample use of geographic information systems (GIS) to analyze cities and better understand crucial urban concepts such as urban growth and development, patterns of urban form, segregation and neighborhood change, economic specialization and agglomeration, urban sprawl, and environmental justice. (Cross-listed with GEOG 8126).

GEOG 4150 GEOGRAPHY, GENDER AND ENTREPRENEURSHIP (3 credits)
An advanced seminar focused on links among geography, gender and work, emphasizing leadership and entrepreneurship. The course considers theory and method in addition to empirical work. The nature of space, of gender, and of work, are examined. Topics include the gendering of work, the geography of entrepreneurship, gender and leadership.(Cross-listed with WGST 4150, ENTR 4150, ENTR 8156, GEOG 8156 and WGST 8156).
Prerequisite(s)/Corequisite(s): Junior, senior, or graduate standing, or permission of instructor.

GEOG 4210 BIODEGEOGRAPHY (3 credits)
This course is intended as an introduction to biogeography, the study of the distribution and evolution of organisms across space and through time. Usually offered every year. (Cross-listed with BIOL 4100, GEOL 4100, BIOL 8106, GEOG 8106, GEOL 8106).
Prerequisite(s)/Corequisite(s): BIOL 1450 and BIOL 1750 or GEOL 3100 or BIOL 3100, junior-senior.
GEOG 4160 URBAN SUSTAINABILITY (3 credits)
Using sustainability as a conceptual framework, students in this course will investigate a variety of social, economic, and environmental challenges facing cities of the 21st century. Topics and issues explored include urban growth and expansion, livability, equity & gentrification, energy use & production, urban farming, poverty, automobile & transportation, water security, urban pollution, and the role of cities in climate change. (Cross-listed with GEOG 8166)
Prerequisite(s)/Corequisite(s): Junior

GEOG 4170 ADVANCED CULTURAL GEOGRAPHY (3 credits)
This course examines current theoretical debate and research practice in a select topic in Cultural Geography. Emphasis will be on readings and discussion with students engaging in original research. Specific thematic focus will vary from year to year. This course may be taken multiple times as long as topics differ. (Cross-listed with GEOG 8176).
Prerequisite(s)/Corequisite(s): GEOG 1000 or GEOG 1020, junior standing, or permission of the instructor.

GEOG 4230 GREAT PLAINS & NEBRASKA (3 credits)
A study of the major physical and cultural attributes of the region. Emphasizes settlement history and the role of agriculture on the regional economy. (Cross-listed with GEOG 8236).

GEOG 4260 PROCESS GEOMORPHOLOGY (4 credits)
A lecture and laboratory course focused on understanding Earth surface processes and the evolution of landforms across spatial and temporal scales. The course emphasizes applying unifying concepts in geomorphology, quantitative methodology and modern process-oriented geomorphology to interpret landscape evolution. (Cross-listed with GEOG 8266, GEOL 4260).
Prerequisite(s)/Corequisite(s): GEOL 1010, GEOL 1170, GEOG 1030, GEOG 1050 or instructor permission.

GEOG 4320 CLIMATOLOGY (3 credits)
A study of climatic processes and their effect on shaping the physical landscape. Emphasis on physical and applied aspects of the field. (Cross-listed with GEOG 8326).
Prerequisite(s)/Corequisite(s): GEOG 1030, GEOG 1050, GEOG 3510, or permission of instructor.

GEOG 4330 SOIL GENESIS, MORPHOLOGY AND CLASSIFICATION (4 credits)
This course is designed to familiarize students with basic soil chemical, physical and biological properties, soil morphological characteristics, soil classification and soil forming processes. The course focuses on relationships between soils and environmental factors and how such factors alter soil forming processes. The lab will focus on developing basic field skills, including soil morphological descriptions and soil mapping, as well as common laboratory methods used to analyze soils. (Cross-listed with GEOL 4330, GEOG 8336).
Prerequisite(s)/Corequisite(s): GEOG 1030, GEOG 1050, GEOL 1010, GEOL 1170 or instructor permission.

GEOG 4340 WATER RESOURCES (3 credits)
A study of the applied principles of hydrology, water systems modeling, river basin development, and water management issues and practices in the United States and other parts of the world. (Cross-listed with GEOG 8346).
Prerequisite(s)/Corequisite(s): GEOG 1060 and Junior standing

GEOG 4530 HISTORICAL GEOGRAPHY OF THE UNITED STATES (3 credits)
An analysis of historical circumstances behind contemporary patterns of American cultural geography. (Cross-listed with GEOG 8536).
Prerequisite(s)/Corequisite(s): Junior and HIST 1110 and HIST 1120 or GEOG 1020 or GEOG 3330

GEOG 4550 GEOGRAPHY OF ECONOMIC GLOBALIZATION (3 credits)
A study of the geography of economic globalization and the geography of the world economy. The major topics include the historical development of the world economy and globalization from the geographical perspective, trends in geography of global production, trade and investment, the most important factors and actors in the globalization processes and its geographic effects, geography of transnational corporations, case studies of economic geography of selected industries and service activities, effects of globalization on the developed and developing countries. This course also supports the Cultural and Global Analysis concentration in the Master of Arts in Critical and Creative Thinking. (Cross-listed with GEOG 8556, CACT 8116).
Prerequisite(s)/Corequisite(s): An introductory level human geography course: GEOG 1020 or GEOG 1000

GEOG 4600 INDEPENDENT RESEARCH (1-3 credits)
Advanced study in the form of a major paper to give the senior student knowledge of and experience in using government documents, professional and primary materials concerned with a region. Must be under the supervision of the instructor who is particularly qualified for the topic chosen. (Cross-listed with GEOL 4600).
Prerequisite(s)/Corequisite(s): Permission of department chair.

GEOG 4610 ENVIRONMENTAL MONITORING AND ASSESSMENT (3 credits)
An interdisciplinary approach to techniques for the design and implementation of environmental inventory and monitoring schemes used to evaluate natural resources. Students work as teams to synthesize information from their backgrounds in geography, geology and ecology to evaluate the impacts of human actions on environmental quality following the framework for environmental assessments provided by the National Environmental Policy Act. Course is organized to accommodate variable needs of students with different backgrounds and career choices. Usually offered every year. (Cross-listed with BIOL 4610, ENVN 4610, GEOG 4610, GEOG 8616, GEOL 8616)
Prerequisite(s)/Corequisite(s): Permission of instructor.

GEOG 4620 GEOGRAPHICAL FIELD STUDIES (3 credits)
Field experience course based on variable topics and themes. Students must attend the multiple day field trip that will require overnight stays. (Cross-listed with GEOG 8626).
Prerequisite(s)/Corequisite(s): Instructor Permission. Not open to non-degree graduate students.

GEOG 4630 ENVIRONMENTAL REMOTE SENSING (4 credits)
Introduction to remote sensing science and technology. Emphasis will be placed on multispectral data, matter/energy interactions, sensor system characteristics, photogrammetry, image interpretation, digital image processing and environmental applications. Formal laboratory instruction will provide students with problem-solving skills and hands-on experience with remote sensing and GIS software. (Cross-listed with GEOG 8636).
Prerequisite(s)/Corequisite(s): GEOG 1060 or GEOG 1070 or GEOG 1170. Introductory statistics highly recommended.

GEOG 4640 CRITICAL ZONE SCIENCE (4 credits)
This course examines the Critical Zone (CZ), Earth’s permeable layer that extends from the top of vegetation to the bottom of groundwater. The CZ is a constantly evolving layer where rock, soil, water, air, and living organisms interact to regulate the landscape and natural habitats; it also determines the availability of life-sustaining resources, including our food production and water quality. CZ science is an interdisciplinary and international endeavor focused on cross-disciplinary science. In this course, we will focus on using data available from the existing National Science Foundation (NSF)-funded CZ Observatories (CZO) along with readings, discussions and activities to explore interactions within the CZ. (Cross-listed with GEOG 8646, GEOL 4640)
Prerequisite(s)/Corequisite(s): GEOL 1170, GEOL 1010, GEOG 1030 or GEOG 1050; one chemistry or physics course recommended; or instructor permission.
**GEOG 4660 GEOGRAPHIC INFORMATION SYSTEMS II (4 credits)**
An Introduction to advanced geographic information system (GIS) topics. Emphasis will be placed on algorithms and analysis for information extraction. Topics include spatial interpolation, remote sensing GIS integration, software development, spatial analysis, GIS modeling, and future advances in GIS. Formal laboratory instruction will provide students with GIS experience to solve application problems. (Cross-listed with GEOG 8666).

**Prerequisite(s)/Corequisite(s):** GEOG 4050 / GEOG 8056

**GEOG 4800 INTERNSHIP IN ENVIRONMENTAL REGIONAL PLANNING EARTH SCIENCE (1-6 credits)**
Internship with local agencies or corporations enabling students to gain knowledge and experience in comprehensive regional or environmental planning or environmental science.

**Prerequisite(s)/Corequisite(s):** Senior, major or area of concentration in geography or environmental science and permission

**GEOG 4820 INTRODUCTION TO ENVIRONMENTAL LAW & REGULATIONS (3 credits)**
Seminar on environmental law and regulation. The course will address federal regulations, implementing instructions, legal principles and requirements. The major federal environmental laws, air and water quality, solid and hazardous waste, and pollution prevention and remediation will be discussed. Usually offered Fall semesters. (Cross-listed with BIOL 4820, BIOL 8826, ENVN 4820, GEOG 8826, PA 4820, PA 8826)

**Prerequisite(s)/Corequisite(s):** Junior-senior and permission.