GEOGRAPHY

Degree Programs Offered
- Geography, MA ([http://catalog.unomaha.edu/graduate/degree-programs-certificates-minors/geography/geography-ma](http://catalog.unomaha.edu/graduate/degree-programs-certificates-minors/geography/geography-ma))

Certificates Offered
- Geographic Information Science Certificate ([http://catalog.unomaha.edu/graduate/degree-programs-certificates-minors/geography/geographic-information-science-certificate](http://catalog.unomaha.edu/graduate/degree-programs-certificates-minors/geography/geographic-information-science-certificate))

**GEOG 8000 HISTORY AND PHILOSOPHY GEOGRAPHY (3 credits)**
Introduction to history of geography. Emphasis on significant ideas, concepts, methodologies and philosophies in geography from classical Greeks to present.
Prerequisite(s)/Corequisite(s): Permission

**GEOG 8016 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 types including soils, forestry, water resources and energy. (Cross-listed with GEOG 4010).
Prerequisite(s)/Corequisite(s): Three hours of geography

**GEOG 8026 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 numerical results. (Cross-listed with GEOG 4020).
Prerequisite(s)/Corequisite(s): MATH 1530 or permission

**GEOG 8036 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 incorporation of interaction and animation in the display of maps as well as the creation of maps for distribution through the internet. (Cross-listed with GEOG 4030).
Prerequisite(s)/Corequisite(s): GEOG 3530 and GEOG 3540

**GEOG 8040 SEMINAR IN EDUCATION GEOGRAPHY (3 credits)**
A survey of methods, instruction aids and goals for teaching geography. Designed to aid the teacher in the improvement of geographic instruction in elementary and secondary schools as well as in higher education.
Prerequisite(s)/Corequisite(s): Permission

**GEOG 8046 GEOARCHAEOLOGY (3 credits)**
The study of archaeology with the use of geological and geographical methodology. (Cross-listed with GEOL 4040, GEOG 4040).

**GEOG 8056 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. (Cross-listed with GEOG 4050).
Prerequisite(s)/Corequisite(s): GEOG 3530 and GEOG 3540 or 6 hours in Geography

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

**GEOG 8126 URBAN GEOGRAPHY (3 credits)**
A geography of the city from the viewpoint of history, site and situation, external relations, internal relations, and the comparative study of cities. (Cross-listed with GEOG 4120).

**GEOG 8130 SEMINAR IN ECONOMIC GEOGRAPHY (3 credits)**
A seminar course which investigates the development of current world economic systems through the elements of primary, secondary, tertiary, quaternary and quinary production on a micro and macro scale. Exchange and transactional systems, consumption linkages, resource management, economic health on global and local scales, and location decision-making are major topics.
Prerequisite(s)/Corequisite(s): Graduate in geography and permission of instructor

**GEOG 8146 URBAN SOCIOLOGY (3 credits)**
Examines urban theoretical perspectives, urbanization processes, the diversity of metropolitan communities, urban stratification, metropolitan growth, urban neighborhoods, community power and urban policy and planning. (Cross-listed with GEOG 4140).
Prerequisite(s)/Corequisite(s): Permission

**GEOG 8156 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, GEOG 4150, ENTR 4150, ENTR 8156, WGST 8156).
Prerequisite(s)/Corequisite(s): Junior, senior, or graduate standing, or permission of instructor.

**GEOG 8166 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, automobility & transportation, water security, urban pollution, and the role of cities in climate change. (Cross-listed with GEOG 4160).
Prerequisite(s)/Corequisite(s): Graduate standing.

**GEOG 8176 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 4170).
Prerequisite(s)/Corequisite(s): Graduate standing and permission of the instructor.

**GEOG 8210 SEMINAR IN CULTURAL GEOGRAPHY (3 credits)**
The philosophy of cultural and historical geography with emphasis on describing and interpreting the cultural landscape.
Prerequisite(s)/Corequisite(s): Permission

**GEOG 8236 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 4230).

**GEOG 8256 THEORY AND STRUCTURAL GEOMORPHOLOGY (3 credits)**
Primarily a lecture course with emphasis on the historical development of theories in evolution of earth surface features and processes, coupled with underlying structural controls of landforms. (Cross-listed with GEOG 4250).
Prerequisite(s)/Corequisite(s): GEOG 1070 or GEOL 1170

**GEOG 8266 PROCESS GEOMORPHOLOGY (3 credits)**
Primarily a lecture and laboratory course. Emphasis on methodology and modern process-oriented geomorphology. (Cross-listed with GEOG 4260).
Prerequisite(s)/Corequisite(s): GEOG 1070 or GEOL 1170
GEOG 8310 GEOGRAPHY OF AGRICULTURE (3 credits)
A systematic study of the characteristics and patterns of world agriculture. 
Prerequisite(s)/Corequisite(s): Permission

GEOG 8326 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 4320). 
Prerequisite(s)/Corequisite(s): GEOG 1030, GEOG 1060 or GEOG 3510

GEOG 8336 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 
affect 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 
GEOG 4330, GEOG 4330). 
Prerequisite(s)/Corequisite(s): GEOG 1030, GEOG 1050, GEO 1010, 
GEOL 1070 or instructor permission.

GEOG 8346 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. Two local Saturday field trips will 
be required. (Cross-listed with GEOG 4340). 
Prerequisite(s)/Corequisite(s): Six hours of Physical Geography or 
equivalent and graduate standing.

GEOG 8500 SPECIAL TOPICS IN GEOGRAPHY (1-3 credits)
This course will provide for an in-depth study of a geographical or geological 
subject (as specified in the course subtitle). Subjects will be offered as 
sections of GEOG 8500, but will be separate from one another. Students 
may repeat GEOG 8500 as often as they like as long as no specific subject 
is duplicated. Course to be offered with approval of Graduate Program 
Committee and Dean for Graduate Studies. 
Prerequisite(s)/Corequisite(s): Variable

GEOG 8510 ADVANCED GEOMORPHOLOGY (3 credits)
A seminar and lecture course on the current concepts and literature in the 
field of landform studies. Discussion will emphasize classic ideas as well as 
the modern concepts of climatic, dynamic and quantitative geomorphology. 
Some study of Quaternary chronology will be necessary. Several optional 
Saturday field trips. 
Prerequisite(s)/Corequisite(s): GEOG 8256 or GEOG 8266 and 
GEOL 1170 or GEOG 1070. Permission.

GEOG 8535 CARTOGRAPHY & 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 3530). 
Prerequisite(s)/Corequisite(s): GEOG 1000 or GEOG 1020, GEOG 1060 
or GEOG 1070, and a course in statistics.

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

GEOG 8545 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 8535. 
Prerequisite(s)/Corequisite(s): Concurrent or previous registration in 
GEOG 8535.

GEOG 8556 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 4550, 
CACT 8116). 
Prerequisite(s)/Corequisite(s): Graduate status.

GEOG 8580 SOILS (3 credits)
An examination of the older geographical concepts of the distribution 
and morphology of soil and the new works concerned with soil forms on a 
regional, rather than zonal, basis. 
Prerequisite(s)/Corequisite(s): GEOG 1060 or GEOG 1070 and 
permission.

GEOG 8600 INDEPENDENT RESEARCH (1-3 credits)
Advanced study in the form of a major research project. Students are 
required to submit a written proposal and gain written approval of 
the supervising faculty member and Graduate Program Committee. In 
addition to a formal written report, the student is required to make an 
oral presentation of research results to General Seminar or a professional 
meeting. 
Prerequisite(s)/Corequisite(s): Fifteen graduate hours in geography and 
permission.

GEOG 8616 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 
ofered every year. (Cross-listed with BIOL 4610, ENVN 4610, GEOG 4610, 
GEOL 4610, GEOG 8616) 
Prerequisite(s)/Corequisite(s): Permission of instructor.

GEOG 8626 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 4620). 
Prerequisite(s)/Corequisite(s): Instructor Permission. Not open to non-
degree graduate students.

GEOG 8626 ENVIRONMENTAL REMOTE SENSING (4 credits)
An 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 4630). 
Prerequisite(s)/Corequisite(s): GEOG 1060 or GEOG 1070 or 
GEOL 1170. Introductory statistics highly recommended.
GEOG 8640 REMOTE SENSING ADVANCED CONCEPTS AND APPLICATIONS (3 credits)
Designed for the graduate student desiring to do advanced work in remote sensing. The emphasis of the course is on non-photographic sensors and especially digital processing of multispectral satellite data. The applications are multidisciplinary in nature.
Prerequisite(s)/Corequisite(s): GEOG 4120 / GEOG 8126

GEOG 8646 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 (CZOs) along with readings, discussions and activities to explore interactions within the CZ. (Cross-listed with GEOG 4640, GEO 4640)
Prerequisite(s)/Corequisite(s): GEO 1170, GEO 1010, GEO 1030 or GEO 1050; one chemistry or physics course recommended; or instructor permission.

GEOG 8650 LAND USE (3 credits)
A field course designed to understand, by actual field investigation, land use patterns in urban areas through the comprehension of social, physical and economic factors which tend to shape the land use of a given place. The major emphasis will be placed upon field investigations in the urban area, with the functional region receiving the major consideration.
Prerequisite(s)/Corequisite(s): GEOG 4120 / GEOG 8126

GEOG 8666 GEOGRAPHIC INFORMATION SYSTEMS II (4 credits)
An introduction to advanced geographic information systems (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 4660).
Prerequisite(s)/Corequisite(s): GEOG 4050 / GEOG 8056

GEOG 8670 CARTOGRAPHIC METHODS (3 credits)
Teaches effective map layout and the latest cartographic techniques, leading to a high level of competence in the design and interpretation of maps.

GEOG 8700 RESEARCH METHODS (3 credits)
A course designed to provide students with an overview of the discipline of geography with two purposes in mind: (1) a graduate-level introduction to the chief issues and concepts on the research frontiers of geography; and (2) preparation by the graduate students to begin their own thesis research.

GEOG 8800 INTERNSHIP IN ENVIRONMENTAL/REGIONAL PLANNING (1-6 credits)
(repeatable up to six hours) Internship with local planning agencies enabling students to gain knowledge and experience in comprehensive regional or environmental planning.
Prerequisite(s)/Corequisite(s): Permission and 12 graduate hours in geography.

GEOG 8810 SEMINAR IN METROPOLITAN PLANNING (3 credits)
An overview of metropolitan planning with special emphasis on the planning process and current problems encountered by planning officials.
Prerequisite(s)/Corequisite(s): Permission