GEOGRAPHY

Description
Geography is a comprehensive discipline that, via spatial patterns analysis, reveals the intricate attributes and connectivity of human cultures and the natural environment. As such, geography is critical to understanding the complexities of global change. Students may specialize in one of many areas, including climate and weather, cultural/human geography, geographic information systems, historical geography of the Great Plains, natural resources, physical geography, pre-community and regional planning, regional studies, or remote sensing.

An education in geography prepares students for careers in government agencies as well as those involved with foreign service, land management, tourism, health care delivery systems, environmental assessment, transportation development, land use planning, air traffic control, GIS and cartographic analysis, and in a wide variety of businesses, particularly those concerned with environmental mapping, geographic information systems, and planning. A geography major also prepares students for graduate-level degrees in geography, law (especially environmental law), international business, urban and regional planning, and teaching at all levels.

Program Assessment. In order to assist the department in evaluating the effectiveness of its programs, majors will be required to complete written and oral examinations in the Senior Seminar, GEOG 402, over knowledge in all components of the major, as well as over more detailed knowledge in the student’s area of focus. Students will be informed of the scheduling and format of assessment exams in the Senior Seminar. Students will also be given exit interviews prior to graduation to gather their views on the effectiveness of the major. Results of participation in this assessment activity will in no way affect a student’s GPA or graduation.

Admission
College Admission
The entrance requirements for the College of Arts and Sciences are the same as the UNL General Admission Requirements. Students who are admitted through the Admission by Review process may have certain conditions attached to their enrollment at UNL. These conditions are explained under “Removal of Deficiencies.”

In addition to these requirements, the College of Arts and Sciences strongly recommends a third and fourth year of one foreign language in high school. Four years of high school coursework in the same language will fulfill the College of Arts and Sciences’ language requirement. It will also allow students to continue language study at a more advanced level at UNL, and provide more opportunity to study abroad.

Advising
Academic and Career Advising
The Academic and Career Advising Center in 107 Oldfather is a centrally located and easily accessed resource for students in all majors in the College of Arts and Sciences. The professional academic advisors and career coaches offer 1-1 meetings on a walk-in and appointment basis weekdays. Advisors will provide assistance choosing majors and minors, understanding degree requirements and academic policies, completing paperwork, meeting deadlines, adding/dropping courses, and planning for graduation. In addition, career coaches can help students identify career options related to their interests and connect them with experiences like internships, research, and more that will prepare them for those career options. These specially trained advisors and coaches also serve as first point of contact in the College for all incoming freshmen and transfer students during New Student Enrollment.

Students in the College who have declared a major will be assigned an academic advisor who is their first point of contact for a variety of questions. Academic advisors help students be successful in adjusting to UNL overall as well as making progress toward degree completion. The assigned advisor may be located within the department of their primary major, or in the Advising Center. Students can identify their assigned advisor in MyRED on the academic tab. In addition, faculty advisors are experts in their discipline, including advanced coursework and requirements, opportunities for research, student organizations, and considering graduate school in the discipline. Students who have declared a pre-health or pre-law area of interest will also work with advisors in the Exploratory and Pre-Professional Advising Center (Explore Center) in 127 Love Library South, who are specially trained to guide students preparing to enter a professional school.

For complete and current information on advisors for majors, minors, or pre-professional areas, contact the Arts and Sciences Academic and Career Advising Center, 107 Oldfather Hall, 402-472-4190, http://cas.unl.edu/advising.

College Degree Requirements
College Distribution Requirements
Bachelor of Arts or Bachelor of Science (16 hours + Language)
The College of Arts and Sciences distribution requirements are designed to ensure a breadth of courses within the liberal arts degree. By engaging in study in several different areas within the College, students develop the ability to learn in a variety of ways and apply their knowledge from a variety of perspectives. All requirements are in addition to University ACE requirements.

- A student may not use a single course to satisfy both an ACE outcome and a College distribution requirement.
- A student may not use a single course to satisfy more than one College Distribution Requirement.
- A student may not use a course from their primary major to satisfy the Breadth Requirement (F), but may apply an ancillary requirement of the primary major or a course from their second major toward this requirement.
- Independent study, directed readings, or internship courses cannot be used to satisfy a College Distribution Requirement.
- Cross-listed courses from interdisciplinary programs will be applied in the same area as courses from the home/cross-listed department.

College Distribution Requirements

| CDR A - Written Communication | 3
| CDR B and BL - Natural, Physical, and Mathematical Sciences with Lab | 4

Select from courses approved for ACE outcome 1.

Select from biochemistry, biological sciences, chemistry, computer science, geology, meteorology, mathematics, physics and statistics. Must include one lab in the natural or physical sciences. Lab courses may be selected from biochemistry, biological sciences, chemistry, geology, meteorology and physics.
Some courses from geography and anthropology may also be used to satisfy the lab requirement above.  

<table>
<thead>
<tr>
<th>CDR C - Humanities</th>
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Select from classics, English, history, modern languages and literatures, philosophy, and religious studies.  

<table>
<thead>
<tr>
<th>CDR D - Social Science</th>
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<tr>
<td>3</td>
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Select from anthropology, communication studies, geography, political science, psychology, or sociology.  

<table>
<thead>
<tr>
<th>CDR E - Language</th>
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<tr>
<td>0-16</td>
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</table>

Fulfilled by the completion of the 6-credit-hour second-year sequence in a single foreign language in one of the following departments: Classics and religious studies, or modern languages and literatures. Instruction is currently available in Arabic, Chinese, Czech, French, German, Greek, Japanese, Latin, Russian, and Spanish.  

A student who has completed the fourth-year level of one foreign language in high school is exempt from the languages requirement, but encouraged to continue on in their language study.  

<table>
<thead>
<tr>
<th>CDR F - Additional Breadth</th>
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<td>3</td>
</tr>
</tbody>
</table>

Select from natural, physical and mathematical sciences (Area B), humanities (Area C), or social sciences (Area D). Cannot be a course from the primary major.  

Credit Hours Subtotal:  

| 16-32 |

1  See Degree Audit or a College of Arts and Sciences advisor for approved geography and anthropology courses that apply as natural science.  

2  Language courses numbered 210 and below do not fulfill the CDR C.  

3  See Degree Audit or College of Arts and Sciences advisor for list of natural/physical science courses in anthropology, geography, and psychology that do not apply as social science.

Scientific Base  

Bachelor of Science Only (60 hours)  

The bachelor of science degree requires students to complete 60 hours in mathematical, physical and natural sciences. Approved courses for scientific base credit come from the following College of Arts and Sciences disciplines: actuarial science, anthropology (selected courses), astronomy, biochemistry (excluding BIOL 101), biological sciences (excluding BIOS 100 or BIOS 203), chemistry (excluding CHEM 101), computer science (excluding CSCE 10), geography (selected courses), geology, life sciences, mathematics (excluding courses below MATH 104), meteorology, microbiology, physics and statistics.  

See your degree audit or a College of Arts and Sciences advisor for a complete list including individual classes that fall outside of the disciplines listed above. Up to 12 hours of scientific and technical courses offered by other colleges may be accepted toward this requirement with approval of a college advisor.

Language Requirement  

UNL and the College of Arts and Sciences place great value on academic exposure and proficiency in a second language. The UNL entrance requirement of two years of the same foreign language or the College’s language distribution requirement (CDR E) will rarely be waived and only with relevant documentation. See the main College of Arts and Sciences page for more details.

Minimum Hours Required for Graduation  

A minimum of 120 semester hours of credit is required for graduation from the College of Arts and Sciences. A total grade point average of at least 2.0 is required.

Grade Rules  

Restrictions on C- and D Grades  

The College will accept no more than 15 semester hours of C- and D grades from other domestic institutions except for UNO and UNK. All courses taken at UNO and UNK impact the UNL transcript. No transfer of C- and D grades can be applied toward requirements in a major or a minor. No UNL C- and D grades can be applied toward requirements in a major or a minor. International coursework (including education abroad) with a final grade equivalent to a C- or lower will not be validated by College of Arts and Sciences departments to be degree applicable.

Pass/No Pass Privilege  

The College of Arts and Sciences adheres to the University regulations for the Pass/No Pass (P/N) privilege with the following additional regulations:  

- Pass/No Pass hours can count toward fulfillment of University ACE requirements and college distribution requirements up to the 24-hour maximum.  
- Most arts and sciences departments and programs do not allow courses graded Pass/No Pass to apply to the major or minor. Students should refer to the department’s or program’s section of the catalog for clarification. By college rule, departments can allow up to 6 hours of Pass/No Pass in the major or minor.  
- Departments may specify that certain courses of theirs can be taken only on a P/N basis.  
- The college will permit no more than a total of 24 semester hours of P/N grades to be applied toward degree requirements. This total includes all Pass grades earned at UNL and other U.S. schools. NOTE: This 24-hour limit is more restrictive than the University regulation.

Grading Appeals  

A student who feels that he/she has been unfairly graded must ordinarily take the following sequential steps in a timely manner, usually by initiating the appeal in the semester following the awarding of the grade:  

1. Talk with the instructor concerned. Most problems are resolved at this point.  
2. Talk to the instructor’s department chairperson.  
3. Take the case to the Grading Appeal Committee of the department concerned. The Committee should be contacted through the department chairperson.  
4. Take the case to the College Grading Appeals Committee by contacting the Dean’s Office, 1223 Oldfather Hall.

Course Level Requirements  

Courses Numbered at the 300 or 400 Level  

Thirty (30) of the 120 semester hours of credit must be in courses numbered at the 300 or 400 level. Of those 30 hours, 15 hours (1/2) must be completed in residence at UNL.

Residency Requirement  

Students must complete at least 30 of the 120 total hours for their degree at UNL. Students must complete at least 1/2 of their major coursework including 6 hours at the 300 or 400 level in their major, and 15 of the 30
hours required at the 300 or 400 level in residence. Credit earned during education abroad may be used toward the residency requirement only if students register through UNL.

ACE Requirements

Consistent with the mission and values of the University, ACE is based on a shared set of four institutional objectives and ten student learning outcomes. The ACE program was approved by faculty in all eight undergraduate colleges and endorsed by the student government, and the Academic Planning Committee in January 2008 for implementation in the fall 2009. ACE aligns with current national initiatives in general education.

To meet the ACE Program requirement, a student will complete a minimum of 3 credit hours for each of the ten ACE Student Learning Outcomes (a total of 30 ACE credit hours). See the ACE website at: http://ace.unl.edu for the most current information and the most recently certified courses.

Catalog to Use

Students must fulfill the requirements stated in the catalog for the academic year in which they are first admitted to and enrolled as a degree-seeking student at UNL. In consultation with advisors, a student may choose to follow a subsequent catalog for any academic year in which they are admitted to and enrolled as a degree-seeking student at UNL in the College of Arts and Sciences. Students must complete all degree requirements from a single catalog year. Beginning in 1990-1991 the catalog which a student follows for degree requirements may not be more than 10 years old at the time of graduation.

Learning Outcomes

Graduates of geography will be able to:

1. Understand spatial variations in physical geography—climate, vegetation, and soils—on the surface of the earth.
2. Understand and appreciate the spatial, ecological, and regional dimensions of human life on the surface of the earth.
3. Understand how to use geospatial techniques, such as cartographic representation, GIS, and remote sensing in order to analyze and interpret geographic dimensions of life in the world.
4. Appreciate how the global and local are connected.
5. Have an appreciation of the history and philosophy of geography, both past and present.

Major Requirements

Thirty (30) hours of geography, of which 14 hours must be numbered 300 or above. Of the 6 hours of techniques courses, 3 hours must be at the 400 level.

Core Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>GEOG 140</td>
<td>Introductory Human Geography</td>
<td>3</td>
</tr>
<tr>
<td>or GEOG 120</td>
<td>Introductory Economic Geography</td>
<td></td>
</tr>
<tr>
<td>GEOG 155</td>
<td>Elements of Physical Geography</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 181</td>
<td>Quality of the Environment</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 272</td>
<td>Geography of World Regions</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 402</td>
<td>Undergraduate Seminar (Senior Seminar)</td>
<td>3</td>
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</table>

Total Credit Hours 16

Specific Major Requirements

Geography Techniques Courses

Select two courses from the following, with at least 3 hours at the 400 level. 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ANTH 389</td>
<td>GIS in Archaeology</td>
</tr>
<tr>
<td>CRPL 432</td>
<td>Advanced Spatial Analysis with GIS</td>
</tr>
<tr>
<td>CRPL 495</td>
<td>Selected Topics in Community and Regional Planning</td>
</tr>
<tr>
<td>GEOG 217</td>
<td>Mapping Science in the 21st Century</td>
</tr>
<tr>
<td>GEOG 312</td>
<td>Introduction to Geospatial Information Sciences</td>
</tr>
<tr>
<td>GEOG 317</td>
<td>Cartography I: Introduction to Cartography</td>
</tr>
<tr>
<td>GEOG 412</td>
<td>Introduction to Geographic Information Systems</td>
</tr>
<tr>
<td>GEOG 414</td>
<td>Quantitative Methods in Geography</td>
</tr>
<tr>
<td>GEOG 415</td>
<td>Introduction to Computer Mapping</td>
</tr>
<tr>
<td>GEOG 417</td>
<td>Cartography II: Electronic Atlas Design and Production</td>
</tr>
<tr>
<td>GEOG 418</td>
<td>Introduction to Remote Sensing</td>
</tr>
<tr>
<td>GEOG 419</td>
<td>Applications of Remote Sensing in Agriculture and Natural Resources</td>
</tr>
<tr>
<td>GEOG 420</td>
<td>Digital Image Analysis of Remote Sensing Data</td>
</tr>
<tr>
<td>GEOG 421</td>
<td>Field Techniques in Remote Sensing</td>
</tr>
<tr>
<td>GEOG 422</td>
<td>Advanced Techniques in Geographic Information Systems</td>
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<tr>
<td>GEOG 425</td>
<td>Scientific Visualization in Cartography</td>
</tr>
<tr>
<td>GEOG 427</td>
<td>Introduction to the Global Positioning System (GPS)</td>
</tr>
<tr>
<td>GEOG 432</td>
<td>GIS Programming for Advanced Spatial Analysis and Modeling</td>
</tr>
<tr>
<td>GEOG 444</td>
<td>Geo-demographic and Geographic Information Systems (GIS)</td>
</tr>
<tr>
<td>GEOG 461</td>
<td>Geospatial Approaches in Digital Humanities and Social Sciences</td>
</tr>
<tr>
<td>GEOG 483</td>
<td>Cognitive Processes in Map Comprehension and Use</td>
</tr>
<tr>
<td>GEOG 498</td>
<td>Advanced Special Problems</td>
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Credit Hours Subtotal: 6

Additional Geography Courses

Typically, 6-8 hours of additional geography courses remain after the core and techniques courses are completed to meet the 30-hour major requirement.

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<th>Course Code</th>
<th>Course Title</th>
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Credit Hours Subtotal: 8

Total Credit Hours 14

1 Students may choose to specialize in one of many areas, including climate and weather, cultural/human geography, geographic information systems, historical geography of the Great Plains, natural resources, physical geography, pre-community and regional planning, regional studies, or remote sensing. The faculty advisor can help identify those courses.
ADDITIONAL MAJOR REQUIREMENTS

Grade Rules
C- and D Grades
A grade of C or above is required for all courses in the major and minor.

Pass/No Pass
No more than 6 hours of courses taken Pass/No Pass will be counted toward the major or minor.

Course Level Requirement
Of the total 30 hours, 14 hours must be numbered 300 or above. Of the 6 hours of techniques courses, 3 hours must be numbered 400 or above.

Requirements for Minor Offered by Department
Eighteen (18) hours of geography courses, including 10 hours in courses numbered 300 or above.

Grade Rules
C- and D Grades
A grade of C or above is required for all courses in the major and minor.

Pass/No Pass
No more than 6 hours of courses taken Pass/No Pass will be counted toward the major or minor.

GEOG 101 Discover Geography
Notes: Recommended for any student considering a career and a major or minor in Geography. The course is required for declared Geography majors.
Description: An orientation to the field of Geography, discussion of career opportunities, an overview of requirements for the major, and an introduction to resources available at UNL and in the Lincoln community. Learn about unique contributions that geographers are making to address issues in management of natural resources, public health, water and food security, international trade, immigration and other areas.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Format: LEC

GEOG 109 Water in Society
Crosslisted with: SCIL 109, AECN 109, NRES 109, ENVR 109
Description: Introduction to the scientific, social, and economic dimensions of historical and contemporary water systems. Students will develop an understanding of hydrologic systems and analyze and engage in decision-making about complex challenges associated with water resource use.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Offered: FALL
Prerequisite for: SCIL 300
ACE: ACE 4 Science ACE 8 Civic/Ethics/Stewardship

GEOG 120 Introductory Economic Geography
Description: Basic factors influencing the location of economic activity. Influence of space and location on the evolution and development of economic systems. World and regional patterns of economic activities.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Groups: Human-Economic Geography

GEOG 140 Introductory Human Geography
Notes: Students who have previously taken GEOG 100 may not receive credit for GEOG 140.
Description: Human populations, cultures, and landscapes, with particular attention to human-environment relations and global interconnections.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
ACE: ACE 9 Global/Diversity
Groups: Human-Economic Geography

GEOG 155 Elements of Physical Geography
Notes: Students who earn credit toward the degree in GEOG 155 may not earn credit toward the degree in GEOG 150 or in the combination of GEOG 150 and 152.
Description: Investigation of the basic elements of the physical environment of the earth and its atmosphere. Includes atmospheric processes, temperature distributions, weather systems, severe weather, climates, water balance, vegetation and soil distributions, landforms and their processes, and natural hazards. Modifying influences that humans have on the physical environment and atmosphere examined.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Format: LEC
Prerequisite for: GEOG 308, GEOL 308, NRES 308
ACE: ACE 4 Science
Groups: Physical Geography

GEOG 170 Introduction to Great Plains Studies
Crosslisted with: ANTH 170, GPSP 170, NRES 170, SOCI 170
Description: Interdisciplinary study of the natural environment, social environment, human heritage, arts and humanities of the Great Plains.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Groups: Regional Geography

GEOG 181 Quality of the Environment
Description: Analysis of human’s role in altering the quality of the environment through their impact on eco-health, transformation of the landscape, and spatial organization and behavior.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
ACE: ACE 6 Social Science ACE 9 Global/Diversity
Groups: Human-Economic Geography
GEOG 198 Special Topics in Geography
Description: Offered from time to time by faculty members who wish to examine current problems in geography. May take a variety of forms including the freshman seminar and the minicourse.
Credit Hours: 1-3
Min credits per semester: 1
Max credits per semester: 3
Max credits per degree: 3
Format: LEC

GEOG 200 Landscape and Environmental Appreciation
Crosslisted with: HORT 200, LARC 200
Description: Values and processes in human landscapes and natural environments. Concepts and tools to understand the context of local and global environments and significant historical landscapes. Landscape as an indicator of aesthetic quality, design principles and processes as integrators of humans and nature, and the garden as a model for creating sustainable landscapes.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Prerequisite for: HORT 265; HORT 267
ACE: ACE 9 Global/Diversity ACE 7 Arts
Groups: Human-Economic Geography

GEOG 217 Mapping Science in the 21st Century
Description: Introduction to modern mapping sciences. Interpret and use both traditional and digital maps. Fundamentals of thematic mapping, topographic map analysis, interpretation of aerial and satellite imagery, principles of geographic information systems (GIS), fundamentals of the global positioning (GPS), and mapping on the Internet.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC

GEOG 271 Geography of the United States
Description: Introduction to the regional geography of the United States. Attention to the significance of location, advantages and limitations of the natural environment, population distribution, and economic development considered regionally.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Groups: Techniques

GEOG 272 Geography of World Regions
Description: Appraisal of the interaction between the physical environment, the human resources, and economic activities for the major regions of the world. Application of fundamental geographical concepts to regional analysis.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
ACE: ACE 9 Global/Diversity
Groups: Regional Geography

GEOG 273 Physical Geography
Description: The theory and practice of the study of the physical environment, focusing on topics related to the Great Plains. Examination of the physical dynamics of the environment on the Great Plains, including the study of the Great Plains environment, past use of the Great Plains environment, and the sustainability of various indigenous and modern modes of land use on the Great Plains. Evaluation of attributes and related data critical to the operation of past social-ecological systems with reference to changing climatic/ecological dynamics, human environmental impacts, and the sustainability of various indigenous and western modes of land use on the Great Plains. Knowledge of these processes and how they can be of relevance to contemporary issues of Great Plains land management and resource utilization.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
ACE: ACE 6 Social Science ACE 5 Humanities

GEOG 281 Introduction to Water Science
Crosslisted with: NRES 281, WATS 281
Prerequisites: High school chemistry or one semester college chemistry; one course in geology or physical geography or soil.
Description: Survey of the water science from the perspective of both natural and social sciences. Water budget, precipitation, evapotranspiration, runoff and stream flow, groundwater, water quality parameters, economics of water, water policy, water law and water politics.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Prerequisite for: NRES 319
Groups: Physical Geography

GEOG 283 Space, the Environment and You
Description: Experiments to help individuals develop awareness of the extent to which their feelings and behavior are influenced by the spatial and environmental dimensions of their surroundings.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Groups: Human-Economic Geography

GEOG 289 People and the Land: Human Environmental Interactions on the Great Plains
Crosslisted with: NRES 289
Description: Explore human environmental interaction on the Great Plains. Samples a variety of Great Plains cultures and time periods to explore past use of the Great Plains environment. Evaluation of attributes and related data critical to the operation of past social-ecological systems with reference to changing climatic/ecological dynamics, human environmental impacts, and the sustainability of various indigenous and western modes of land use on the Great Plains. Investigate knowledge of these processes and how they can be of relevance to contemporary issues of Great Plains land management and resource utilization.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
ACE: ACE 6 Social Science ACE 5 Humanities

GEOG 308 Biogeography
Crosslisted with: GEOL 308, NRES 308
Prerequisites: GEOG 155 or BIOS 101 and 101L or GEOL 101.
Notes: Biogeography is a highly interdisciplinary science, relying heavily on ecology, geological science, and climatology. It is global in scope and offers the latest knowledge in understanding organism distributions, and the factors that determine those distributions.
Description: Introduction to the basic concepts of biogeography, the study of distributions of plants and animals, both past and present.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Groups: Physical Geography
GEOG 312 Introduction to Geospatial Information Sciences
Crosslisted with: NRES 312
Prerequisites: Junior standing; basic computer skills (spreadsheets, word processors, data and file management).
Description: Introduction to the theory and applications of geospatial information technology. Remote sensing, GPS data collection, GIS data types, editing GIS data, and spatial data analysis with emphasis on applications to natural resources using a problem-based learning format.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Groups: Techniques

GEOG 317 Cartography I: Introduction to Cartography
Prerequisites: 6 hrs geography.
Description: Introduction to maps and mapping with emphasis on applied and theoretical considerations in map design and construction. Students create computer maps from specifications of instructor. Opportunity to actively participate in the technical processes of data collection, cartographic design, and construction normally associated with the actual production of maps.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Format: LEC
Groups: Techniques

GEOG 334 Historical Geography of the Great Plains
Description: Traces the sequence of the human occupancy of the Great Plains from prehistoric times to the present. Focus on the changing perception and utilization of the Great Plains environment, leading to the emergence of a distinctive contemporary region.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
ACE: ACE 5 Humanities
Groups: Human-Economic Geography

GEOG 361 Urban Geography
Description: Geography of cities and metropolitan areas of the past, present, and future. Spatial structures of urban settlements in North America and elsewhere examined both theoretically and descriptively.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
ACE: ACE 6 Social Science
Groups: Human-Economic Geography

GEOG 370 Geography of Nebraska
Description: Survey of the physical and cultural features of the geography of Nebraska as related to the changing patterns in the human occupancy of the geographic regions of the state.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Groups: Regional Geography

GEOG 372 European Landscapes and Cultures
Description: The physical and human geographies of Europe. Population migrations, landscape change, and diversity of culture in Europe and selected sub-regions of Europe.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Groups: Regional Geography

GEOG 375 Geography of Asia
Description: Patterns of physical features, population, and economic activities and other cultural aspects. Attention to India, China, and Japan.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
ACE: ACE 9 Global/Diversity

GEOG 377 Women of the Great Plains
Crosslisted with: GPSP 377, WMNS 377
Description: The intersection of gender, identity, power, and representation throughout time and space in the Great Plains of the United States and Canada.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
ACE: ACE 9 Global/Diversity

GEOG 378 Geography of Latin America
Description: Introduction to the geography of Mexico, Central America, West Indies, and South America. Advantage and limitations of the natural environment, population distribution, and economic development are considered regionally.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
ACE: ACE 9 Global/Diversity

GEOG 380 Geography of Africa
Crosslisted with: ETHN 380, NRES 380
Description: Overview of the major physical and human landscapes in Africa. Prominent past and current events will be placed into a spatial context in an attempt to develop insight into the interrelationships that exist among people, cultures, countries, economies, and the environment, not only within Africa, but between Africa and the rest of the world.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
ACE: ACE 9 Global/Diversity

GEOG 398 Special Topics in Geography
Prerequisites: Permission.
Description: Selected topic possessing areal implications.
Credit Hours: 1-24
Min credits per semester: 1
Max credits per semester: 24
Max credits per degree: 24
Format: LEC
GEOG 399 Independent Study in Geography
Prerequisites: Permission.
Credit Hours: 1-24
Min credits per semester: 1
Max credits per semester: 24
Max credits per degree: 24
Format: IND

GEOG 399H Honors Course
Prerequisites: Permission.
Credit Hours: 1-4
Min credits per semester: 1
Max credits per semester: 4
Max credits per degree: 4
Format: LEC

GEOG 402 Undergraduate Seminar
Prerequisites: Junior standing
Notes: Serves as the capstone course for the GEOG major.
Description: The history and philosophy of geography. Contemporary issues in geography.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
ACE: ACE 10 Integrated Product

GEOG 406 Spatial and Environmental Influences in Social Systems
Crosslisted with: GEOG 806
Description: How space, spatial structure, and spatially oriented behavior operate in social systems, emphasizing their influence on interpersonal communication and/or social exchange.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Groups: Human-Economic Geography

GEOG 408 Microclimate: The Biological Environment
Crosslisted with: AGRO 408, HORT 408, METR 408, NRES 408, WATS 408, AGRO 808, GEOG 808, HORT 808, METR 808, NRES 808
Prerequisites: Junior standing, MATH 106 or equivalent, 5 hrs physics, major in any of the physical or biological sciences or engineering.
Description: Physical factors that create the biological environment. Radiation and energy balances of earth's surfaces, terrestrial and marine. Temperature, humidity, and wind regimes near the surface. Control of the physical environment through irrigation, windbreaks, frost protection, manipulation of light, and radiation. Applications to air pollution research. Instruments for measuring environmental conditions and remote sensing of the environment.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Groups: Physical Geography

GEOG 409 Human Dimensions of Natural Resources
Crosslisted with: NRES 409
Prerequisites: Junior standing; 12 credit hours in natural resources, environmental studies, or closely related fields
Description: Overview of the human dimensions of natural resources issues. Exploration of the socioeconomic, cultural, and political aspects of human behavior and how these interact with, might influence, or are influenced by the environment.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC

GEOG 412 Introduction to Geographic Information Systems
Crosslisted with: GEOG 812, NRES 412, NRES 812
Description: Introduction to conceptual foundations and applications of computer-based geographic information systems (GIS). GIS database development, spatial data analysis, spatial modeling, GIS implementation and administration.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Format: LEC
Prerequisite for: GEOG 422, GEOG 822; GEOG 432, GEOG 832; GEOG 922, NRES 922
Groups: Techniques

GEOG 414 Quantitative Methods in Geography
Crosslisted with: GEOG 814
Prerequisites: STAT 218 or 380 and 6 hrs of geography.
Description: Introduction to quantitative techniques utilized in geographic research. Fundamental statistical and mathematical techniques used in analyzing spatial relationships examined.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Groups: Techniques

GEOG 415 Introduction to Computer Mapping
Crosslisted with: GEOG 815
Prerequisites: GEOG 317.
Description: Introduction to the tools, techniques, and analytical uses of computer mapping. Programming necessary for producing own computer mapping programs.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Prerequisite for: GEOG 915
Groups: Techniques
GEOG 417 Cartography II: Electronic Atlas Design and Production
Crosslisted with: GEOG 817
Prerequisites: GEOG 317
Description: Computer design and production for the purpose of assembling an environmental electronic atlas, using advanced computer 
hardware and software. Extensive discussions and demonstrations on content, design, and methods used in computer mapping.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Prerequisite for: GEOG 483, GEOG 883; GEOG 915
Groups: Techniques

GEOG 418 Introduction to Remote Sensing
Crosslisted with: GEOG 818, NRES 418, NRES 818
Prerequisites: 9 hours of GEOL, NRES or GEOG.
Notes: Advanced standing in geography, natural resources, environmental sciences, engineering or agronomy recommended.
Description: Introduction to the principles and methods of remote sensing in dealing with agricultural and water-resources issues. Research methods, systematic approaches to data collection, field spectroscopy, collecting ancillary information linked with spectroscopic data sets as well as aircraft or satellite missions and subsequent analyses of acquired data.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Groups: Techniques

GEOG 419 Applications of Remote Sensing in Agriculture and Natural Resources
Crosslisted with: AGRO 419, GEOL 419, NRES 420, AGRO 819, GEOG 819, GEOL 819, NRES 820
Notes: GEOG 418/NRES 418 recommended
Description: Introduction to the practical uses of remote electromagnetic sensing in dealing with agricultural and water-resources issues.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Format: LEC
Prerequisite for: GEOG 420, GEOG 820; GEOG 421, GEOG 821, NRES 421, NRES 821
Groups: Techniques

GEOG 420 Digital Image Analysis of Remote Sensing Data
Crosslisted with: GEOG 820
Prerequisites: GEOG 418/818 or GEOG 419/819.
Description: Principles and methods of digital image processing of remotely sensed data. The biophysical basis of remote sensing and the various sensor systems typically used for monitoring terrestrial and aquatic environments. Algorithms for the preprocessing, enhancement, classification and mapping of digital data for agricultural, urban, geological, environmental, and natural resource management problems.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Format: LEC
Groups: Techniques

GEOG 421 Field Techniques in Remote Sensing
Crosslisted with: GEOG 821, NRES 421, NRES 821
Prerequisites: GEOG 418/818
Description: Field techniques as they relate to remote-sensing campaigns. Research methods, systematic approaches to data collection, field spectroscopy, collecting ancillary information linked with spectroscopic data sets as well as aircraft or satellite missions and subsequent analyses of acquired data.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Groups: Techniques

GEOG 422 Advanced Techniques in Geographic Information Systems
Crosslisted with: GEOG 822
Prerequisites: GEOG 412/812.
Description: Vector and quadtree data structures, use of relational database management systems, topologically structured databases, query languages, digital terrain modeling, advanced data analysis methods and research issues in GIS. Extensive practical experience with the current GIS software.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Format: LEC
Prerequisite for: GEOG 922, NRES 922
Groups: Techniques

GEOG 425 Scientific Visualization in Cartography
Crosslisted with: GEOG 825
Prerequisites: GEOG 417 and either GEOG 415 or GEOG 417
Description: Explores cartographic applications of computer animation and multimedia for the dual purposes of assisting visual thinking in map-oriented research and data exploration, and in communicating geographic ideas to others.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Format: LEC
Groups: Techniques

GEOG 427 Introduction to the Global Positioning System (GPS)
Crosslisted with: GEOG 827, NRES 427, NRES 827
Prerequisites: Junior standing.
Notes: Familiarity with mapping and GIS recommended.
Description: Integrated lectures, lab exercises and field experience provide an understanding of GPS technology and applications. Students will learn to collect, correct and use GPS data in a geographic information system (GIS) environment.
Credit Hours: 2
Max credits per semester: 2
Max credits per degree: 2
Format: LEC
GEOG 431 Cultural Geography
Crosslisted with: GEOG 831
Description: The history of cultural geography from von Humboldt through Carl Sauer to the 'new' cultural geographies of Don Mitchell, Gillian Rose and Noel Castree. The current theoretical debates of feminism, post-structuralism, post-colonialism and environmentalism, and the influences of literary and cultural studies in the development of cultural geography and the various methodologies involved.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Groups: Human-Economic Geography

GEOG 432 GIS Programming for Advanced Spatial Analysis and Modeling
Crosslisted with: GEOG 832
Prerequisites: GEOG/NRES 412/812.
Notes: 18 hours of GIS practice may be substituted for prerequisite by permission.
Description: Techniques for Geoprocessing script programming to customize geographic information systems (GIS), utilize GIS tools, and implement application-specific spatial analysis, modeling algorithms and procedures.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Format: LEC

GEOG 435 Cultural Survival: Indigenous People's Rights
Crosslisted with: GEOG 835
Description: Threats against indigenous peoples' lands, resources and cultural patrimony, languages and knowledge systems more than 500 years after Columbus instigated European colonialism, creating the first global world order. The responses of Indigenous peoples to the imposition of Western dominated economic and political systems. Land rights, economic development, and women's rights from the perspective of different Indigenous communities around the world.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Groups: Human-Economic Geography

GEOG 444 Geo-demographic and Geographic Information Systems (GIS)
Crosslisted with: GEOG 844
Description: Geo-demographic and geographic information system (GIS) analysis, interpretation and mapping of geographical patterns of population size, population composition, and composition change. Theoretical and applied investigation of geo-demographic issues involving marketing research, public facilities planning, public health provision, and small-area population forecasting. GIS use of TIGER and small-area census data.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Groups: Human-Economic Geography

GEOG 447 Political Geography
Crosslisted with: GEOG 847
Description: Importance of factors of a physical, economic, and human character in political development at local to global scales; international geopolitical aspects of environment, territoriality, core areas, capitals, and boundaries; national geographical patterns of voting, representation, public administration and public policy.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Groups: Human-Economic Geography

GEOG 448 Pro-seminar in International Relations I
Crosslisted with: ECON 466, POLS 466, POLS 866, AECN 467, ANTH 479, ANTH 879, ECON 866, GEOG 848, HIST 479, HIST 879, SOCI 466, SOCI 866
Prerequisites: Senior standing and permission.
Notes: Open to students with an interest in international relations.
Description: Topic varies.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Groups: International Relations&Compar Integrative Courses, Research Variable group based on topic Comp Intrntnl & Reg Developmnt Human-Economic Geography

GEOG 450 Climate and Society
Crosslisted with: AGRO 450, METR 450, NRES 452, AGRO 850, GEOG 850, METR 850, NRES 852
Prerequisites: Junior standing or above.
Notes: Offered spring semester of even-numbered calendar years.
Description: Impact of climate and extreme climatic events on society and societal responses to those events. Global in scope and interdisciplinary.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Offered: SPRING
Groups: Physical Geography

GEOG 461 Geospatial Approaches in Digital Humanities and Social Sciences
Crosslisted with: ANTH 461, ANTH 861, CLAS 461, CLAS 861, GEOG 861, HIST 461, HIST 861
Description: Study of geographic concepts and critical analysis of applications of Geographic Information Systems (GIS) in humanities and social sciences and application of geospatial tools for humanities and social science research; learn how to collect, manage, analyze, and visualize spatial data for real-world projects
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Groups: Techniques
GEOG 467 Great Plains Field Pedology
Crosslisted with: AGRO 477, NRES 477, SOIL 477, GEOG 867, NRES 877
Prerequisites: AGRO/SOIL 153.
Description: Spatial relationship of soil properties on various parts of landscape typical of the Plains, causal factors, and predictions of such relationships on other landscapes. Grouping these properties into classes, naming the classes, and the taxonomy that results from this grouping. Application of a taxonomy to a real situation through making a field soil survey in a region representative of the Plains border, predicting land use response of various mapped units as it affects the ecosystem, and evaluating the effectiveness of the taxonomic system used in the region surveyed.
Credit Hours: 4
Max credits per semester: 4
Max credits per degree: 4
Format: LEC
Groups: Physical Geography

GEOG 469 Bio-Atmospheric Instrumentation
Crosslisted with: AGRO 469, HORT 407, METR 469, MSYM 469, NRES 469, AGRO 869, GEOG 869, HORT 807, METR 869, MSYM 869, NRES 869
Prerequisites: Junior standing; MATH 106; 4 hrs physics; physical or biological science major.
Description: Discussion and practical application of principles and practices of measuring meteorological and related variables near the earth's surface including temperature, humidity, precipitation, pressure, radiation and wind. Performance characteristics of sensors and modern data collection methods are discussed and evaluated.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Groups: Physical Geography

GEOG 478 Pro-seminar in Latin American Studies
Crosslisted with: ANTH 478, HIST 478, LAMS 478, POLS 478, SOCI 478, MODL 478, EDPS 478, ANTH 878, GEOG 878, HIST 878, POLS 878, SOCI 878, MODL 878, EDPS 878
Prerequisites: Junior standing and permission.
Notes: Topical seminar required for all Latin American Studies majors.
Description: An interdisciplinary analysis of topical issues in Latin American Studies.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 6
Format: LEC
Groups: Regional Geography Lat Am, Asian, Middle East Hist International Relations & Compar Integrative Courses, Research

GEOG 483 Cognitive Processes in Map Comprehension and Use
Crosslisted with: GEOG 883
Prerequisites: GEOG 317 and 417/817.
Description: How cognitive processes help individuals to comprehend the spatial circumstances or arenas they confront when carrying out their daily activities. Awareness of space, spatial knowing, formation of cognitive maps, importance of spatial images in negotiation of surroundings, and the relationship of cognitive maps to orientation and wayfinding.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Format: LEC
Groups: Techniques

GEOG 484 Water Resources Seminar
Crosslisted with: AGRO 484, GEOL 484, NRES 484, WATS 484, NRES 884, AGRO 884, GEOG 884, GEOL 884, WATS 884
Prerequisites: Junior or above standing
Description: Seminar on current water resources research and issues in Nebraska and the region.
Credit Hours: 1
Max credits per semester: 1
Max credits per degree: 1
Format: LEC

GEOG 491 Geography Field Tour
Crosslisted with: GEOG 891, NRES 491
Description: Group educational tours to specific sites that illustrate aspects of physical and cultural geography. Off-campus travel required.
Credit Hours: 2-3
Min credits per semester: 2
Max credits per semester: 3
Max credits per degree: 6
Format: FLD
Groups: Physical Geography

GEOG 497 Internship in Geography
Crosslisted with: GEOG 897
Prerequisites: Permission.
Description: Applying geographic training with on-the-job learning.
Credit Hours: 1-6
Min credits per semester: 1
Max credits per semester: 6
Max credits per degree: 6
Format: FLD

GEOG 498 Advanced Special Problems
Crosslisted with: GEOG 898
Notes: Topic varies, see course description or registration guide.
Credit Hours: 1-24
Min credits per semester: 1
Max credits per semester: 24
Max credits per degree: 24
Format: LEC

PLEASE NOTE
This document represents a sample 4-year plan for degree completion with this major. Actual course selection and sequence may vary and should be discussed individually with your college or department academic advisor. Advisors also can help you plan other experiences to enrich your undergraduate education such as internships, education abroad, undergraduate research, learning communities, and service learning and community-based learning.

Geography (B.A.)
Career Information
The following represents a sample of the internships, jobs and graduate school programs that current students and recent graduates have reported.

Transferable Skills
• Confidently navigate complex, ambiguous projects and environments
• Define problems and identifying causes
• Conduct and present research to large and small groups
• Examine and address social problems, and implement creative solutions
• Analyze and explain data
• Collaborate with a team to develop solutions
• Contextualize political, social, and historical events
• Examine problems from multiple perspectives
• Gain global perspective and high levels of intercultural awareness
• Understand the connection between people, places, and communities

**Jobs of Recent Graduates**

• Geographer, United States CE, Engineer Research & Development - Alexandria VA
• GIS Technician, GIS Workshop - Lincoln NE
• Archeological Technician, Midwest Archeological Center National Park Service - Lincoln NE
• Space and Missile Officer, United States Air Force - Vandenberg AFB CA
• Project Scientist, Albred Benesch & Company - Lincoln NE
• Intelligence Analyst, BAE Systems - McLean VA
• Police Officer, Omaha Police Dept - Omaha NE
• Geospatial Technician, Terra2 Geospatial Consultants - Omaha NE
• Peace Corps Volunteer, Peace Corps - Washington DC
• Agricultural Statistician, USDA NASS - Lincoln NE
• Marketing Coordinator, Engineering Technologies, Inc. - Lincoln NE
• GIS/CAD Technician, Lincoln Electric System - Lincoln NE
• Drafter, Booz Allen Hamilton - Omaha NE
• Integrated Resource Technician, National Park Service - International Falls MN
• GIS Specialist, Nebraska Dept of Natural Resources - Lincoln NE

**Internships**

• Integrated Management Technical Assistant, Nebraska Dept of Natural Resources - Lincoln NE
• GIS Intern, HDR - Lincoln NE
• NHD GIS Intern, Nebraska Dept of Natural Resources - Lincoln NE