



# 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, and 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.

## Learning Outcomes

Graduates with a major in geography will:

1. Evaluate space and scale.
2. Explain the physical characteristics, processes, and spatial variations of the Earth.
3. Interpret the history and philosophy of geography as a discipline.
4. Demonstrate proficiency in geospatial analysis, visualization, and communication using spatial data.
5. Apply a spatial thinking framework to recognize how humans are influenced by geography.

## Academic and Career Advising

### Academic and Career Advising Center

Not sure where to go or who to ask? The Advising Center team in 107 Oldfather Hall can help. The Academic and Career Advising Center is the undergraduate hub for CAS students in all majors. Centrally located and easily accessed, students encounter friendly, knowledgeable people who are eager to help or connect students to partner resources. Students also visit the Advising Center in 107 Oldfather Hall to:

- Choose or change their major, minor, or degree program.
- Check on policies, procedures, and deadlines.
- Get a college approval signature from the Dean's representatives.

CAS Career Coaches are available by appointment (in-person or Zoom) and located in the CAS Academic and Career Advising Center, 107 Oldfather Hall. They help students explore majors and minors, gain experience, and develop a plan for life after graduation.

### Assigned Academic Advisors

Academic advisors are critical resources dedicated to students' academic, personal, and professional success. Every CAS student is assigned an academic advisor based on their primary major. Since most CAS students have more than just a single major, it is important to get to know the advisor for any minors or additional majors. Academic advisors

work closely with the faculty to provide the best overall support and the discipline specific expertise. They are available for appointments (in-person or Zoom) and through weekly virtual drop-ins. Assigned advisors are listed in MyRED (<https://its.unl.edu/myunl/>) and their offices may be located in or near the department of the major for which they advise.

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 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, visit <https://cas.unl.edu/major-advisors> (<https://cas.unl.edu/major-advisors/>), or connect with the Arts and Sciences Academic and Career Advising Center, 107 Oldfather Hall, 402-472-4190, [casadvising@unl.edu](mailto:casadvising@unl.edu).

### Career Coaching

The College believes that **Academics + Experience = Opportunities** and encourages students to complement their academic preparation with real-world experience, including internships, research, education abroad, service, and leadership. Arts and sciences students have access to a powerful network of faculty, staff, and advisors dedicated to providing information and support for their goals of meaningful employment or advanced education. Arts and sciences graduates have unlimited career possibilities and carry with them important career competencies—communication, critical thinking, creativity, context, and collaboration. They have the skills and adaptability that employers universally value. Graduates are prepared to effectively contribute professionally and personally with a solid foundation to excel in an increasingly global, technological, and interdisciplinary world.

Students should contact the career coaches in the Arts and Sciences Academic and Career Advising Center in 107 Oldfather Hall, or their assigned advisor, for more information. The CAS career coaches help students explore career options, identify ways to build experience and prepare to apply for internships, jobs, or graduate school, including help with resumes, applications, and interviewing.

### ACE Requirements

Students must complete one course for each of the ACE Student Learning Outcomes below. Certified course choices are published in the degree audit, or visit the ACE (<http://ace.unl.edu>) website (<http://ace.unl.edu>) for the most current list of certified courses.

#### ACE Student Learning Outcomes

ACE 1: Write texts, in various forms, with an identified purpose, that respond to specific audience needs, integrate research or existing knowledge, and use applicable documentation and appropriate conventions of format and structure.

ACE 2: Demonstrate competence in communication skills.

ACE 3: Use mathematical, computational, statistical, logical, or other formal reasoning to solve problems, draw inferences, justify conclusions, and determine reasonableness.

ACE 4: Use scientific methods and knowledge to pose questions, frame hypotheses, interpret data, and evaluate whether conclusions about the natural and physical world are reasonable.

ACE 5: Use knowledge, historical perspectives, analysis, interpretation, critical evaluation, and the standards of evidence appropriate to the humanities to address problems and issues.	Select from the following approved courses also listed in your degree audit: ANTH 130, ANTH 412, ANTH 447, ANTH 473, ARAB/RELG 313, COMM 311, COMM 315, COMM/ETHN 335, COMM 364, COMM/ETHN 365, COMM 465, ENGL/WMNS 212, ENGL/ETHN 245N, ENGL/WMNS 312, ENGL/ETHN 345D, ENGL/ETHN/WMNS 345N, ENGL/ETHN 346, ENGL 376, ENGL 380, ENGL/ETHN 445, ETHN 100, ETHN 201, ETHN 202, ETHN 204, ETHN 484, FILM/ETHN 344, GEOG 271, GEOG 403, GLST/ANTH/MODL 214, GLST 350, HIST/ETHN/WMNS 115, HIST/ETHN 234, HIST/ETHN 246, HIST 251, HIST/ETHN 340, HIST 351/ETHN 341, HIST/ETHN/WMNS 356, HIST/ETHN 357, HIST/WMNS 402, HRHA 350, MODL 260, PHIL 105, PHIL 106, PHIL/WMNS 218, PHIL 323, PHIL 325, POLS/ETHN 333, POLS/WMNS 338, POLS 340, POLS 347, POLS 433, PSYC/ETHN 310, PSYC 330, PSYC/WMNS 421, PSYC/ETHN 425, RELG/HIST 134, RELG/ETHN/HIST 226, RELG/HIST 227, SOCI 101, SOCI 180, SOCI/WMNS 200, SOCI/ETHN 217, SPAN 206, SPAN 486, WMNS 101, WMNS 201, WMNS 202, WMNS 210
ACE 6: Use knowledge, theories, and research perspectives such as statistical methods or observational accounts appropriate to the social sciences to understand and evaluate social systems or human behaviors.	
ACE 7: Use knowledge, theories, or methods appropriate to the arts to understand their context and significance.	
ACE 8: Use knowledge, theories, and analysis to explain ethical principles and their importance in society.	
ACE 9: Exhibit global awareness or knowledge of human diversity through analysis of an issue.	
ACE 10: Generate a creative or scholarly product that requires broad knowledge, appropriate technical proficiency, information collection, synthesis, interpretation, presentation, and reflection.	

## College Degree Requirements

### College Distribution Requirements

The College of Arts and Sciences distribution requirements are designed to ensure a range of courses across disciplines 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, and no course can be used to fulfill 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, with the exception of CDR Diversity. Courses used to meet CDR Diversity may also meet CDR Writing, CDR Humanities, or CDR Social Science.
- Internship (395 or 495), independent study or readings (396 or 496), research (398 or 498), and thesis (399, 399H, 499, or 499H) will not satisfy distribution requirements.
- Other courses with a 9 in the middle number (ex. PSYC 292) will not satisfy distribution requirements unless approved by an advisor.
- Cross-listed courses from interdisciplinary programs will be applied in the same area as courses from the lead department.

#### CDR: Written Communication

Select from courses approved for ACE outcome 1.

#### CDR: Natural, Physical, and Mathematical Sciences <sup>1</sup>

Select a course from ASTR, BIOS, CHEM, GEOL, LIFE, METR, MATH, PHYS, or ANTH 242, GEOG 155, GEOG 281, POLS 250, or PSYC 273.

#### CDR: Laboratory <sup>2</sup>

Laboratory courses may be embedded in a 4-5 credit course used in CDR Natural, Physical, and Mathematical Science (example GEOG 155), or stand alone (example LIFE 120L).

#### CDR: Humanities <sup>3</sup>

Select a course from ARAB, CHIN, CLAS, CZEC, ENGL, FILM, FREN, GERM, GREK, HIST, JAPN, LATN, PHIL, RELG, RUSS, or SPAN.

#### CDR: Social Science <sup>4</sup>

Select a course from ANTH, COMM, GEOG, NSST, POLS, PSYC, or SOCI.

#### CDR: Human Diversity in U.S. Communities

#### CDR: Language

##### BA Students <sup>5</sup>

Fulfilled by the completion of the 4th level of a single language (either in H.S. or in college). Language study at UNL is available in: ARAB, CHIN, CZEC, FREN, GERM, GREK, JAPN, LATN, SPAN, or SLPA.

##### BS Students <sup>6</sup>

Fulfilled by the completion of the 2nd level of a single language (either in H.S. or in college). Language study at UNL is available in: ARAB, CHIN, CZEC, FREN, GERM, GREK, JAPN, LATN, SPAN, or SLPA.

<sup>1</sup> Excluded courses: BIOC 101, BIOS 100, BIOS 180, CHEM 101, MBIO 101, PHYS 201, MATH 100A, MATH 101, MATH 101P, MATH 102, MATH 103, and MATH subject area credit at the 100 level or below.

<sup>2</sup> ANTH 242L, ASTR 224, BIOS 101L, BIOS 110L, BIOS 111, BIOS 116, BIOS 213L, BIOS 214, CHEM 105L, CHEM 106L, CHEM 109L, CHEM 110L, CHEM 113L, GEOG 155, GEOL 101, GEOL 103, LIFE 120L, LIFE 121L, METR 100, PHYS 141, PHYS 142, PHYS 153, PHYS 221, or PHYS 222.

<sup>3</sup> ARAB, CHIN, CZEC, FREN, GERM, GREK, JAPN, LATN, and SPAN courses must be numbered 300 or above. ENGL courses must be ENGL 170, ENGL 180, or ENGL 200 level and above. Excluded courses: CLAS 116, ENGL 254, ENGL 300, ENGL 354, SPAN 300A, SPAN 303, and SPAN 304.

<sup>4</sup> Excluded courses: ANTH 242/ANTH 242L, GEOG 155, GIST 111, GIST 311, POLS 101, POLS 250, PSYC 100, PSYC 273.

<sup>5</sup> ARAB 202, CHIN 202, CZEC 202, FREN 202 or FREN 210, GERM 202, GREK 301 and GREK 302, JAPN 201 and JAPN 202, LATN 301 and LATN 302, SPAN 202 or SPAN 210 or SPAN 300A or SLPA 202.

<sup>6</sup> ARAB 102, CHIN 102, CZEC 102, FREN 102, GERM 102, GREK 102 or GREK 151, JAPN 102, LATN 102, SPAN 102 or SPAN 110 or SPAN 300A, or SLPA 102.

### Language Requirement

The University of Nebraska–Lincoln and the College of Arts and Sciences place great value on academic exposure and proficiency in a second language. The University of Nebraska–Lincoln entrance requirement is successful completion of two levels of the same world language, and the College of Arts and Sciences degree requirement (CDR: Language) is proficiency through 4 levels for BA students, or 2 levels for BS students.



Levels are defined as years in High School, or semesters in college as documented on an official transcript.

Students who believe they are proficient in a language, but who do not have academic records of that proficiency, should consult with their academic advisor to explore alternative assessments which may include a proficiency examination by a UNL faculty member for languages taught at UNL, or through an approved private service for languages not taught at UNL (expenses for this service would be the student's responsibility.)

## Experiential Learning Requirement

All undergraduates in the College of Arts and Sciences must complete an Experiential Learning (EL) designated course. This may include 0-credit courses designed to document co-curricular activities recognized as Experiential Learning. Students should consult their assigned Academic Advisor and Career Coach for assistance identifying experiential learning opportunities relevant to their academic program, interests and goals.

The bachelor of science degree requires students to complete 60 hours in mathematical, physical, and natural sciences from disciplines within the College of Arts and Sciences or required in its majors: ACTS, ASTR, BIOC, BIOS, CHEM, CSCE, GEOL, LIFE, MBIO, METR, MATH, PHYS, STAT or ANTH 242, ANTH 242L, ANTH 341, ANTH 385, ANTH 386, ANTH 389, ANTH 416, ANTH 422, ANTH 430, ANTH 442, ANTH 443, ANTH 444, ANTH 448, ANTH 473, ANTH 484, ANTH 487D, ENVR 201, GEOG 155, GEOG 217, GEOG 281, GEOG 308, GEOG 317, GEOG 408, GEOG 417, GEOG 418, GEOG 419, GEOG 421, GEOG 422, GEOG 425, GEOG 427, GEOG 432, GEOG 444, GEOG 461, GEOG 467, PHIL 211, POLS 250, PSYC 273, PSYC 368, PSYC 370, PSYC 450, PSYC 451, PSYC 456, PSYC 458, PSYC 460, PSYC 461, PSYC 463, PSYC 464, or PSYC 465.

Excluded courses include: BIOC 101, BIOS 100, BIOS 180, CHEM 101, MATH 100A, MATH 101, MATH 101P, MATH 102, MATH 103, MBIO 101, PHYS 201 as well as any course numbered 395, 495, 399, 399H, 499, or 499H. MATH subject area credit at the 100 level or below is also excluded.

Up to 12 hours of scientific and technical courses offered by other colleges may be accepted toward this requirement with approval of the College of Arts and Sciences. See your assigned academic advisor to start the approval process.

## 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 cumulative 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 University of Nebraska–Lincoln 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 the College of Arts and Sciences departments to be degree applicable.

## Pass/No Pass Privilege

### University policy for the Pass/No Pass (P/N) privilege:

- Neither the P nor the N grade factor into your GPA.
- 'P' is interpreted to mean a grade of C or above. A grade of C- or lower results in a "N".
- A change to or from a Pass/No Pass may be made until mid-term (1/2 of the course - see the academic calendar for specific dates per term).
- The Pass/No Pass or grade registration cannot conflict with the policy of the professor, department, college, or University policy governing the grading options.
- Changing to or from the Pass/No Pass grading option requires using MyRED, or processing a Schedule Adjustment Form.
- For undergraduates, the University maximum of 24 'Pass' credit hours and/or college and department limits will apply. These limits do not include courses offered on a 'Pass/No Pass' basis only. Consult your advisor or the Undergraduate Catalog (<https://catalog.unl.edu/undergraduate/>) for restrictions on the number of 'Pass' hours you can apply toward your degree.
- The 'Pass/No Pass' grading option cannot be used for the removal of 'C-', 'D+', 'D', 'D-', or 'F' grade factors.

*NOTE: See Course Repeats (<https://registrar.unl.edu/academic-standards/course-repeats/>)*

### College of Arts and Sciences policy on the Pass/No Pass (P/N) privilege:

- Pass hours can count toward fulfillment of University ACE requirements and college distribution requirements up to the 24-hour maximum.
- Most arts and sciences majors and minors do not permit any courses graded Pass/No Pass to apply, or limit them to no more than 6 hours. Students should refer to the major section of the catalog for clarification.
- Departments may specify that certain courses of theirs can be taken on a P/N-only or on a graded-only basis.

## 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:

- Talk with the instructor concerned. Most problems are resolved at this point.
- Talk to the instructor's department chairperson.
- Take the case to the Grading Appeal Committee of the department concerned. The Committee should be contacted through the department chairperson.
- 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 the University of Nebraska–Lincoln.

## Residency Requirement

The term "Residency" refers to courses taken at UNL. Students must complete at least 30 of the 120 total hours for their degree at the University of Nebraska–Lincoln. Students must complete at least 18

hours of their major coursework, and 15 of the 30 hours required at the 300 or 400 level, at UNL.

## 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 the University of Nebraska–Lincoln. 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 the University of Nebraska–Lincoln 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.

**Transfer Students:** Students who have transferred from a community college may be eligible to fulfill the requirements as stated in the catalog for an academic year in which they were enrolled at the community college prior to attending the University of Nebraska-Lincoln. This decision should be made in consultation with academic advisors, provided the student a) was enrolled in a community college during the catalog year they are utilizing, b) maintained continuous enrollment at the previous institution for 1 academic year or more, and c) continued enrollment at the University of Nebraska-Lincoln within 1 calendar year from their last term at the previous institution. Students must complete all degree requirements from a single catalog year and within the time frame allowable for that catalog year.

## Major Requirements

At least 37 hours, including geography Core Requirements, Techniques, and Electives with at least 14 hours at the 300 or 400 level and at least one of the Techniques courses at the 400 level.

### Core Requirements

#### Required Courses

GIST 111	Academic Success and Decision Making in a Globalized World	1
GEOG 140 or GEOG 250	Introductory Human Geography Global Economies: Globalization and Economic Development	3
GEOG 155	Elements of Physical Geography	4
GEOG 181	Global Environmental Issues	3
GEOG 217	Principles of GIS	4
GEOG 272	Geography of World Regions	3
GIST 311	Seminar in Launching Academic and Professional Careers	1
GEOG 402	Geography Capstone (ACE 10)	3
Credit Hours Subtotal:		22
Total Credit Hours		22

### Specific Major Requirements

#### Technique Courses

Select two courses from the following, with one at the 400 level.	6-8
ANTH 389	GIS in Archaeology
CRPL 432	Advanced Spatial Analysis with GIS
CRPL 492	Selected Topics in Community and Regional Planning

GEOG 317	Cartography I: Introduction to Cartography
GEOG 417	Web GIS
GEOG 418 / NRES 418	Introduction to Remote Sensing
GEOG 419 / GEOL 419 / NRES 419 / PLAS 419	Applications of Remote Sensing in Agriculture and Natural Resources
GEOG 421 / NRES 421	Field Techniques in Remote Sensing
GEOG 422	Advanced Techniques in Geographic Information Systems
GEOG 425	Geovisualization
GEOG 427 / NRES 427	Introduction to the Global Positioning System (GPS)
GEOG 432 / NRES 432	Programming, Scripting, and Automation for GIS
GEOG 444	Geo-demographic and Geographic Information Systems (GIS)
GEOG 461 / ANTH 461 / CLAS 461 / HIST 461	Geospatial Approaches in Digital Humanities and Social Sciences
Credit Hours Subtotal:	
6-8	
<b>Additional Geography Courses</b>	
Select three additional GEOG courses.	
9-12	
Credit Hours Subtotal:	
9-12	
<b>Total Credit Hours</b>	
15-20	

## 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.

## 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 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

**Grading Option:** Graded with Option

**Offered:** FALL

**ACE:** ACE 4 Science ACE 8 Civic/Ethics/Stewardship

**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

**Grading Option:** Graded with Option

**ACE:** ACE 9 Global/Diversity

**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

**Grading Option:** Graded with Option

**Prerequisite for:** GEOG 308, GEOL 308, NRES 308

**ACE:** ACE 4 Science

**Course and Laboratory Fee:** \$15

**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

**Grading Option:** Graded with Option

**GEOG 181 Global Environmental Issues**

**Description:** Exploration of urgent global environmental issues and their relationships with physical, social, biological, and economic process. Investigation between human activity, wellbeing, and environmental change. Topics include landscape transformation, climate change, environmental health and disease, and water quality.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded with Option

**Offered:** FALL/SPR

**ACE:** ACE 6 Social Science ACE 9 Global/Diversity

**GEOG 189H University Honors Seminar**

**Prerequisites:** Good standing in University Honors Program or by invitation.

**Description:** Topic varies.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded

**ACE:** ACE 6 Social Science

**GEOG 191 Special Topics in Geography**

**Description:** Examine current problems in geography.

**Credit Hours:** 1-6

**Min credits per semester:** 1

**Max credits per semester:** 6

**Max credits per degree:** 6

**Grading Option:** Graded with Option

**GEOG 200 Landscape and Environmental Appreciation**

**Crosslisted with:** PLAS 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

**Grading Option:** Graded with Option

**ACE:** ACE 7 Arts ACE 9 Global/Diversity

**GEOG 217 Principles of GIS**

**Description:** Introduction to theories and methods of Geographic Information Science (GIScience) and Geographic Information Systems (GISystems). Focuses on spatial thinking, analysis skills, and the fundamental knowledge needed to use GIS effectively, accurately, and ethically. Topics include: geodesy, cartography and geovisualization, map projections, geospatial data collection, GPS, spatial data models, spatial databases, and spatial analysis.

**Credit Hours:** 4

**Max credits per semester:** 4

**Max credits per degree:** 4

**Grading Option:** Graded with Option

**Offered:** FALL

**Prerequisite for:** GEOG 432, GEOG 832, NRES 432

**Course and Laboratory Fee:** \$50

**GEOG 250 Global Economies: Globalization and Economic Development**

**Notes:** GEOG 140 recommended.

**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

**Grading Option:** Graded with Option

**GEOG 271 Exploring North America and its Cultural Diversity**

**Description:** Introduction to the regional geography of North America. 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

**Grading Option:** Graded with Option

**ACE:** ACE 9 Global/Diversity

**Groups:** CAS Diversity in the US

**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

**Grading Option:** Graded with Option

**ACE:** ACE 9 Global/Diversity

**GEOG 281 Introduction to Water Science**

**Crosslisted with:** NRES 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

**Grading Option:** Graded with Option

**Prerequisite for:** NRES 319; PLAS 361, GEOL 361, NRES 361, SOIL 361

**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

**Grading Option:** Graded with Option

**ACE:** ACE 5 Humanities ACE 6 Social Science

**GEOG 298 Undergraduate Research**

**Prerequisites:** Permission.

**Description:** Research experience.

**Credit Hours:** 1-6

**Min credits per semester:** 1

**Max credits per semester:** 6

**Max credits per degree:** 6

**Grading Option:** Graded with Option

**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

**Grading Option:** Graded with Option

**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

**Grading Option:** Graded with Option

**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

**Grading Option:** Graded with Option

**ACE:** ACE 5 Humanities

**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

**Grading Option:** Graded with Option

**ACE:** ACE 6 Social Science

**GEOG 362 Rural Landscapes and Livelihoods in a Global World**

**Description:** Examine the intersection of social, economic, and environmental sustainability in the context of rural landscapes in an increasingly urban and globalized world. Topics include the evolution of the rural landscape, associated major social transformations, the history of agricultural consolidation, the growth of rural industrialization, policy implications, and the resilience of rural people.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded

**ACE:** ACE 6 Social Science

**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

**Grading Option:** Graded with Option

**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

**Grading Option:** Graded with Option

**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

**Grading Option:** Graded

**ACE:** ACE 5 Humanities 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

**Grading Option:** Graded with Option

**ACE:** ACE 9 Global/Diversity

**GEOG 391 Special Topics in Geography**

**Description:** Topics vary.

**Credit Hours:** 1-6

**Min credits per semester:** 1

**Max credits per semester:** 6

**Max credits per degree:** 6

**Grading Option:** Graded with Option

**GEOG 396 Independent Study in Geography**

**Prerequisites:** Permission.

**Description:** Independent reading or research under direction by a faculty member.

**Credit Hours:** 1-3

**Min credits per semester:** 1

**Max credits per semester:** 3

**Max credits per degree:** 6

**Grading Option:** Graded with Option

**GEOG 402 Geography Capstone**

**Prerequisites:** GEOG major or minor, junior or senior standing.

**Description:** The history and philosophy of geography. Contemporary issues in geography.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded with Option

**ACE:** ACE 10 Integrated Product

**GEOG 403 Environmental Justice**

**Crosslisted with:** GEOG 803

**Description:** Exploration of the concept of environmental justice, which describes how the impacts of the natural and built environment differ according to race, ethnicity, and economic status. Topics include the development of movement from its early concerns with the location of waste facilities, to disparities in health outcomes, access to affordable and healthy food, and climate change issues.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded with Option

**ACE:** ACE 8 Civic/Ethics/Stewardship

**Groups:** CAS Diversity in the US

**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

**Grading Option:** Graded with Option

**GEOG 408 Microclimate: The Biological Environment**

**Crosslisted with:** PLAS 408, METR 408, NRES 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

**Grading Option:** Graded with Option

**Prerequisite for:** BSEN 954, NRES 954

**GEOG 417 Web GIS**

**Crosslisted with:** GEOG 817

**Prerequisites:** GEOG 217 or GEOG 317

**Description:** Introduction to Internet-based GIS and web cartography. Focus on programming concepts underlying the creation and implementation of quality web mapping applications.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded with Option

**Offered:** SPRING

**GEOG 418 Introduction to Remote Sensing****Crosslisted with:** GEOG 818, NRES 418, NRES 818**Prerequisites:** Junior Standing**Description:** Remote sensing of the earth from aerial and satellite platforms. Aerial photography, multispectral scanning, thermal imaging, microwave remote sensing techniques. Data acquisition and image analysis. Physical foundations of remote sensing using electromagnetic energy and energy-matter interactions. Applications in geographic, agricultural, environmental and natural resources analyses.**Credit Hours:** 4**Max credits per semester:** 4**Max credits per degree:** 4**Grading Option:** Graded with Option**Offered:** FALL**Prerequisite for:** GEOG 421, GEOG 821, NRES 421, NRES 821**Course and Laboratory Fee:** \$115**GEOG 419 Applications of Remote Sensing in Agriculture and Natural Resources****Crosslisted with:** PLAS 419, GEOL 419, NRES 420, AGRO 819, GEOG 819, GEOL 819, NRES 820**Prerequisites:** Junior standing**Description:** Introduction to the basic methods and practical applications of remote sensing to map, monitor and assess agricultural and natural resources and other environmental changes**Credit Hours:** 4**Max credits per semester:** 4**Max credits per degree:** 4**Grading Option:** Graded with Option**Course and Laboratory Fee:** \$35**GEOG 421 Field Techniques in Remote Sensing****Crosslisted with:** GEOG 821, NRES 421, NRES 821**Prerequisites:** NRES 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**Grading Option:** Graded with Option**Course and Laboratory Fee:** \$65**GEOG 422 Advanced Techniques in Geographic Information Systems****Crosslisted with:** GEOG 822**Prerequisites:** GEOG 217**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**Grading Option:** Graded with Option**Prerequisite for:** NRES 922**Course and Laboratory Fee:** \$50**GEOG 425 Geovisualization****Crosslisted with:** GEOG 825**Prerequisites:** GEOG 217**Description:** Geovisualization encompasses the techniques and concepts that underlie digital cartography and the broader field of spatial visualization, exploring 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:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Grading Option:** Graded with Option**Offered:** FALL**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**Grading Option:** Graded with Option**Course and Laboratory Fee:** \$65**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**Grading Option:** Graded with Option**GEOG 432 Programming, Scripting, and Automation for GIS****Crosslisted with:** GEOG 832, NRES 432**Prerequisites:** GEOG 217**Notes:** Practical experience or other formal preparation in GIS may be substituted for prerequisite by permission.**Description:** GIS-focused programming, scripting, and spatial analysis using the Python and R programming languages. Topics include: the ArcPy library, algorithm development, open source geospatial libraries, and the manipulation and analysis of geospatial data.**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Grading Option:** Graded with Option**Offered:** SPRING**Course and Laboratory Fee:** \$50

**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**Grading Option:** Graded with Option**GEOG 441 Geographies of Health****Crosslisted with:** GEOG 841

**Description:** Exploration of political economies of health care, the geographic distribution of services, the impacts of location in both care utilization and access, emphasizing the importance of "place" in health outcomes.

**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Grading Option:** Graded with Option**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 change forecasting. GIS use of TIGER and small-area census data.

**Credit Hours:** 3**Max credits per semester:** 3**Max credits per degree:** 3**Grading Option:** Graded with Option**Course and Laboratory Fee:** \$45**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**Grading Option:** Graded with Option**GEOG 450 Climate and Society****Crosslisted with:** PLAS 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**Grading Option:** Graded with Option**Offered:** SPRING**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**Grading Option:** Graded with Option**Course and Laboratory Fee:** \$50**GEOG 467 Great Plains Field Pedology****Crosslisted with:** PLAS 477, NRES 477, SOIL 477, GEOG 867, NRES 877**Prerequisites:** PLAS/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**Grading Option:** Graded with Option**Course and Laboratory Fee:** \$80**GEOG 469 Bio-Atmospheric Instrumentation****Crosslisted with:** PLAS 407, METR 469, AGST 469, NRES 469, AGRO 869, GEOG 869, HORT 807, METR 869, AGST 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**Grading Option:** Graded with Option

**GEOG 484 Water Resources Seminar**

**Crosslisted with:** PLAS 484, GEOL 484, NRES 484, NRES 884, AGRO 884, GEOG 884, GEOL 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

**Grading Option:** Graded with Option

**GEOG 491 Special Topics in Geography**

**Crosslisted with:** GEOG 891, NRES 491

**Description:** Topics vary.

**Credit Hours:** 1-6

**Min credits per semester:** 1

**Max credits per semester:** 6

**Max credits per degree:** 6

**Grading Option:** Graded with Option

**GEOG 497 Geography Field Tour**

**Crosslisted with:** GEOG 897

**Prerequisites:** Permission.

**Description:** Applying geographic concepts with field training.

**Credit Hours:** 1-6

**Min credits per semester:** 1

**Max credits per semester:** 6

**Max credits per degree:** 6

**Grading Option:** Graded with Option

**Offered:** SUMMER

**Experiential Learning:** Fieldwork

**GEOG 498 Research**

**Crosslisted with:** GEOG 898

**Prerequisites:** Permission.

**Description:** Research experience.

**Credit Hours:** 1-6

**Min credits per semester:** 1

**Max credits per semester:** 6

**Max credits per degree:** 6

**Grading Option:** Graded with Option

**Course and Laboratory Fee:** \$20

**GEOG 499 Undergraduate Thesis**

**Prerequisites:** Permission.

**Description:** Independent research leading to a thesis.

**Credit Hours:** 1-3

**Min credits per semester:** 1

**Max credits per semester:** 3

**Max credits per degree:** 6

**Grading Option:** Graded with Option

**GEOG 499H Honors Undergraduate Thesis**

**Prerequisites:** Permission. Credit toward the degree cannot be earned in GEOG 499 and GEOG 499H.

**Description:** Independent research leading to a thesis.

**Credit Hours:** 1-3

**Min credits per semester:** 1

**Max credits per semester:** 3

**Max credits per degree:** 6

**Grading Option:** Graded with Option

**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**

- GIS Analyst, Omaha Public Power District – Omaha, NE
- Park Ranger, National Park Service – Sulphur, OK
- Right-of-Way Designer, Nebraska Department of Transportation – Lincoln, NE
- Cartography Technician, GARMIN – Olathe, KS
- Transportation Planner, Olsson – Loveland, CO
- Law Reporter, Berkshire Hathaway Automotive – Omaha, NE
- Campus Missionary, Fellowship of Catholic University Students – Bismarck, ND
- Geospatial Analyst, National Geospatial-Intelligence Agency – Springfield, VA
- Geographer, United States CE, Engineer Research & Development – Alexandria, VA
- Archeological Technician, Midwest Archeological Center National Park Service – 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

**Graduate & Professional Schools**

- Master's Degree, Geography, University of Nebraska - Lincoln – Lincoln, NE
- Doctor of Medicine, Kansas City University of Medicine and Biosciences – Kansas City, MO