The Department of Geography offers the following undergraduate and graduate programs and program certificate. Specific requirements for these programs are listed within this Department of Geography section in the following order:

Undergraduate Major (B.S.)
- Geographic Information Science

Undergraduate Major (B.A.)
- Environmental Resource Management (also listed in Department of Biology, Department of Earth and Environmental Sciences and Department of Health, Recreation and Community Services)
- Geography

Minor
- Geography

Graduate Major (M.A.)
- Geography

Program Certificate
- Crime Mapping and Analysis (also listed in Department of Sociology, Anthropology, and Criminology)
- Geographic Information Systems (GIS) and Cartography

Bachelor of Science Degree Programs

Geographic Information Science Major
The B.S. Geographic Information Science major requires a minimum of 126 total hours to graduate. This total includes Liberal Arts Core requirements and the following specified major requirements, plus course choices for a focus within the major and electives, needed to complete the minimum of 126 hours.

Required
Geographic Information Science core: 30-32
- GEOG 1120 (970:010) Human Geography
- GEOG 1210 (970:026) Physical Geography
- GEOG 1211 Physical Geography Laboratory
- GEOG 3598 (970:193) Research Experience in Geography
- GEOG 3310 (970:164) Geographic Information Systems I
- GEOG 4310/5310 (970:170g) GIS Applications: (Variable Topic)
- GEOG 4320/5320 (970:174g) Geographic Information Systems II
- GEOG 4350/5350 (970:175g) Global Positioning System Field Survey Methods
- GEOG 4360/5360 (970:165g) Thematic Cartography
- GEOG 4370/5370 (970:173g) Remote Sensing of the Environment
- GEOG 4550 (970:180) Senior Seminar in Geography
- GEOG 4560 (970:181) Professional Seminar
- Geography: (two of the following): 6
  - GEOG 1310 (970:061) Digital Earth
  - GEOG 4340/5340 (970:160g) Spatial Data Analysis *
  - GEOG 4380/5380 Satellite Image Processing
- One course from each of the following pairs: 6
  - Mathematics or Sociology select one of the following:
    - STAT 1772 (800:072) Introduction to Statistical Methods
  - Computer Science or Geography select one of the following:
    - GEOG 4390/5390 GIS Programming
    - CS 3140/5140 (810:114g) Database Systems *
  - Choose one Application Focus (below) and four courses from that focus: 12
- Application Focus on Environmental Science and Policy
  - Health Promotion/Environmental:
    - HPE/ENV SCI 4666 Environmental and Occupational Health Regulations
  - Earth Science:
    - EARTHSCI 3230/5230 (870:123g) Air Quality *
  - Geography:
    - GEOG 2210 (970:028) Recent Climate Change
    - GEOG 3210 (970:137) Natural Hazards and Disasters
    - GEOG 3220 (970:100) Environmental Geography
    - GEOG 4210/5210 (970:127g) Climatology
    - GEOG 4220/5220 (970:126g) Soils and Landscapes
    - GEOG 4230/5230 (970:129g) Rivers
    - GEOG 4240/5240 (970:155g) Reconstructing Ice Age Environments *
    - GEOG 4250/5250 (970:185g) Laboratory Methods in Environmental Geography
- Or approved courses in cognate areas.

Application Focus on Economic Geography and Business
- Management:
  - MGMT 3153 (150:153) Organizational Management
- Geography:
  - GEOG 3110 (970:101) Economic Geography
  - GEOG 4110/5110 (970:111g) Cultural Geography
  - GEOG 4180/5180 (970:121g) Locational Analysis for Business
Department of Geography

GEOG 4190/5190 (970:117g) Transportation Planning and Policy

Or approved courses in cognate areas.

Application Focus on Planning and Policy

Political Science:

POL AMER 1048 (942:048) Introduction to Public Administration

Geography:

GEOG 3110 (970:101) Economic Geography
GEOG 3120 (970:104) North American Cities
GEOG 4110/5110 (970:111g) Cultural Geography
GEOG 4120/5120 (970:119g) Demography and Population Geography
GEOG 4170/5170 (970:168g) Regional Analysis and Planning
GEOG 4190/5190 (970:117g) Transportation Planning and Policy

Or approved courses in cognate areas.

Electives 1-4

Other courses, in Geography or cognate areas approved, to reach a minimum of 56 hours.

Total hours 56

* These courses have additional prerequisites as follows: GEOG 4340/5340 (970:160g) has prerequisite of STAT 1772 (800:072) or SOC 2020 (980:080) or CS 1520 (810:052); CS 1800 (810:080).

Note: Choice of courses and subsequent course prerequisites may increase the length of this program.

Bachelor of Arts Degree Programs

Environmental Resource Management Major

The Environmental Resource Management major is aimed at students searching for career options in the broadly-defined 'outdoor environment' that are related to natural resources, environmental systems, and sustainable development. This program will prepare students for careers in the environmental and human management of public and private spaces across differing categories of environmental systems - from public parks and lands to conservancy units managed by governmental and other non-profit agencies and organizations. This program aims to serve those students who do not wish to pursue careers as environmental scientists per se from more tightly focused 'environmental science' programs.

- STUDENTS ARE REQUIRED TO TAKE THE CORE REQUIREMENTS (31 HOURS) AND MAY CHOOSE ONLY ONE OF THE FOUR SPECIALIZATION TRACKS (30-32 HOURS).
- Each track is composed of clusters of courses with a specific concentration, each of which has a separate hourly requirement.
- For purposes of this degree program, those prerequisite courses required by BIOL, EARTHSCI, GEOG, and KAHHS for mid/upper-level courses in each Track THAT ARE NOT INCLUDED IN THE CORE REQUIREMENTS will normally be waived by the appropriate departments.
- The separate tracks allow students to specialize in the area of most general interest while the primary & secondary foci within each track make sure students also are exposed to a wide range of important auxiliary coursework.
- By permission of the Provost’s Office, students enrolled in the B.A. Environmental Resource Management major will be considered majors in all four of the participating departments.

Core Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 2051 (840:051)</td>
<td>General Biology: Organismal Diversity</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 3100 (840:100)</td>
<td>Evolution, Ecology and the Nature of Science</td>
<td>3</td>
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<tr>
<td>CHEM 1110 (860:044)</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>EARTHSCI 1300 (870:031)</td>
<td>Introduction to Geology</td>
<td>4</td>
</tr>
<tr>
<td>or GEOG 1210 (970:026) &amp; GEOG 1211</td>
<td>Physical Geography and Physical Geography Laboratory</td>
<td></td>
</tr>
<tr>
<td>EARTHSCI 3330/5330 (870:141g)</td>
<td>Geomorphology</td>
<td>4</td>
</tr>
<tr>
<td>GEOG 4260</td>
<td>Environmental Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 3310 (970:164)</td>
<td>Geographic Information Systems I</td>
<td>3</td>
</tr>
<tr>
<td>LYHS 4055 (430:151)</td>
<td>Financial Resource Management for LYHS Agencies</td>
<td>3</td>
</tr>
<tr>
<td>HISUS 4170/5170</td>
<td>U.S. Environmental History</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Hours 31

* For students pursuing the Environmental Resource Management B.A. degree, the Department of Biology will waive the BIOL 2051 (840:052) and CHEM 1120 (860:048) prerequisites for enrollment into BIOL 3100 (840:100).

Encouraged Certificates: Certificate programs that are appropriate to couple with the ERM major and help to expand specific, relevant experiences for students.

- GIS & Cartography (Dept. of Geography)
- Sustainability (Interdisciplinary)
- Outdoor Recreation (Department of Health, Recreation and Community Services)
- Tourism (Department of Health, Recreation and Community Services)
- Nonprofit Management Certificate (Department of Health, Recreation and Community Services)
- Environmental Health Certificate (Department of Health, Recreation and Community Services)

- Public History (Dept. of History)

**Ecosystems Track**

A total of 32 hours are needed for this track. There are 12 hours of required courses. In addition, student select courses from all three elective categories (A, B, & C) to accumulate to a minimum of 20 hours. At least one course must be taken from each elective category.

**Required**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>BIOL 4168/5168 (840:168g)</td>
<td>Ecology **</td>
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<tr>
<td>CHEM 1120 (860:048)</td>
<td>General Chemistry II</td>
<td>4</td>
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<tr>
<td>MATH 1140 (800:046)</td>
<td>Precalculus</td>
<td>4</td>
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</table>

**Electives:**

**Category A - Content Management Related Courses (pick at least 1 course)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 4105/5105 (840:105g)</td>
<td>Wildlife Ecology and Management **</td>
<td></td>
</tr>
<tr>
<td>BIOL 4108/5108</td>
<td>Biodiversity Conservation Policy **</td>
<td></td>
</tr>
<tr>
<td>BIOL 4167/5167 (840:167g)</td>
<td>Conservation Biology **</td>
<td></td>
</tr>
<tr>
<td>BIOL 4180/5180 (840:180g)</td>
<td>Restoration Ecology **</td>
<td></td>
</tr>
</tbody>
</table>

**Category B - Content Related Courses (pick at least 1 course)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 3112 (840:112g)</td>
<td>Invertebrate Zoology *</td>
<td></td>
</tr>
<tr>
<td>BIOL 3118</td>
<td>Marine Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 3170 (840:170g)</td>
<td>Entomology **</td>
<td></td>
</tr>
<tr>
<td>BIOL 4154/5154 (840:154g)</td>
<td>Aquatic Ecology **</td>
<td></td>
</tr>
<tr>
<td>BIOL 4157/5157 (840:157g)</td>
<td>Biostatistics **</td>
<td></td>
</tr>
<tr>
<td>BIOL 4164/5164 (840:164g)</td>
<td>Mammalogy **</td>
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</tr>
<tr>
<td>BIOL 4166/5166 (840:166g)</td>
<td>Plant Systematics **</td>
<td></td>
</tr>
<tr>
<td>GEOG 4310/5310 (970:170g)</td>
<td>GIS Applications: (Variable Topic)</td>
<td></td>
</tr>
<tr>
<td>GEOG 4320/5320 (970:174g)</td>
<td>Geographic Information Systems II</td>
<td></td>
</tr>
</tbody>
</table>

**Category C - Cognates (pick at least 1 course)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EARTHSCI 1200 (870:021)</td>
<td>Elements of Weather</td>
<td></td>
</tr>
<tr>
<td>ENGLISH 4785/5785 (620:177g)</td>
<td>Applied Writing: Projects, Grants and Careers ^</td>
<td></td>
</tr>
<tr>
<td>GEOG 2210 (970:028g)</td>
<td>Recent Climate Change</td>
<td></td>
</tr>
<tr>
<td>GEOG 3210 (970:137g)</td>
<td>Natural Hazards and Disasters</td>
<td></td>
</tr>
<tr>
<td>GEOG 3220 (970:100)</td>
<td>Environmental Geography ^</td>
<td></td>
</tr>
<tr>
<td>GEOG 3230 (970:144g)</td>
<td>Natural Regions of North America</td>
<td></td>
</tr>
<tr>
<td>GEOG 4210/5210 (970:127g)</td>
<td>Climatology</td>
<td></td>
</tr>
<tr>
<td>GEOG 4220/5220 (970:126g)</td>
<td>Soils and Landscapes</td>
<td></td>
</tr>
<tr>
<td>GEOG 4240/5240 (970:155g)</td>
<td>Reconstructing Ice Age Environments ^</td>
<td></td>
</tr>
<tr>
<td>GEOG 4250/5250 (970:185g)</td>
<td>Laboratory Methods in Environmental Geography</td>
<td></td>
</tr>
<tr>
<td>GEOG 4370/5370 (970:173g)</td>
<td>Remote Sensing of the Environment</td>
<td></td>
</tr>
<tr>
<td>LYHS/HISUS 4556</td>
<td>History of Outdoor Recreation</td>
<td></td>
</tr>
<tr>
<td>LYHS 2770 (430:070)</td>
<td>Principles of Tourism</td>
<td></td>
</tr>
<tr>
<td>LYHS 4553/5553 (430:143g)</td>
<td>Trends and Issues in Outdoor Recreation</td>
<td></td>
</tr>
<tr>
<td>MGMT 3183</td>
<td>Leadership Skills ^</td>
<td></td>
</tr>
<tr>
<td>MGMT 3185</td>
<td>Project Management ^</td>
<td></td>
</tr>
<tr>
<td>GEOG 3179 (970:179g)</td>
<td>Cooperative Education in Geography ^</td>
<td></td>
</tr>
<tr>
<td>or BIOL 3179 (840:179)</td>
<td>Cooperative Education</td>
<td></td>
</tr>
<tr>
<td>or EARTHSCI 3430 (870:195)</td>
<td>Internship</td>
<td></td>
</tr>
<tr>
<td>or LYHS 4095 (430:187)</td>
<td>Internship</td>
<td></td>
</tr>
<tr>
<td>or HPE 4768 (410:168)</td>
<td>Field Experience in Health Promotion</td>
<td></td>
</tr>
</tbody>
</table>

**Total Hours**: 32

* For students pursuing the Environmental Resource Management B.A. degree, the Department of Biology will waive BIOL 2052 (840:052) and CHEM 1120 (860:048) for BIOL 3000-level courses.

** For students pursuing the Environmental Resource Management B.A. degree, the Department of Biology will waive BIOL 3140 (840:140) as a prerequisite for BIOL 4000-level courses.

^ These courses have additional prerequisites as follows: ENGLISH 4785/5785 (620:177g) has prerequisites of ENGLISH 2770 (620:077) and one of the following - INSTTECH 4170/5170 (240:170g), ART 3030 (600:125), ENGLISH 4765/5765 (620:102g), ENGLISH 4770/5770 (620:104g), ENGLISH 4775/5775 (620:105g), ENGLISH 4780/5780 (620:107g) or consent of instructor; junior standing.

GEOG 3220 (970:100) has a prerequisite of GEOG 1120 (970:010) or GEOG 1210 (970:026) or GEOG 2210 (970:028) or GEOG 1110 (970:040) or consent of instructor.

GEOG 4240/5240 (970:155g) has prerequisites of GEOG 1210 (970:026); GEOG 2210 (970:028); EARTHSCI 1300 (870:031); or consent of instructor; junior standing.

MGMT 3183 and MGMT 3185 has a prerequisite of MGMT 3153 (150:153).

GEOG 3179 (970:179) has prerequisites of 15 hours of geography at UNI; cumulative GPA of 2.50; junior standing; consent of department.

LYHS 4095 (430:187) has prerequisites of senior standing; consent of Internship Coordinator and a corequisite of LYHS 4090 (430:184).

HPE 4768 (410:168) has prerequisites of HPE 3693 (410:193); senior standing; 2.50 cumulative GPA; consent of Health Promotion and Education Coordinator of Student Field Experiences.

**Geosystems Track**

A total of 30 hours are needed for this track, with a minimum of 21 hours from the Primary Focus group and 9 hours from the Secondary Focus group.

**Electives**

**Primary Focus - Content Related Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
</table>

**Secondary Focus**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
</table>

**Field Experiences.**

* Consent of department.

**Admission Requirements:**

To be admitted to the Geosystems Track, students must have a minimum cumulative GPA of 2.50 and junior standing. The program requires a minimum of 30 credit hours beyond the primary focus, which includes a minimum of 21 credit hours from the primary focus and 9 credit hours from the secondary focus. All students must have a GPA of at least 2.50 and meet additional prerequisites for specific courses in the track, including prerequisites for 15 credit hours, junior standing, consent of department, and senior standing. Students must also complete a minimum of one course from each elective category and consult with an advisor to ensure the proper selection of courses.
### Department of Geography

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EARTHSCI 3350/5350</td>
<td>Environmental Hydrology *</td>
<td></td>
</tr>
<tr>
<td>EARTHSCI 3322</td>
<td>Earth Materials *</td>
<td></td>
</tr>
<tr>
<td>GEOG 2210 (970:028)</td>
<td>Recent Climate Change</td>
<td></td>
</tr>
<tr>
<td>GEOG 3210 (970:137)</td>
<td>Natural Hazards and Disasters</td>
<td></td>
</tr>
<tr>
<td>GEOG 3220 (970:100)</td>
<td>Environmental Geography * ^</td>
<td></td>
</tr>
<tr>
<td>or EARTHSCI 3345/5345 (870:171g)</td>
<td>Environmental Geology ***</td>
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<tr>
<td>GEOG 4220/5220 (970:126g)</td>
<td>Soils and Landscapes</td>
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</tr>
<tr>
<td>GEOG 4230/5230 (970:129g)</td>
<td>Rivers</td>
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<tr>
<td>GEOG 4210/5210 (970:127g)</td>
<td>Climatology or EARTHSCI 1200 (870:021)</td>
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<tr>
<td>GEOG 4250/5250 (970:185g)</td>
<td>Laboratory Methods in Environmental Geography</td>
<td></td>
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<tr>
<td>GEOG 4370/5370 (970:173g)</td>
<td>Remote Sensing of the Environment</td>
<td></td>
</tr>
<tr>
<td>LYHS 4553/5553 (430:143g)</td>
<td>Trends and Issues in Outdoor Recreation</td>
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</tr>
<tr>
<td>LYHS 4554/5554 (430:146g)</td>
<td>Managing Recreation Impacts on the Natural Environment</td>
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<tr>
<td>LYHS 2335 (430:060)</td>
<td>Principles of Nonprofit Organizations</td>
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</table>

**Secondary Focus - Management Cognates**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 4105/5105 (840:105g)</td>
<td>Wildlife Ecology and Management **</td>
</tr>
<tr>
<td>BIOL 4180/5180 (840:180g)</td>
<td>Restoration Ecology **</td>
</tr>
<tr>
<td>EARTHSCI 3325/5325 (870:136g)</td>
<td>Sedimentary Geology ****</td>
</tr>
<tr>
<td>EARTHSCI 3360/5360</td>
<td>Field and Laboratory Methods in Hydrology</td>
</tr>
<tr>
<td>ECON 3225/5225 (920:123g)</td>
<td>Environmental Economics ^</td>
</tr>
<tr>
<td>ENGLISH 4785/5785 (620:177g)</td>
<td>Applied Writing: Projects, Grants and Careers</td>
</tr>
<tr>
<td>GEOG 3230 (970:144)</td>
<td>Natural Regions of North America</td>
</tr>
<tr>
<td>GEOG 4170/5170 (970:168g)</td>
<td>Regional Analysis and Planning</td>
</tr>
<tr>
<td>GEOG 4240/5240 (970:155g)</td>
<td>Reconstructing Ice Age Environments *</td>
</tr>
<tr>
<td>GEOG 4310/5310 (970:170g)</td>
<td>GIS Applications: (Variable Topic)</td>
</tr>
<tr>
<td>GEOG 4320/5320 (970:174g)</td>
<td>Geographic Information Systems II ^</td>
</tr>
<tr>
<td>LYHS 4556/5556 or HISUS 4556/5556</td>
<td>History of Outdoor Recreation</td>
</tr>
<tr>
<td>LYHS 2770 (430:070)</td>
<td>Principles of Tourism</td>
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<tr>
<td>LYHS 4776/5776 (430:170g)</td>
<td>Eco, Adventure and Sport Tourism #</td>
</tr>
<tr>
<td>MGMT 3185</td>
<td>Project Management ^</td>
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<td>POL AMER 3172/5172 (942:172)</td>
<td>Public Budgeting ^</td>
</tr>
<tr>
<td>BIOL 3179 (840:179)</td>
<td>Cooperative Education ^</td>
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<tr>
<td>or GEOG 3179 (970:179)</td>
<td>Cooperative Education in Geography</td>
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<tr>
<td>or EARTHSCI 3430 (870:195)</td>
<td>Internship</td>
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<tr>
<td>or LYHS 4095 (430:187)</td>
<td>Internship</td>
</tr>
<tr>
<td>or HPE 4768 (410:168)</td>
<td>Field Experience in Health Promotion</td>
</tr>
<tr>
<td>GEOG 3179 (970:179)</td>
<td>Cooperative Education in Geography ^</td>
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<tr>
<td>or BIOL 3179 (840:179)</td>
<td>Cooperative Education</td>
</tr>
<tr>
<td>or EARTHSCI 3430 (870:195)</td>
<td>Internship</td>
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<tr>
<td>or LYHS 4095 (430:187)</td>
<td>Internship</td>
</tr>
<tr>
<td>or HPE 4768 (410:168)</td>
<td>Field Experience in Health Promotion</td>
</tr>
</tbody>
</table>

Other courses as approved by advisors and program director

Total Hours 30

* For students pursuing the Geosystems Track, the Geography Department will accept GEOG 1210 (970:026) and GEOG 1211 or EARTHSCI 1300 (870:031) as the prerequisite for enrollment into all listed Geography courses except GEOG 4310/5310 (970:170g) and GEOG 4320/5320 (970:174g).

** The Biology Department will waive BIOL 3140 (840:140) as a prerequisite for BIOL 4105/5105 (840:105g) and BIOL 4180/5180 (840:180g).

*** The Earth and Environmental Sciences Department will accept GEOG 1210 (970:026) and GEOG 1211 as substitutes for courses that require EARTHSCI 1300 (870:031).

**** The Earth and Environmental Sciences Department will waive the requirement of EARTHSCI 1320 (870:035) for EARTHSCI 3325/5325 (870:136g).

# The Department of Health, Recreation and Community Services will waive LYHS 2770 (430:070) as a prerequisite for LYHS 4776/5776 (430:170g).
These courses have additional prerequisites as follows:

**EARTHSCL 3322** has a prerequisite of EARTHSCL 1300 (870:031).

**EARTHSCL 3350/5350** (870:173g) has prerequisites of EARTHSCL 1300 (870:031); junior standing.

**GEOG 3220** (970:100) has a prerequisite of GEOG 1120 (970:010) or GEOG 1210 (970:026) or GEOG 2210 (970:028) or GEOG 1110 (970:040) or consent of instructor.

**EARTHSCI 3322** has a prerequisite of EARTHSCI 1300 (870:031).

**EARTHSCI 3350/5350 (870:173g)** has prerequisites of EARTHSCI 1300 (870:031); junior standing.

**GEOG 3220 (970:100)** has prerequisites of GEOG 1120 (970:010) or GEOG 1210 (970:026) or GEOG 2210 (970:028) or GEOG 1110 (970:040) or consent of instructor.

**ECON 3225/5225 (920:123g)** has prerequisites of ECON 1041 (920:053), ECON 1051 (920:054); junior standing.

**ENGLISH 4785/5785 (620:177g)** has prerequisites of ENGLISH 2770 (620:077); one of the following courses - INSTTECH 4170/5170 (240:170g), ART 3030 (600:125), ENGLISH 4765/5765 (620:102g), ENGLISH 4775/5775 (620:105g), ENGLISH 4780/5780 (620:107g), or consent of instructor; junior standing.

**GEOG 3179 (970:179)** has prerequisites of 15 hours of geography at UNI; cumulative GPA of 2.50; junior standing; consent of department.

**HPE 4768 (410:168)** has prerequisites of HPE 3693 (410:193); senior standing; 2.50 cumulative GPA; consent of Health Promotion and Education Coordinator of Student Field Experiences.

### Resource Administration Track

A total of 30 hours are needed for this track, with a minimum of 21 hours from the Primary Focus group and 9 hours from the Secondary Focus group.

#### Primary Focus - Content Related Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 2210 (970:028)</td>
<td>Recent Climate Change</td>
</tr>
<tr>
<td>GEOG 4170/5170 (970:168g)</td>
<td>Regional Analysis and Planning</td>
</tr>
<tr>
<td>GEOG 3210 (970:137)</td>
<td>Natural Hazards and Disasters</td>
</tr>
<tr>
<td>HPE 4666/5666 (410:166g)</td>
<td>Environmental and Occupational Health Regulations</td>
</tr>
<tr>
<td>LYHS 2335 (430:060)</td>
<td>Principles of Nonprofit Organizations</td>
</tr>
<tr>
<td>LYHS 3337 (430:154)</td>
<td>Human Resource Development for Leisure, Youth and Human Services</td>
</tr>
<tr>
<td>LYHS 4113/5115 (430:168g)</td>
<td>Areas and Facilities for Leisure, Youth and Human Services</td>
</tr>
</tbody>
</table>

#### Secondary Focus - Cognates

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 4167/5167 (840:167g)</td>
<td>Conservation Biology</td>
</tr>
<tr>
<td>GEOG 3230 (970:144)</td>
<td>Natural Regions of North America</td>
</tr>
<tr>
<td>GEOG 4220/5220 (970:126g)</td>
<td>Soils and Landscapes</td>
</tr>
<tr>
<td>GEOG 4320/5320 (970:129g)</td>
<td>Rivers</td>
</tr>
<tr>
<td>GEOG 4210/5210 (970:127g)</td>
<td>Climatology</td>
</tr>
<tr>
<td>GEOG 4250/5250 (970:185g)</td>
<td>Laboratory Methods in Environmental Geography</td>
</tr>
<tr>
<td>GEOG 4310/5310 (970:170g)</td>
<td>GIS Applications: (Variable Topic)</td>
</tr>
<tr>
<td>GEOG 4320/5320 (970:174g)</td>
<td>Geographic Information Systems II</td>
</tr>
<tr>
<td>GEOG 4370/5370 (970:173g)</td>
<td>Remote Sensing of the Environment</td>
</tr>
<tr>
<td>ENGLISH 4775/5775 (620:105g)</td>
<td>Applied Writing: Technical Communication</td>
</tr>
<tr>
<td>or ENGLISH 4785/5785 (620:107g)</td>
<td>Applied Writing: Projects, Grants and Careers</td>
</tr>
<tr>
<td>HPE 4665/5665 (410:165g)</td>
<td>Environmental Health Science</td>
</tr>
<tr>
<td>LYHS 2770 (430:070)</td>
<td>Principles of Tourism</td>
</tr>
<tr>
<td>LYHS 4552/5552 (430:130g)</td>
<td>Theory and Practice of Experiential Education</td>
</tr>
<tr>
<td>LYHS 4553/5553 (430:143g)</td>
<td>Trends and Issues in Outdoor Recreation</td>
</tr>
<tr>
<td>LYHS 4779/5779 (430:138g)</td>
<td>Community Planning Workshop</td>
</tr>
<tr>
<td>MGMT 3185</td>
<td>Project Management</td>
</tr>
<tr>
<td>POL AMER 3172/5172 (942:172)</td>
<td>Public Budgeting</td>
</tr>
</tbody>
</table>

** Other courses as approved by advisors and program director **

| Total Hours | 30 |

* The Biology Department will waive BIOL 3140 (840:140) as a prerequisite for BIOL 4167/5167 (840:167g).

** The Geography Department and the Department of Health, Recreation and Community Services will waive LYHS 3060 (430:110) as a prerequisite for enrollment into LYHS 4113/5115 (430:168g).
These courses have additional prerequisites as follows:
- LYHS 4776/5776 (430:170g) has prerequisites of LYHS 2770 (430:070) or consent of instructor; junior standing.
- ENGLISH 4775/5775 (620:105g) has prerequisites of MGMT 2080 (150:080) or ENGLISH 2770 (620:102g), English 4770/5770 (620:104g), English 4775/5775 (620:105g), English 4780/5780 (620:107g), or consent of instructor; junior standing.
- ENGLISH 4785/5785 (620:177g) has prerequisites of ENGLISH 2770 (620:077); one of the following courses - INSTTECH 4170/5170 (240:170g), ART 3030 (600:125), ENGLISH 4765/5765 (620:102g), English 4770/5770 (620:104g), English 4775/5775 (620:105g), English 4780/5780 (620:107g), or consent of instructor; junior standing.
- MGMT 3185 has a prerequisite of MGMT 3153 (150:153).
- POL AMER 3172/5172 (942:172) has prerequisites of POL AMER 1014 (942:014); POL AMER 1048 (942:048).
- GEOG 3179 (970:179) has prerequisites of 15 hours of geography at UNI; cumulative GPA of 2.50; junior standing; consent of department.
- LYHS 4095 (430:187) has prerequisites of senior standing; consent of Internship Coordinator and a corequisite of LYHS 4090 (430:184).
- HPE 4768 (410:168) has prerequisites of HPE 3693 (410:193); senior standing; 2.50 cumulative GPA; consent of Health Promotion and Education Coordinator of Student Field Experiences.

Environmental Compliance Track
A total of 32 hours need for this focus area, with 15 hours of required courses, a minimum of 10 hours from the Primary Focus group and 7 hours from the Secondary Focus group.

Required
- ECON 1041 (920:053) Principles of Macroeconomics 3
- ECON 1051 (920:054) Principles of Microeconomics 3
- ECON 3225/5225 (920:123g) Environmental Economics 3
- HPE 4666/5666 (410:166g) Environmental and Occupational Health Regulations 3
- PHIL 2550 Environmental Ethics 3

Primary Focus - Content Related Courses 10
- EARTHSCI 1200 (870:021) Elements of Weather
- EARTHSCI 1400 Introduction to Environmental Earth Science
- EARTHSCI 3230/5230 (870:123g) Air Quality *
- EARTHSCI 3345/5345 (870:171g) Environmental Geology *
- or GEOG 3220 (970:100) Environmental Geography
- EARTHSCI 3350/5350 (870:173g) Environmental Hydrology *

Secondary Focus - Cognates 7
- EARTHSCI 3240/5240 (870:124g) Air Quality Modeling *
- EARTHSCI 3250/5250 (870:177g) Measurement and Analysis of Air Quality **

Other courses as approved by advisors and program director

Total Hours 32

* The Earth and Environmental Sciences Department will accept GEOG 1210 (970:026) and GEOG 1211 as a substitute for courses that require EARTHSCI 1300 (870:031).

** The Earth and Environmental Sciences Department will waive EARTHSCI 3230/5230 (870:123g) as a prerequisite for enrollment into EARTHSCI 3240/5240 (870:124g) and EARTHSCI 3250/5250 (870:177g).

*** The Earth and Environmental Sciences Department will waive the requirement for EARTHSCI 1320 (870:035) for EARTHSCI 3325/5325 (870:136g).
These courses have additional prerequisites as follows:

EARTHSCI 3230/5230 (870:123g) has prerequisites of EARTHSCI 1200 (870:021); junior standing.
GEOG 3220 (970:100) has a prerequisite of GEOG 1120 (970:010) or GEOG 1210 (970:026) or GEOG 2210 (970:028) or GEOG 1110 (970:040) or consent of instructor.
EARTHSCI 3240/5240 (870:124g) has a prerequisite of EARTHSCI 1200 (870:021); junior standing.
EARTHSCI 3250/5250 (870:177g) has prerequisites of EARTHSCI 1200 (870:021); junior standing.

MGMT 3185 has a prerequisite of MGMT 3153 (150:153).

GEOG 3179 (970:179) has prerequisites of 15 hours of geography at UNI; cumulative GPA of 2.50; junior standing; consent of department.
LYHS 4095 (430:187) has prerequisites of senior standing; consent of Internship Coordinator and a corequisite of LYHS 4090 (430:184).

HPE 4768 (410:168) has prerequisites of HPE 3693 (410:193); senior standing; 2.50 cumulative GPA; consent of Health Promotion and Education Coordinator of Student Field Experiences.

Geography Major

The Geography major requires a minimum of 120 total hours to graduate. This total includes Liberal Arts Core requirements and the following specified major requirements, plus electives to complete the minimum of 120 hours.

Required
Geography:

- GEOG 1110 (970:040) World Geography 3
- GEOG 1120 (970:010) Human Geography 3
- GEOG 1210 (970:026) Physical Geography 3
- GEOG 1310 (970:061) Digital Earth 3
- GEOG 4550 (970:180) Senior Seminar in Geography 3
- GEOG 4560 (970:181) Professional Seminar 1

Concentrations (21 hrs) 21

Choose in consultation with a Geography faculty advisor. See below for course list and specific requirements for each area. Students must focus on one area; however, they may choose to add an additional concentration(s) to their program, which will be reflected on their transcripts. No more than 6 credit hours can be counted towards multiple concentrations.

Concentration on Globalization and Regional Geography

Professional and Regional Electives

- GEOG 3310 (970:164) Geographic Information Systems I
- GEOG 2210 (970:028) Recent Climate Change
- GEOG 3110 (970:101) Economic Geography
- GEOG 3120 (970:104) North American Cities
- GEOG 3179 (970:179) Cooperative Education in Geography
- GEOG 3220 (970:100) Environmental Geography
- GEOG 3230 (970:144) Natural Regions of North America
- GEOG 4110/5110 (970:111g) Cultural Geography
- GEOG 4120/5120 (970:119g) Demography and Population Geography
- GEOG 4150/5150 (970:141g) Regional Geography: (Variable Topic)
- GEOG 4160/5160 (970:151g) Historical Geography: (Variable Topic)
- GEOG 4250/5250 (970:185g) Laboratory Methods in Environmental Geography
- SOC 2020 (980:080) Statistics for Social Research

Concentration on Environmental Systems & Sustainability

Methods Electives
Select three from the following:

- STAT 1772 (800:072) Introduction to Statistical Methods
- GEOG 3310 (970:164) Geographic Information Systems I
- GEOG 4310/5310 (970:170g) GIS Applications: (Variable Topic)
- GEOG 3179 (970:179) Cooperative Education in Geography
- GEOG 4250/5250 (970:185g) Laboratory Methods in Environmental Geography
- GEOG 4340/5340 (970:160g) Spatial Data Analysis

Professional Electives
Select four from the following:

- TECH 1015 Introduction to Sustainability
- GEOG 2210 (970:028) Recent Climate Change
- GEOG 3220 (970:100) Environmental Geography
- GEOG 3230 (970:144) Natural Regions of North America
- EARTHSCI 3355/5355 (870:175g) Hydrogeology
- GEOG 4220/5220 (970:126g) Soils and Landscapes
- GEOG 4210/5210 (970:127g) Climatology
- GEOG 4230/5230 (970:129g) Rivers
- GEOG 3210 (970:137) Natural Hazards and Disasters
- GEOG 4240/5240 (970:155g) Reconstructing Ice Age Environments
- GEOG 4370/5370 (970:173g) Remote Sensing of the Environment
- EARTHSCI 3330/5330 (870:141g) Geomorphology

Concentration on Planning and Development

Methods Electives
Select three from the following:

- STAT 1772 (800:072) Introduction to Statistical Methods
- SOC 2020 (980:080) Statistics for Social Research
Department of Geography

GEOG 4340/5340 (970:160g) Spatial Data Analysis
GEOG 3310 (970:164) Geographic Information Systems I
GEOG 4310/5310 (970:170g) GIS Applications: (Variable Topic)
GEOG 3179 (970:179) Cooperative Education in Geography

Professional Electives
Select four from the following:

- GEOG 3110 (970:101) Economic Geography
- GEOG 3120 (970:104) North American Cities
- GEOG 3210 (970:137) Natural Hazards and Disasters
- GEOG 4180/5180 (970:121g) Locational Analysis for Business
- GEOG 4190/5190 (970:117g) Transportation Planning and Policy
- GEOG 4120/5120 (970:119g) Demography and Population Geography
- GEOG 4170/5170 (970:168g) Regional Analysis and Planning
- GEOG 4150/5150 (970:141g) Regional Geography: (Variable Topic)
- ECON 3249/5249 (920:143g) Economic Development

Total Hours: 37

* These courses have additional prerequisites as follows: ECON 3249 has prerequisite of ECON 1041 and ECON 1051. Other programs occasionally offer courses appropriate to the geography major. The Department of Geography will approve substituting up to two such courses for electives in Geography. Note that only 3 hours of credit in GEOG 3179 (970:179) will count toward electives for the major.

Minor

Geography Minor

Required Geography:

- GEOG 1120 (970:010) Human Geography 3
- GEOG 1110 (970:040) World Geography 3
- GEOG 1210 (970:026) Physical Geography 3

Total Hours: 18

* Only 3 hours of credit in GEOG 3179 (970:179) will count toward electives for the minor.

Master of Arts Degree Program

Major in Geography

Students interested in enrolling in this program must submit a completed Application for Admission to Graduate Study and should refer to their MyUNIverse Student Center To-Do list or contact the graduate coordinator in the Department of Geography for any other application requirements. Applications should include two letters of recommendation, a brief statement about professional interests and career objectives, and transcripts of both undergraduate and graduate credit. Graduate information and application for graduate admission can be found at www.grad.uni.edu/admission.

The Graduate Record Examination (General Test) is not required for admission to the program.

Only graduate courses (course number 5000 or above) will apply to a graduate degree, even if the undergraduate course number (4999 or less) is listed. No exceptions will be made.

The major in Geography is available on the thesis (research) and non-thesis (professional) options. A minimum of 32 semester hours, including 6 hours GEOG 6299 (970:299) for thesis research and writing, is required for the thesis option. Students must successfully present a written and oral thesis proposal prior to registration in GEOG 6299 (970:299). A minimum of 38 semester hours, including 3 hours GEOG 6298 (970:298) for completion of a research paper, is required for the non-thesis option. A minimum of 17 hours of 200/600-level course work is required for both the thesis and non-thesis options. Any 200/600-level course offered as a graded course must be taken on a graded basis. Students pursuing either thesis or non-thesis option may select from the following research concentrations: Geographic Information Science and Remote Sensing; Environmental and Earth Systems; Geomorphology; Human Spatial Systems; Planning and Development; Geography Education.

Thesis Option:

Required Geography

GEOG 6000 (970:202) Graduate Colloquium (1 hr; must be taken twice) 2
GEOG 6010 (970:294) Nature of Geography and Its Research Methodology 3
GEOG 6299 (970:299) Research 6
GEOG 6550 (970:280) Seminar 3
Electives * 18

Total Hours: 32

* At least 12 of the 18 hours must be in geography; at least 3 of the 18 hours must be at the 200/600-level; cannot include GEOG 6598 (970:298); additional hours of GEOG 6299 (970:299) cannot count toward the minimum 18 elective hours.

Non-Thesis Option:

Required Geography

GEOG 6000 (970:202) Graduate Colloquium (1 hr; must be taken twice) 2
GEOG 6010 (970:294) Nature of Geography and Its Research Methodology 3
GEOG 6550 (970:280) Seminar 3
GEOG 6598 (970:298) Directed Research Project 3
Electives * 27

Total Hours: 38

* At least 12 of the 18 hours must be in geography; at least 3 of the 18 hours must be at the 200/600-level; cannot include GEOG 6598 (970:298); additional hours of GEOG 6299 (970:299) cannot count toward the minimum 18 elective hours.
At least 15 of the 27 hours must be in geography; at least 6 of the 27 hours must be at the 200/600-level; cannot include GEOG 6299 (970:299).

Each student’s program (beyond the required core courses) will be determined by individual needs in consultation with her/his graduate advisor and the graduate coordinator. For the thesis option, an oral thesis defense is required. For the non-thesis option, a final presentation of the research paper is required.

Program Certificate
The University of Northern Iowa makes available, in addition to traditional programs, the opportunity for students to earn program certificates. Program certificates provide an alternative to programs leading to a degree, a major, or a minor; they certify that an individual has completed a program approved by the university. For information on the following program certificate, contact the Department of Geography or the Office of the Registrar, which serves as the centralized registry.

Certificate in Crime Mapping and Analysis
This interdisciplinary certificate provides students with both theoretical and applied training in spatial mapping and the analysis of crime data. This program certificate is offered jointly by the Department of Geography and the Department of Sociology, Anthropology and Criminology.

Required
Criminology:
CRIM 2134 Crime Analysis 3
CRIM 4224/5224 (982:124g) Police and Society 3
Geography:
GEOG 3310 (970:164) Geographic Information Systems I 3
GEOG 4310/5310 (970:170g) GIS Applications: (Variable Topic) 3
Sociology:
SOC 1000 (980:001) Introduction to Sociology 3
SOC 2020 (980:080) Statistics for Social Research 3
or STAT 1772 (800:072) Introduction to Statistical Methods

Electives 6
Select two of the following:
Geography:
GEOG 4310/5310 (970:170g) GIS Applications: (Variable Topic)
GEOG 4340/5340 (970:160g) Spatial Data Analysis
GEOG 4350/5350 (970:175g) Global Positioning System Field Survey Methods
GEOG 4370/5370 (970:173g) Remote Sensing of the Environment
GEOG 4380/5380 Satellite Image Processing
GEOG 4390/5390 GIS Programming

Total Hours 18

Certificate in Geographic Information Systems (GIS) and Cartography
The Certificate in Geographic Information Systems (GIS) and Cartography is designed to give the student a substantial background in the fields of geographic information systems and digital cartography. Students completing the program will be familiar with the terminology, techniques and theory of GIS and cartography. Hands-on computer experience is a major feature of many of the courses. The program complements majors in disciplines other than geography while increasing the geography major’s preparation for the job market.

May be taken at graduate and undergraduate levels. The student must earn a grade point average of at least 3.00 in the courses taken for the certificate. It is the responsibility of the student to notify the Head of the Department of Geography during or immediately after the semester in which the course requirements will be or have been completed. Up to 3 credits can be transferred from another institution.

For graduate credit GEOG 3310 can be substituted with GEOG 6286 Studies in GIS.

Required
Geography:
GEOG 3310 (970:164) Geographic Information Systems I 3
or GEOG 6286 (970:286) Studies in: GIS
GEOG 4320/5320 (970:174g) Geographic Information Systems II 3
GEOG 4360/5360 (970:165g) Thematic Cartography 3
Electives 6
Select two of the following:
Geography:
GEOG 4310/5310 (970:170g) GIS Applications: (Variable Topic)
GEOG 4340/5340 (970:160g) Spatial Data Analysis
GEOG 4350/5350 (970:175g) Global Positioning System Field Survey Methods
GEOG 4370/5370 (970:173g) Remote Sensing of the Environment
GEOG 4380/5380 Satellite Image Processing
GEOG 4390/5390 GIS Programming

Total Hours 15