

# Geographical and Sustainability Sciences, BA

Students delve into understanding how human impacts on the environment and coupled environmental impacts on human activities are connected via complex feedback loops. Areas of focus range from health to land use change and urban systems. This unique program fosters a holistic understanding of environmental challenges and solutions, empowering students to pursue careers where a comprehensive understanding of human-environmental interactions combined with technical skills such as geographical information systems (GIS) are needed.

You'll graduate ready to apply your skills in the private and public sector to implement solutions and communicate the importance of system thinking, sustainability science, and management to leaders and the public.

## Learning Outcomes

Graduates will:

- understand the role of spatial information and data in addressing social and environmental questions and the role of geography as a linchpin discipline that bridges social and biophysical sciences;
- understand the connections and relationships between human and environmental activities and outcomes across space and time;
- assess various points of view and perspectives while assessing complex social and environmental problems, to evaluate the factual basis of assertions, and to understand tradeoffs;
- be able to formulate testable hypotheses, apply quantitative or qualitative approaches and methodological tools to pertinent questions, and acquire secondary data or construct primary data sets when applicable;
- be able to communicate complex geographical and technical concepts using an appropriate vocabulary to a broad spectrum of audiences.

## Requirements

The Bachelor of Arts with a major in geographical and sustainability sciences requires a minimum of 120 s.h., including at least 55 s.h. of work for the major. Students must maintain a grade-point average of at least 2.00 in all courses for the major and in all UI courses for the major. They must also complete the College of Liberal Arts and Sciences GE CLAS Core. Transfer students must complete a minimum of 15 s.h. of School of Earth, Environment, and Sustainability coursework in the major.

In planning coursework, students should be guided by the College of Liberal Arts and Sciences maximum hours rule: students earning a BA may apply a maximum of 56 s.h. earned in one department to the minimum 120 s.h. required for graduation, whether or not the coursework is accepted toward requirements for the major; students who earn more than 56 s.h. from one department may use the additional semester hours to satisfy requirements for the major (if the department accepts them), and the grades they earn become part of their grade-point average, but they cannot apply the

additional semester hours to the minimum 120 s.h. required for graduation.

Students who are earning two majors from the same department (e.g. a BA in geographical and sustainability sciences and a BA in environmental policy and planning), two degrees from the same department (e.g. a BA in geographical and sustainability sciences and a BS in earth and environmental science), or a major and a minor from the same department (e.g. a BA in geographical and sustainability sciences and a minor in environmental policy and planning) may apply more than 56 s.h. from their home department toward their degree, but they must earn at least 56 s.h. of credit in courses outside their home department in order to graduate.

The BA with a major in geographical and sustainability sciences requires the following coursework.

Requirements	Hours
Foundation Courses	34-37
Elective Courses	21

## Foundation Courses

Course #	Title	Hours
All of these:		
SEES:1035	Our Digital Earth	3
SEES:1070	Contemporary Environmental Issues	3
SEES:1085	Fundamentals of Environmental Science	4
SEES:1090	Globalization and Geographic Diversity	3
SEES:2010	Interdisciplinary Environmental Seminar	1
SEES:2013/ BUS:2013/ URP:2013	Introduction to Sustainability	3
SEES:2050	Foundations of GIS	4
SEES:2110/ GHS:2110	Eight Billion and Counting: Introduction to Population Dynamics	3
One of these:		
SEES:2310	Introduction to Climatology	3
SEES:2950	Environmental Conservation	4
One of these:		
CS:1110	Introduction to Computer Science	3
STAT:2010	Statistical Methods and Computing	3
STAT:3200/ DATA:3200/ IGPI:3200/ISE:3760	Applied Linear Regression	3
One of these:		
SEES:3400	Iowa Environmental Policy in Practice	3
SEES:3992	Undergraduate Research (or ICIGO)	1-3
CCP:1201	Academic Internship	1-3
One of these:		
SEES:4030	Senior Project Seminar	3
SEES:4995	Honors Thesis	3

## Elective Courses

Students complete at least 21 s.h. of electives with at least one course chosen from each of four categories: environment, methods, society, and sustainability.

### Environment Electives

Course #	Title	Hours
At least one of these:		
SEES:3315	Ecosystem Ecology	4
SEES:4310	Climate Change	3
SEES:4470	Ecological Climatology	3

### Methods Electives

Course #	Title	Hours
At least one of these:		
SEES:3500/ IGPI:3500	Introduction to Environmental Remote Sensing	3
SEES:3520/ IGPI:3520	GIS for Environmental Applications	3
SEES:3540/ IGPI:3540	Geographic Visualization	3
SEES:3570	Light Detection and Ranging (LiDAR): Principles and Applications	3
SEES:4010	Field Methods in Physical Geography	3
SEES:4150/ GHS:4150/ IGPI:4150	Health and Environment: GIS Applications	3
SEES:4500/ IGPI:4500	Advanced Remote Sensing	4
SEES:4520/ IGPI:4520	GIS for Environmental Studies: Applications	3

### Society Electives

Course #	Title	Hours
At least one of these:		
SEES:3090/ GHS:3070	Hungry Planet: Global Geographies of Food	3
SEES:3110/ GHS:3111	Geography of Health	3
SEES:3760/ GHS:3760	Hazards and Society	3
SEES:4770/ AFAM:4770/ GHS:4770	Environmental Justice	3

### Sustainability Electives

Course #	Title	Hours
At least one of these:		
SEES:3340	Ecosystem Services	3
SEES:3350	Urban Ecology	3
SEES:3920/ URP:3001	Planning Livable Cities	3
SEES:4210	Sustainability as a System Science	3
SEES:4750/ URP:4750	Environmental Impact Analysis	3

## Honors

Graduating with departmental honors and graduating with university honors are two opportunities available to high-achieving undergraduate students, each with specific and distinct requirements. Some students pursue both options while others pursue one or the other.

### Honors in the Major

Within the College of Liberal Arts and Sciences, each major develops its own requirements to achieve honors in the major. In order to graduate with honors in the major, students in the School of Earth, Environment, and Sustainability (SEES) pursue study beyond the typical undergraduate level. They work under the direction of a faculty member to conduct original research and then prepare and present a written honors thesis based on their work.

Potential honors students must complete an honors thesis contract with their advisor and obtain approval from the department's undergraduate committee by the first semester of their senior year or earlier. They are also required to register for SEES:4995 Honors Thesis credits as they work to complete their thesis, where they must earn a grade of B or higher. Additionally, SEES honors students must maintain a cumulative grade-point average of at least 3.33 in all University of Iowa and SEES coursework.

### University of Iowa Honors Program

In addition to honors in the major, students have opportunities for honors study and activities through membership in the University of Iowa Honors Program. Visit Honors at Iowa to learn about the university's honors program.

Membership in the UI Honors Program is not required to earn honors in the geographical and sustainability sciences major.

## Career Advancement

Graduates with degrees in geographical and sustainability sciences find jobs and careers with a variety public, private, and nonprofit organizations with roles ranging from research to outreach. Possible careers include GIS technician, sustainability coordinator/specialist in the private or public sector, state regulatory agency scientist, Environmental Protection Agency scientist, National Resource Conservation Service scientist, academic researcher (requires graduate school), social science teacher, K-12 education teacher, land manager or steward, city planner, natural hazard assessment and mitigation scientist or manager, renewable energy scientist or manager, science writer and communication specialist, water industry researcher, carbon management policy specialist, nature facility scientist and program manager, and restoration designer and manager.

## Academic Plans

### Sample Plan of Study

Sample plans represent one way to complete a program of study. Actual course selection and sequence will vary and should be discussed with an academic advisor. For additional sample plans, see MyUI.

## Geographical and Sustainability Sciences, BA

Course	Title	Hours
<b>Academic Career</b>		
<b>Any Semester</b>		
GE CLAS Core: Sustainability <sup>a</sup>		
<b>Hours</b>		<b>0</b>
<b>First Year</b>		
<b>Fall</b>		
SEES:1085	Fundamentals of Environmental Science <sup>b</sup>	4
SEES:1090	Globalization and Geographic Diversity <sup>b</sup>	3
RHET:1030 or ENGL:1200	Rhetoric: Writing and Communication or Interpreting Literature	3 - 4
GE CLAS Core: World Languages First Level Proficiency or elective course <sup>c</sup>		4 - 5
CSI:1600	Success at Iowa	1
<b>Hours</b>		<b>15-17</b>
<b>Spring</b>		
SEES:1035	Our Digital Earth <sup>b</sup>	3
SEES:1070	Contemporary Environmental Issues <sup>b</sup>	3
RHET:1030 or ENGL:1200	Rhetoric: Writing and Communication or Interpreting Literature	3 - 4
GE CLAS Core: World Languages Second Level Proficiency or elective course <sup>c</sup>		4 - 5
Elective course <sup>c</sup>		2
<b>Hours</b>		<b>15-17</b>
<b>Second Year</b>		
<b>Fall</b>		
SEES:2010	Interdisciplinary Environmental Seminar	1
SEES:2110	Eight Billion and Counting: Introduction to Population Dynamics <sup>b</sup>	3
SEES:2950 or SEES:2310	Environmental Conservation or Introduction to Climatology	3 - 4
GE CLAS Core: Understanding Cultural Perspectives		3
GE CLAS Core: World Languages Third Level Proficiency or elective course <sup>c</sup>		4 - 5
<b>Hours</b>		<b>14-16</b>
<b>Spring</b>		
SEES:2013	Introduction to Sustainability <sup>b</sup>	3
SEES:2050	Foundations of GIS	4
GE CLAS Core: Literary, Visual, and Performing Arts		3
GE CLAS Core: World Languages Fourth Level Proficiency or elective course <sup>d</sup>		4 - 5
Elective course <sup>c</sup>		2
<b>Hours</b>		<b>16-17</b>

### Third Year

STAT:3200 or CS:1110 or STAT:2010	Applied Linear Regression or Introduction to Computer Science or Statistical Methods and Computing	3
Major: environment track elective course <sup>e</sup>		3 - 4
GE CLAS Core: Historical Perspectives <sup>d</sup>		3
Elective course <sup>c</sup>		3
Elective course <sup>c</sup>		4
<b>Hours</b>		<b>16-17</b>
<b>Spring</b>		
CCP:1201 or SEES:3400 or SEES:3992	Academic Internship or Iowa Environmental Policy in Practice or Undergraduate Research	1 - 3
Major: methods track elective course <sup>e</sup>		3 - 4
Major: society track elective course <sup>e</sup>		3
GE CLAS Core: Values and Society <sup>d</sup>		3
Elective course <sup>c</sup>		3
Elective course <sup>c</sup>		1 - 2
<b>Hours</b>		<b>14-18</b>

### Fourth Year

<b>Fall</b>		
Major: sustainability track elective course <sup>e</sup>		3
Major: track elective course (from any category) <sup>e</sup>		3 - 4
Major: track elective course (from any category) <sup>e</sup>		3 - 4
GE CLAS Core: Natural Sciences without Lab <sup>d</sup>		3
Elective course <sup>c</sup>		3
<b>Hours</b>		<b>15-17</b>
<b>Spring</b>		
SEES:4030 or SEES:4995	Senior Project Seminar or Honors Thesis	3
Major: track elective course (from any category) <sup>e</sup>		3 - 4
Elective course <sup>c</sup>		3
Elective course <sup>c</sup>		3
Elective course <sup>c</sup>		3
Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall) <sup>f</sup>		
<b>Hours</b>		<b>15-16</b>
<b>Total Hours</b>		<b>120-135</b>

a Sustainability must be completed by choosing a course that has been approved for Sustainability AND for one of these General Education areas: Natural Sciences; Quantitative or Formal Reasoning; Social Sciences; Historical Perspectives; International and Global Issues; Literary, Visual, and Performing Arts; or Values and Society.

b Fulfills a major requirement and may fulfill a GE requirement.

c Students may use elective courses to earn credit towards the total s.h. required for graduation or to complete a double major, minors, or certificates.

d GE CLAS Core courses may be completed in any order unless used as a prerequisite for another course. Students should consult with an advisor about the best sequencing of courses.

e Students complete at least 21 s.h. in track electives including at least one course from each of four categories:

environment, methods, society, and sustainability. See the General Catalog for list of approved courses.

f Please see Academic Calendar, on Office of the Registrar website, for current degree application deadlines. Students should apply for a degree for the session in which all requirements will be met. For any questions on appropriate timing, contact your academic advisor or Degree Services.