

# Geoscience, PhD

A PhD in geoscience is designed to bring students to the forefront of a specialized area of geoscience for future employment in higher education, industry, or government research.

## Learning Outcomes

Graduates will demonstrate the ability to:

- develop broad knowledge in the field of geoscience and identify important research problems through the development of subject matter expertise;
- develop a research framework including testable hypotheses, and conduct original independent research that contributes new knowledge to the field of study;
- effectively communicate research findings in both written and oral formats;
- conduct all aspects of research and teaching with the highest ethical standards; and
- be prepared for career options in academia, industry, government, or other relevant fields.

## Requirements

The Doctor of Philosophy program in geoscience requires a minimum of 72 s.h. of graduate credit. Throughout their graduate study, PhD students must maintain a grade-point average of at least 3.00 in all coursework required for their degree.

The PhD requires a dissertation, which has the approximate research content of three published papers. Students demonstrate competence by completing appropriate coursework and defending their dissertation.

Entering students must consult with a research advisor or the department's director of graduate study before they enroll in courses. By the first month of their second semester of doctoral study, all students must select an advisor. Each student must also select a thesis topic and forward it to the department chair for approval by the end of the first month of the second semester of doctoral study.

During the second semester of doctoral study, each student should propose an advisory committee of at least five faculty members to the department chair for approval. Before the end of the second semester, students must obtain their committee's approval of a suitable plan of study to be submitted to the department chair for approval. In consultation with the advisor and other faculty members, each doctoral candidate prepares a formal dissertation proposal approved by their committee and submitted to the department chair for approval by the end of the candidate's third semester of doctoral study.

Students are required to include in their plan of study at least 18 s.h. of regular coursework taught by tenured or tenure-track faculty in the School of Earth, Environment, and Sustainability. Students must earn the 18 s.h. after being admitted to and enrolling in the PhD program. Directed study and research credit do not count toward the required 18 s.h.

All entering students are required to enroll in SEES:7270 Orientation, Scholarly Integrity, and Responsible Conduct of Research during the fall semester of their first year in the graduate program.

After earning their first 24 s.h. of graduate credit, students must be enrolled at least two consecutive semesters in full-time study (at least 9 s.h. per semester) at the University of Iowa; or they must be enrolled three consecutive semesters for at least 6 s.h. per semester at the university, during which they hold at least a one-quarter-time assistantship that is certified by the department as contributing to their doctoral program.

Students should complete most of their coursework before taking their comprehensive examination, which consists of both written and oral portions and which must be passed before the end of the fourth semester of doctoral study.

Once candidates have passed the comprehensive examination, they are required to register each semester until they receive the degree. Those who have completed their plan of study may register for GRAD:6002 Doctoral Continuous Registration or GRAD:6003 Doctoral Final Registration.

Students must submit their written dissertation to the committee at least two weeks before the final examination. All candidates must deliver a one-hour public presentation associated with the dissertation defense. They are also required to submit a manuscript presenting the results of their graduate research to a refereed journal or other publication approved by the department chair before they may defend their dissertation.

## Admission

Applicants for admission to the Geoscience PhD program should have a bachelor's degree in geoscience, earth science, or a related discipline relevant to the field. An MS degree in geoscience, earth science, or a related discipline relevant to the field is not required for admission to the PhD program but is typical of most students and is strongly encouraged. Depending on their prior training, graduate students may be required to take courses that are prerequisites for coursework in their chosen area of graduate study. For application information, contact the School of Earth, Environment, and Sustainability or visit its website.

All geoscience graduate students must meet the admission and degree requirements of the Graduate College; see the Manual of Rules and Regulations on the Graduate College website. They also should acquaint themselves with the university calendar and application deadlines within the School of Earth, Environment, and Sustainability.

## Career Advancement

The doctoral degree is required for college and university faculty positions and for some research positions in industry.

Career opportunities are readily available for geoscience graduates. Professional geoscientists work in environmental companies, resource companies, educational institutions, conservation agencies, state and federal agencies, and government resource and research organizations.

The Pomerantz Career Center offers multiple resources to help students find internships and jobs.

## 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.

## Geoscience, PhD

Course	Title	Hours
<b>Academic Career</b>		
<b>Any Semester</b>		
72 s.h. must be graduate level coursework; graduate transfer credits allowed upon approval. More information is included in the General Catalog and on department website. <sup>a</sup>		
<b>Hours</b>		<b>0</b>
<b>First Year</b>		
<b>Fall</b>		
CLAS:5100	Practicum: College Teaching and Professional Development for Teaching Assistants	1
SEES:7000	School of Earth, Environment, and Sustainability Research Colloquium	1
SEES:7270	Orientation, Scholarly Integrity, and Responsible Conduct of Research <sup>b</sup>	1
SEES regular course <sup>c</sup>		3
Elective course <sup>d</sup>		4
Elective course <sup>d</sup>		3
<b>Hours</b>		<b>13</b>
<b>Spring</b>		
SEES:5010	School of Earth, Environment, and Sustainability Foundations	3
SEES:5020	Research Resources	1
SEES:7000	School of Earth, Environment, and Sustainability Research Colloquium	1
SEES regular course <sup>c</sup>		3
Elective course <sup>d</sup>		4
<b>Hours</b>		<b>12</b>
<b>Second Year</b>		
<b>Fall</b>		
SEES:5050	Research and Writing	3
SEES:7000	School of Earth, Environment, and Sustainability Research Colloquium	1
SEES regular course <sup>c</sup>		3
SEES regular course <sup>c</sup>		3
Elective course <sup>d</sup>		3
<b>Hours</b>		<b>13</b>
<b>Spring</b>		
SEES:7000	School of Earth, Environment, and Sustainability Research Colloquium	1
SEES regular course <sup>c</sup>		3
SEES regular course <sup>c</sup>		3
Elective course <sup>d</sup>		3
Elective course <sup>d</sup>		3
Exam: Doctoral Comprehensive Exam <sup>e</sup>		
<b>Hours</b>		<b>13</b>
<b>Third Year</b>		
<b>Fall</b>		
SEES:7000	School of Earth, Environment, and Sustainability Research Colloquium	1
SEES:7990	Graduate Research	5
<b>Hours</b>		<b>6</b>

<b>Spring</b>		
SEES:7000	School of Earth, Environment, and Sustainability Research Colloquium	1
SEES:7990	Graduate Research	4
<b>Hours</b>		<b>5</b>
<b>Fourth Year</b>		
<b>Fall</b>		
SEES:7000	School of Earth, Environment, and Sustainability Research Colloquium	1
SEES:7990	Graduate Research	4
<b>Hours</b>		<b>5</b>
<b>Spring</b>		
SEES:7000	School of Earth, Environment, and Sustainability Research Colloquium	1
SEES:7990	Graduate Research	4
Exam: Doctoral Final Exam <sup>f</sup>		
<b>Hours</b>		<b>5</b>
<b>Total Hours</b>		<b>72</b>

a Students must complete specific requirements in the University of Iowa Graduate College after program admission. Refer to the Graduate College website and the Manual of Rules and Regulations for more information.

b Complete during first year fall semester.

c Complete at least 18 s.h. of regular coursework (excluding directed study and research credit) taught by tenured or tenure-track faculty members in the School of Earth, Environment, and Sustainability; work with faculty advisor to determine appropriate graduate coursework and sequence.

d Courses selected should reflect the individual needs, interests, and talents of the student; work with faculty advisor to determine appropriate graduate elective coursework and sequence.

e Consists of both written and oral portions and which must be passed before the end of the fourth semester of doctoral study.

f Students must submit their written dissertation to the committee at least two weeks before the final examination. All candidates must deliver a one-hour public presentation associated with the dissertation defense. They are also required to submit a manuscript presenting the results of their graduate research to a refereed journal or other publication approved by the department chair before they may defend their dissertation.