Geoscience PhD

COLLEGE OF SCIENCE AND TECHNOLOGY

Learn more about the Doctor of Philosophy in Geoscience.

About the Program

The Department of Earth and Environmental Science offers a PhD program that includes graduate courses in the geosciences, weekly graduate seminars, qualifying exams, and research leading to a doctoral dissertation.

Time Limit for Degree Completion: 7 years

Campus Location: Main

Full-Time/Part-Time Status: Full-time status is expected.

Areas of Specialization: Advanced courses and research opportunities are available in:

- Environmental geology, including ecohydrology, energy and land degradation, environmental geophysics, groundwater modeling, ice sheet stability and climate change, Karst hydrology, nanomineralogy and urban hydrology.
- Geochemistry, including nanomineralogy, paleontology-fossil provenance, planetary geology, and weathering and diagenesis.
- Sedimentary geology and paleontology, including coastal and aeolian dynamics, ichnology, paleontology-fossil provenance, paleopedology and modern soils, planetary geology and impact studies, and Precambrian geology.
- Structural geology, including geothermal energy and geomechanics.

Job Prospects: Graduates secure positions in academia, industry and government.

Licensure/Certification: For careers in industry, licensure is recommended after three years of on-the-job training. The Pennsylvania Professional Geologist Licensing Examination is administered by the National Association of State Boards of Geology (ASBOG®).

Non-Matriculated Student Policy: Doctoral courses are open only to matriculated students.

Financing Opportunities: Students are supported by a combination of Teaching and Research Assistantships, which typically provide a nine-month academic-year stipend and full tuition remission. Summer stipends are also available. Teaching and Research Assistants are expected to devote 20 hours per week to their duties. Teaching Assistants teach introductory geology labs and labs for majors. The duties for Research Assistants are determined by the primary research advisor. Both Teaching and Research Assistantships are awarded competitively. Funding after four years is not guaranteed.

Temple University also offers a limited number of two-year fellowships to support outstanding doctoral students.

Admission Requirements and Deadlines

Application Deadline:

- Fall: January 15
- Spring: October 15

For full consideration, applications must be submitted by the deadline. Late applications may be considered on a case-by-case basis. Applicants should target Fall entry as Spring admission is rare.

Program admissions are limited and competitive. Applicants are expected to contact the faculty in their area of interest prior to submitting an application.

APPLY ONLINE to this graduate program.

Letters of Reference:

Number Required: 3

From Whom: Letters of recommendation should be obtained from college/university faculty members familiar with the applicant's academic competence.

Coursework Required for Admission Consideration: Applicants are required to have taken courses in Geology to prepare them for graduate-level classes and instructing undergraduate majors. In addition, at least one year of college-level Chemistry, Calculus, and either Physics or Biology is expected.
Master’s Degree in Discipline/Related Discipline: A master’s degree is recommended, but undergraduate research experience is also considered in evaluating applicants.

Bachelor’s Degree in Discipline/Related Discipline: A baccalaureate degree, whether a BA or a BS, with a major in Geology or a related program in Science or Mathematics is required.

Statement of Goals: Identify your specific interest in Temple’s Geoscience PhD program and the faculty member with whom you would like to work, and report on your research goal, future career goals, and academic and research achievements.

Standardized Test Scores:
GRE: Optional. Scores above the 50th percentile in the quantitative and verbal sections are expected, but higher scores are more competitive.

Applicants who earned their baccalaureate degree from an institution where the language of instruction was other than English, with the exception of those who subsequently earned a master’s degree at a U.S. institution, must report scores for a standardized test of English that meet these minimums:

- TOEFL iBT: 85
- IELTS Academic: 6.5
- PTE Academic: 58
- Duolingo: 110

Writing Sample: Applicants are required to submit a writing sample directly to the Graduate Chair of Earth and Environmental Science. Acceptable materials include the undergraduate thesis or research paper, master’s thesis, and published journal articles in which the applicant is first author.

Advanced Standing: For students who enter the program with a subject-appropriate master’s degree, coursework may be counted for advanced standing. Requests for advanced standing are evaluated on a case-by-case basis for appropriateness of the coursework and performance. Up to a maximum of 30 credits of formal graduate courses completed with a grade of “B” or better may be accepted.

Program Requirements

General Program Requirements:
Number of Credits Required Beyond the Baccalaureate: 37, including 7 courses required in the Department of Earth and Environmental Science, with one additional course taken outside of the department, if desired

Number of Credits Required Beyond the Master’s: 18, including 3 courses required in the Department of Earth and Environmental Science, with one additional course taken outside of the department, if desired

Required Courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>EES 5011</td>
<td>Remote Sensing and GIS</td>
<td>3</td>
</tr>
<tr>
<td>EES 5042</td>
<td>Coastal Processes</td>
<td>3</td>
</tr>
<tr>
<td>EES 5101</td>
<td>Structural Geology (Graduate)</td>
<td>3</td>
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<tr>
<td>EES 5401</td>
<td>Analytical Methods in Mineralogy</td>
<td>3</td>
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<tr>
<td>EES 5402</td>
<td>X-ray Crystallography</td>
<td>3</td>
</tr>
<tr>
<td>EES 5406</td>
<td>Nanoscience and the Environment</td>
<td>3</td>
</tr>
<tr>
<td>EES 5434</td>
<td>Echohydrology</td>
<td>3</td>
</tr>
<tr>
<td>EES 5454</td>
<td>Introduction to Geophysics</td>
<td>3</td>
</tr>
<tr>
<td>EES 5461</td>
<td>Low-Temperature Geochemistry</td>
<td>3</td>
</tr>
<tr>
<td>EES 5462</td>
<td>Advanced Low-Temperature Geochemistry</td>
<td>3</td>
</tr>
<tr>
<td>EES 5502</td>
<td>Glaciology</td>
<td>3</td>
</tr>
<tr>
<td>EES 5601</td>
<td>Vertebrate Paleontology and Taphonomy</td>
<td>3</td>
</tr>
<tr>
<td>EES 5625</td>
<td>Electron Optical Techniques</td>
<td>3</td>
</tr>
<tr>
<td>EES 5702</td>
<td>Sedimentary Petrology</td>
<td>3</td>
</tr>
<tr>
<td>EES 5725</td>
<td>Soils and Paleosols</td>
<td>3</td>
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<tr>
<td>EES 5801</td>
<td>Quantitative Structural Geo</td>
<td>3</td>
</tr>
<tr>
<td>EES 5802</td>
<td>Tectonics</td>
<td>3</td>
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<tr>
<td>EES 5811</td>
<td>Planetary Geology</td>
<td>3</td>
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1 Select courses from the following to total 28 credits:
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>EES 8000</td>
<td>Geology Seminar</td>
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<tr>
<td>EES 8200</td>
<td>Graduate Geology Seminar</td>
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<tr>
<td>EES 8411</td>
<td>Advanced Hydrogeology</td>
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<tr>
<td>EES 8421</td>
<td>Groundwater Modeling</td>
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<td>Elective²</td>
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</tr>
<tr>
<td>Research Courses 6</td>
<td></td>
</tr>
<tr>
<td>EES 9994</td>
<td>Preliminary Examination Preparation</td>
</tr>
<tr>
<td>EES 9998</td>
<td>Pre-Dissertation Research / Elevation to Candidacy</td>
</tr>
<tr>
<td>EES 9999</td>
<td>Dissertation Research</td>
</tr>
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</table>

Total Credit Hours: 37

1. Select three of the courses if entering the PhD program with a master's degree.
2. The elective is selected in consultation with an advisor.

**Culminating Events:**

**Candidacy Assessment:** Qualifying for PhD candidacy includes completion of coursework within the Department of Earth and Environmental Science, as well as demonstrations of subject area knowledge, skill and the ability to conduct research to define and investigate new questions. The assessment for candidacy consists of four parts:

1. Completion of a minimum of three departmental graduate courses in good standing
2. Successfully passing the written and oral components of the Preliminary Examination
3. Submission and acceptance of an NSF-style research proposal
4. Oral defense of the research proposal

**Dissertation:**

The Department of Earth and Environmental Science requires an original research dissertation as the culminating project in its PhD program.

**Contacts**

**Program Web Address:**
https://www.temple.edu/academics/degree-programs/geoscience-phd-st-gesc-phd

**Department Information:**
Dept. of Earth and Environmental Science
326 Beury Hall
1901 N. 13th Street
Philadelphia, PA 19122-6081
eesgrad@temple.edu
215-204-8227

**Submission Address for Application Materials:**
https://cst.temple.edu/academics/graduate-programs/apply-now

**Department Contacts:**

**Administrative Assistant:**
Minh Nguyen
minh@temple.edu
215-204-8227

**Admissions:**
Dennis O. Terry, Jr., PhD
Graduate Advisor
doterry@temple.edu
215-204-8226

**Chairperson:**
Nicholas Davatzes, PhD
nicholas.davatzes@temple.edu
215-204-2319