

# Geology BA

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## Overview

The Department of Earth and Environmental Science provides students the opportunity to study the Earth with a variety of traditional and environmental geology course work. The faculty work closely with students to give a combination of field-based experience and current laboratory and computational techniques.

Students in the **Bachelor of Arts in Geology** acquire a solid foundation in the Earth and Environmental Sciences.

Delve into the physical, chemical and biological processes of Earth, from the remote past to the distant future. Learn how humans are impacted by and are impacting our planet. Explore climate change, energy resources and natural planetary forces.

The BA offers the opportunity to complete a second major or to prepare for post-graduate degrees in law, medicine or education. The BA program is not intended for prospective geologists, but for pre-med or pre-law students, or for those planning to teach earth science in secondary school.

**Campus Location:** Main

**Program Code:** ST-GEOL-BA

## Distinction in Major

To graduate with distinction in this major, a student must satisfy the following criteria:

- achieve a 3.5 GPA in EES and Upper-Level Science Electives for the major, and
- no grade below C in the remaining courses required for the major.

## Senior Research Project

Students whose cumulative GPA is at least 3.25 at the end of the first semester of their junior year are eligible to undertake a senior research project. In the second semester of their junior year, students must select a faculty research advisor and, with the advisor, prepare a written research proposal. After the research advisor and the undergraduate Earth and Environmental Science advisor approve the proposal, the student may register for up to four (4) hours of EES 4082 Individual Study Program II for a grade. Additional credits may be offered in subsequent semesters, but only for Credit/No-Credit (CR/NC), to carry out the research project. Normally, the project will involve field or laboratory work in the summer between the junior and senior years and lead to presentation of the results at a departmental seminar.

## Accelerated Programs

Accelerated programs provide a pathway for students to pursue both an undergraduate degree and an advanced degree in a shorter amount of time. Below is a list of available accelerated programs for students in the BA in Geology.

- BA in Geology / MEd in Middle Grades Education with a Concentration in Science
- BA in Geology / MEd in Middle Grades Education with a Concentration in Science and Language Arts

## Undergraduate Contact Information

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Learn more about the Bachelor of Arts in Geology.

These requirements are for students who matriculated in academic year 2023-2024. Students who matriculated prior to fall 2023 should refer to the Archives to view the requirements for their Bulletin year.

## Bachelor of Arts Requirements

### Summary of Requirements for the Degree

#### 1. University Requirements (123 total s.h.)

- Students must complete all University requirements including those listed below.
- All undergraduate students must complete at least two writing-intensive courses for a total of at least six credits at Temple as part of their major. The specific writing-intensive course options for this major are:

| Code     | Title                                 | Credit Hours |
|----------|---------------------------------------|--------------|
| EES 2096 | Climate Change: Oceans To Atmosphere  | 4            |
| EES 2097 | Process Geomorphology                 | 4            |
| EES 4696 | Vertebrate Paleontology and Taphonomy | 3            |
| EES 4796 | Soils and Paleosols                   | 4            |
| EES 4896 | Planetary Geology                     | 4            |

- Students must complete the General Education (GenEd) requirements.
  - See the General Education section of the *Undergraduate Bulletin* for the GenEd curriculum.
  - Students who complete CST majors receive a waiver for 2 Science & Technology (GS) and 1 Quantitative Literacy (GQ) GenEd courses.
- Students must satisfy general Temple University residency requirements.

#### 2. College Requirements

- A minimum of 90 total credits within the College of Science & Technology (CST), the College of Liberal Arts (CLA), and/or the College of Engineering (ENG).
  - A minimum of 45 of these credits must be upper-level (courses numbered 2000 and above).
  - A minimum of 6 of these credits must be upper-level (courses numbered 2000 and above) CLA credits.
- Successful completion or waiver from the second level of a foreign language.
- Complete a one-credit first-year or transfer seminar.
  - SCTC 1001 CST First Year Seminar for every entering first-year CST student.
  - SCTC 2001 CST Transfer Seminar for every entering transfer CST student.

#### 3. Major Requirements for Bachelor of Arts (51-56 s.h.)

At least 7 courses required for the major must be completed at Temple. At least 4 EES courses must be completed at Temple.

| Code                         | Title   | Credit Hours |
|------------------------------|---|--------------|
| <b>Chemistry</b>             |   |              |
| Select one of the following: |   | 4            |
| CHEM 1031<br>& CHEM 1033     | General Chemistry I<br>and General Chemistry Laboratory I                         |              |
| CHEM 1951<br>& CHEM 1953     | Honors General Chemical Science I<br>and Honors Chemical Science Laboratory I (F) |              |
| <b>Mathematics</b>           |   |              |
| MATH 1041<br>or MATH 1941    | Calculus I<br>Honors Calculus I   | 4            |
| Select one of the following: |   | 4            |
| MATH 1044                    | Introduction to Probability and Statistics for the Life Sciences                  |              |
| MATH 1042                    | Calculus II   |              |
| MATH 1942                    | Honors Calculus II  |              |
| <b>Physics</b>               |   |              |
| Select one of the following: |   | 4            |
| PHYS 1061                    | Elementary Classical Physics I  |              |
| PHYS 1961                    | Honors Elementary Classical Physics I (F)   |              |
| PHYS 2021                    | General Physics I   |              |
| PHYS 2921                    | Honors General Physics I (F)  |              |

**Earth & Environmental Science**

|  |                           |   |
|--|---------------------------|---|
| EES 2001                                 | Physical Geology          | 4 |
| EES 2011                                 | Mineralogy I (F)          | 4 |
| Select one EES course between 3020-3025: |                           | 4 |
| EES 3021                                 | Groundwater Hydrology (S) |   |
| EES 3025                                 | Physical Hydrology (F)    |   |

**Earth & Environmental Science Electives <sup>1</sup>**

|                                  |       |
|----------------------------------|-------|
| Five EES electives 2002 or above | 15-20 |
|----------------------------------|-------|

**Science Foundation Electives**

|                              |  |   |
|------------------------------|--|---|
| Select two of the following: |  | 8 |
| BIOL 1111                    | Introduction to Organismal Biology                     |   |
| or BIOL 1911                 | Honors Introduction to Organismal Biology              |   |
| BIOL 1112                    | Introduction to Biomolecules, Cells and Genomes        |   |
| or BIOL 1912                 | Honors Introduction to Biomolecules, Cells and Genomes |   |
| or BIOL 2112                 | Introduction to Cellular and Molecular Biology         |   |
| or BIOL 2912                 | Honors Introduction to Cellular and Molecular Biology  |   |
| CHEM 1032                    | General Chemistry II                                   |   |
| & CHEM 1034                  | and General Chemistry Laboratory II                    |   |
| or CHEM 1952                 | Honors General Chemical Science II                     |   |
| & CHEM 1954                  | and Honors Chemical Science Laboratory II              |   |
| CHEM 2201                    | Organic Chemistry I                                    |   |
| & CHEM 2203                  | and Organic Chemistry Laboratory I                     |   |
| or CHEM 2921                 | Organic Chemistry for Honors I                         |   |
| & CHEM 2923                  | and Organic Honors Laboratory I                        |   |
| PHYS 1062                    | Elementary Classical Physics II                        |   |
| or PHYS 1962                 | Honors Elementary Classical Physics II                 |   |
| or PHYS 2022                 | General Physics II                                     |   |
| or PHYS 2922                 | Honors General Physics II                              |   |

|                           |              |
|---------------------------|--------------|
| <b>Total Credit Hours</b> | <b>51-56</b> |
|---------------------------|--------------|

| Code | Title | Credit Hours |
|------|-------|--------------|
|------|-------|--------------|

(F) - Fall only course

(S) - Spring only course

1

Earth & Environmental Science electives must be 3 or 4 credit courses above 2001, and at least two of the Earth & Environmental Science electives must be writing-intensive courses. One of the five EES elective courses can be outside of the department with faculty advisor approval.

## Suggested Academic Plan

### Bachelor of Arts in Geology

#### Suggested Plan for New Students Starting in the 2023-2024 Academic Year

| Year 1              |  | Credit Hours |
|---------------------|--|--------------|
| Fall                |  |              |
| EES 2001            | Physical Geology                       | 4            |
| MATH 1041           | Calculus I                             | 4            |
| or MATH 1941        | or Honors Calculus I                   |              |
| SCTC 1001           | CST First Year Seminar                 | 1            |
| ENG 0802            | Analytical Reading and Writing         | 4            |
| or ENG 0812         | or Analytical Reading and Writing: ESL |              |
| or ENG 0902         | or Honors Writing About Literature     |              |
| Elective            |  | 2            |
| <b>Credit Hours</b> |  | <b>15</b>    |

**Spring**

|                              |   |
|------------------------------|---|
| Select one of the following: | 4 |
|------------------------------|---|

|                          |   |  |
|--------------------------|---|--|
| CHEM 1031<br>& CHEM 1033 | General Chemistry I<br>and General Chemistry Laboratory I                         |  |
| CHEM 1951<br>& CHEM 1953 | Honors General Chemical Science I<br>and Honors Chemical Science Laboratory I (F) |  |

|                              |   |
|------------------------------|---|
| Select one of the following: | 4 |
|------------------------------|---|

|                       |  |   |
|-----------------------|--|---|
| MATH 1044             | Introduction to Probability and Statistics for the Life Sciences                           |   |
| MATH 1042             | Calculus II  |   |
| MATH 1942             | Honors Calculus II   |   |
| IH 0851<br>or IH 0951 | Intellectual Heritage I: The Good Life<br>or Honors Intellectual Heritage I: The Good Life | 3 |
| Elective              |  | 3 |
| Elective              |  | 2 |

|                     |           |
|---------------------|-----------|
| <b>Credit Hours</b> | <b>16</b> |
|---------------------|-----------|

**Year 2****Fall**

|          |                  |  |   |
|----------|------------------|--|---|
| EES 2011 | Mineralogy I (F) |  | 4 |
|----------|------------------|--|---|

|                              |   |
|------------------------------|---|
| Select one of the following: | 4 |
|------------------------------|---|

|                       |  |   |
|-----------------------|--|---|
| PHYS 1061             | Elementary Classical Physics I   |   |
| PHYS 1961             | Honors Elementary Classical Physics I (F)  |   |
| PHYS 2021             | General Physics I  |   |
| PHYS 2921             | Honors General Physics I (F)   |   |
| IH 0852<br>or IH 0952 | Intellectual Heritage II: The Common Good<br>or Honors Intellectual Heritage II: The Common Good | 3 |
| Elective              |  | 4 |

|                     |           |
|---------------------|-----------|
| <b>Credit Hours</b> | <b>15</b> |
|---------------------|-----------|

**Spring**

|  |   |
|--|---|
| Earth & Environmental Science Elective (see Requirements page) | 4 |
| GenEd Breadth Course   | 3 |
| Elective   | 3 |
| Elective   | 3 |
| Elective   | 3 |

|                     |           |
|---------------------|-----------|
| <b>Credit Hours</b> | <b>16</b> |
|---------------------|-----------|

**Year 3****Fall**

|  |   |
|--|---|
| Select one EES course between 3020-3025: | 4 |
|--|---|

|   |                           |   |
|---|---------------------------|---|
| EES 3021  | Groundwater Hydrology (S) |   |
| EES 3025  | Physical Hydrology (F)    |   |
| Science Foundation Elective (see Requirements page) |                           | 4 |
| Foreign Language 1001 - First Level                 |                           | 4 |
| GenEd Breadth Course                                |                           | 3 |

|                     |           |
|---------------------|-----------|
| <b>Credit Hours</b> | <b>15</b> |
|---------------------|-----------|

**Spring**

|  |   |
|--|---|
| Earth & Environmental Science Elective <sup>WI</sup> (see Requirements page) | 4 |
| Science Foundation Elective (see Requirements page)                          | 4 |
| Foreign Language 1002 - Second Level   | 4 |
| GenEd Breadth Course   | 3 |

|                     |           |
|---------------------|-----------|
| <b>Credit Hours</b> | <b>15</b> |
|---------------------|-----------|

**Year 4****Fall**

|  |   |
|--|---|
| Earth & Environmental Science Elective (see Requirements page) | 4 |
| Upper-level CLA Course (numbered 2000 and above)               | 3 |

|                      |   |
|----------------------|---|
| GenEd Breadth Course | 3 |
| Elective             | 3 |
| Elective             | 3 |

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|                     |           |
|---------------------|-----------|
| <b>Credit Hours</b> | <b>16</b> |
|---------------------|-----------|

**Spring**

|  |     |
|--|-----|
| Earth & Environmental Science Elective <sup>WI</sup> (see Requirements page) | 4   |
| Earth & Environmental Science Elective (see Requirements page)               | 4   |
| Upper-level CLA Course (numbered 2000 and above)                             | 3   |
| GenEd Breadth Course   | 3-4 |
| Elective   | 1-0 |

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|                     |           |
|---------------------|-----------|
| <b>Credit Hours</b> | <b>15</b> |
|---------------------|-----------|

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|                           |            |
|---------------------------|------------|
| <b>Total Credit Hours</b> | <b>123</b> |
|---------------------------|------------|

|             |              |                     |
|-------------|--------------|---------------------|
| <b>Code</b> | <b>Title</b> | <b>Credit Hours</b> |
|-------------|--------------|---------------------|

(F) - Fall only course

(S) - Spring only course