

# GEOLOGY, B.S.

Geology is the study of the Earth. Volcanoes, earthquakes, floods, landslides, erosion and plate tectonics are some of the things that geologists investigate and try to understand. Geology is a field-oriented science that involves mapping and analyzing rocks, deciphering the Earth's history from the rock record, locating natural resources, identifying natural and man-made hazards, and understanding Earth's natural processes.

Saint Louis University's Bachelor of Science in Geology places a stronger emphasis on chemistry, physics, calculus and fieldwork than the geology B.A (<https://catalog.slu.edu/colleges-schools/arts-sciences/earth-atmospheric-sciences/geology-ba/>) which is also offered at SLU. It is more appropriate for students who intend to go on to graduate school or become a professional geologist.

## Program Highlights

- Saint Louis University's undergraduate geology program has a low student to faculty ratio, giving students more opportunities to interact with faculty, receive personalized attention and take advantage of opportunities both inside and outside of the University.
- An annual department field trip in which faculty, graduate and undergraduate students spend one week exploring a region of the country offers a unique hands-on experience in which students learn first-hand about the Earth and its environment. The department heavily subsidizes these trips so that most students can participate.

## Curriculum Overview

The geology curriculum is built around areas of knowledge fundamental to understanding the Earth.

Survey courses in Earth systems are the first two courses that students take. Intermediate and upper-division courses are focused on the building blocks of Earth and the processes that build and modify the Earth's features. These courses cover the study of minerals and rocks, weathering and erosion, sediment transport and deposition, development of mountain ranges and deformation of the Earth, and the movement of tectonic plates.

Students enrolled in the bachelor of science program also enroll in a six-week summer camp during which they learn to work in the field.

## Fieldwork and Research Opportunities

In addition to the annual geology department field trip during which faculty, graduate and undergraduate students spend one week exploring a region of the United States, geology students at SLU may have the opportunity for part-time work assisting faculty members with their research. These jobs expose students to various aspects of science and provide them with some income. The city of St. Louis also provides opportunities for science-related volunteer work in places such as the Saint Louis Science Center and Saint Louis Zoo.

## Careers

A degree in the geosciences prepares students for a variety of interesting careers. Many geoscientists work in industry or for government agencies concerned with oil and natural gas exploration and production, mining, water resources, civil engineering, waste and pollution management,

environmental impact assessment, conservation and land management, policy analysis and implementation education.

Students in SLU's geology program also acquire a solid background in critical thinking, effective communication and computer use relevant to a variety of both scientific and non-scientific careers.

## Admission Requirements

### Freshman

Begin your application for this program at [www.slu.edu/apply](http://www.slu.edu/apply) (<http://www.slu.edu/apply.php>). Saint Louis University also accepts the Common App.

All applications are thoroughly reviewed with the highest degree of individual care and consideration to all credentials that are submitted. Solid academic performance in college preparatory course work is a primary concern in reviewing a freshman applicant's file.

To be considered for admission to any Saint Louis University undergraduate program, the applicant must be graduating from an accredited high school, have an acceptable HiSET exam score or take the General Education Development (GED) test. Beginning with the 2021-22 academic year, undergraduate applicants will not be required to submit standardized test scores (ACT or SAT) in order to be considered for admission. Applicants will be evaluated equally, with or without submitted test scores.

Begin Your Application (<http://www.slu.edu/apply.php>)

### Transfer

Begin your application for this program at [www.slu.edu/apply](http://www.slu.edu/apply) (<http://www.slu.edu/apply.php>).

Applicants must be a graduate of an accredited high school or have an acceptable score on the GED. An official high school transcript and official test scores are required only of those students who have attempted fewer than 24 transferable semester credits (or 30 quarter credits) of college credit. Those having completed 24 or more of college credit need only submit a transcript from previously attended college(s). In reviewing a transfer applicant's file, the office of admission holistically examines the student's academic performance in college-level coursework as an indicator of the student's ability to meet the academic rigors of Saint Louis University.

### International Applicants

Begin your application for this program at [www.slu.edu/apply](http://www.slu.edu/apply) (<http://www.slu.edu/apply.php>).

All admission policies and requirements for domestic students apply to international students along with the following:

- Demonstrate English Language Proficiency (<http://catalog.slu.edu/academic-policies/office-admission/undergraduate/english-language-proficiency/>)
- Proof of financial support must include:
  - A letter of financial support from the person(s) or sponsoring agency funding the time at Saint Louis University
  - A letter from the sponsor's bank verifying that the funds are available and will be so for the duration of study at the University
- Academic records, in English translation, of students who have undertaken postsecondary studies outside the United States must include the courses taken and/or lectures attended, practical

laboratory work, the maximum and minimum grades attainable, the grades earned or the results of all end-of-term examinations, and any honors or degrees received. WES and ECE transcripts are accepted.

## Scholarships and Financial Aid

There are two principal ways to help finance a Saint Louis University education:

- **Scholarships:** Awarded based on academic achievement, service, leadership and financial need.
- **Financial Aid:** Provided in the form of grants and loans, some of which require repayment.

For priority consideration for merit-based scholarships, apply for admission by Dec. 1 and complete a Free Application for Federal Student Aid (FAFSA) by March 1.

For information on other scholarships and financial aid, visit the student financial services office online at <https://www.slu.edu/financial-aid> (<https://www.slu.edu/financial-aid/>).

## Learning Outcomes

1. Graduates will know the founding principles in their field of study, as well as the facts and content appropriate to the field.
2. Graduates will be able to use their knowledge to reason about issues in their discipline.
3. Graduates will be able to solve quantitative problems in their discipline.

## Requirements

| Code  | Title   | Credits |
|---|---|---------|
| <b>Core Requirement</b>   |   |         |
| College core requirements (p. 2)  |   | 54-63   |
| For additional information about core courses ( <a href="http://catalog.slu.edu/colleges-schools/arts-sciences/#policiestext">http://catalog.slu.edu/colleges-schools/arts-sciences/#policiestext</a> ) |   |         |
| <b>Required Courses</b>   |   |         |
| CHEM 1110 & CHEM 1115   | General Chemistry 1 and General Chemistry 1 Laboratory        | 4       |
| CHEM 1120 & CHEM 1125   | General Chemistry 2 and General Chemistry 2 Laboratory        | 4       |
| EAS 1010 & EAS 1020   | Earth Systems I-The Solid Earth and Earth's Environment I Lab | 4       |
| EAS 1030 & EAS 1040   | Earth's Dynamic Environment II and Earth's Environment II Lab | 4       |
| EAS 2200 & EAS 2210   | Mineralogy and Mineralogy Lab                                 | 4       |
| EAS 2400  | Field Techniques in the Geosciences                           | 2       |
| EAS 2420  | Computer Applications in Earth Science                        | 1       |
| EAS 4050 & EAS 4060   | Petrology and Petrology Lab                                   | 4       |
| EAS 4100 & EAS 4110   | Surface Processes and Surface Processes Laboratory            | 4       |
| EAS 4300 & EAS 4310   | Structural Geology and Structural Geology Laboratory          | 4       |
| EAS 4370  | Earth Dynamics  | 3       |
| EAS 4500  | Scientific Communications                                     | 3       |
| MATH 1510   | Calculus I  | 4       |

|  |  |         |
|--|--|---------|
| MATH 1520                                  | Calculus II  | 4       |
| Summer Field Camp <sup>†</sup>             |  | 6       |
| <b>Geology Elective Courses</b>            |  |         |
| Select four of the following: <sup>‡</sup> |  | 12      |
| CHEM 3330                                  | Physical Chemistry 1   |         |
| EAS 1140                                   | Earth History  |         |
| EAS 4280                                   | Environmental Geochemistry   |         |
| EAS 4410                                   | Hydrology  |         |
| EAS 4980                                   | Advanced Independent Study   |         |
| EAS 5xxx                                   | Graduate Level Geol. Course  |         |
| MATH 2530                                  | Calculus III   |         |
| <b>Science Elective Courses</b>            |  |         |
| Select one of the following:               |  | 4       |
| PHYS 1310 & PHYS 1320                      | Physics I and Physics I Laboratory                                 |         |
| PHYS 1610                                  | Engineering Physics I or PHYS 162 Engineering Physics I Laboratory |         |
| Total Credits                              |  | 125-134 |

<sup>†</sup> Students must complete a six credit geology field camp via another university. Field camp is offered in the summer at several universities and is typically taken after the junior year. Students must meet the prerequisites of the field camp and obtain approval from the Geology program coordinator.

<sup>‡</sup> At least 6 credits must be from EAS 3xxx/4xxx courses.

## Continuation Standards

Students must have a minimum of a 2.00 GPA in their major courses within the Department of Earth and Atmospheric Sciences and required related credits (biology, chemistry, mathematics and computer sciences, physics, etc.) by the conclusion of their freshman year. Students that fall below a 2.00 GPA will be placed on probation. If a student fails to obtain at least a 2.0 GPA in their major courses and required related credits by the conclusion of their sophomore year they will not be allowed to continue in the program.

## Bachelor of Science Core Curriculum Requirements

| Code   | Title | Credits |
|--|-------|---------|
| <b>Core Components and Credits</b>   |       |         |
| Foundations of Discourse ( <a href="http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/foundations-discourse/">http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/foundations-discourse/</a> ) |       | 3       |
| Diversity in the U.S. ( <a href="http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/cultural-diversity/">http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/cultural-diversity/</a> )          |       | 3       |
| Global Citizenship ( <a href="http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/global-citizenship/">http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/global-citizenship/</a> )             |       | 3       |
| Foreign Language ( <a href="http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/foreign-language/">http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/foreign-language/</a> )                   |       | 0-9     |
| Fine Arts ( <a href="http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/fine-arts/">http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/fine-arts/</a> )  |       | 3       |
| Literature ( <a href="http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/literature/">http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/literature/</a> )                                     |       | 6       |
| Mathematics ( <a href="http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/mathematics/">http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/mathematics/</a> )                                  |       | 4       |
| Science ( <a href="http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/sciences/">http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/sciences/</a> )  |       | 8       |

|  |              |
|--|--------------|
| Philosophy ( <a href="http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/philosophy/">http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/philosophy/</a> )             | 6            |
| Social Science ( <a href="http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/social-science/">http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/social-science/</a> ) | 6            |
| Theology ( <a href="http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/theology/">http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/theology/</a> )                   | 6            |
| World History ( <a href="http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/world-history/">http://catalog.slu.edu/colleges-schools/arts-sciences/bs-core/world-history/</a> )    | 6            |
| <b>Total Credits</b>   | <b>54-63</b> |

### Graduation Requirements

- Complete a minimum of 120 credits (excluding pre-college level courses [numbered below 1000]).
- Complete either the College of Arts and Sciences Bachelor of Arts or Bachelor of Science Core Curriculum Requirements
- Complete Major Requirements: minimum 30 credits required.
- Complete remaining credits with a second major, minor, certificate, and/or elective credits to reach the minimum of 120 credits required for graduation.
- Achieve at least a 2.00 cumulative grade point average, a 2.00 grade point average in the major(s) and a 2.00 grade point average in the minor/certificate, or related elective credits.
- Complete department/program-specific academic and performance requirements.
- Complete at least 50% of the coursework for the major and 75% for the minor/certificate through Saint Louis University or an approved study abroad program.
- Complete 30 of the final 36 credits through Saint Louis University or an approved study abroad program.
- Complete an online degree application by the required University deadline.

## Roadmap

Roadmaps are recommended semester-by-semester plans of study for programs and assume full-time enrollment unless otherwise noted.

Courses and milestones designated as critical (marked with !) must be completed in the semester listed to ensure a timely graduation. Transfer credit may change the roadmap.

This roadmap should not be used in the place of regular academic advising appointments. All students are encouraged to meet with their advisor/mentor each semester. Requirements, course availability and sequencing are subject to change.

| Course              | Title   | Credits   |
|---------------------|---|-----------|
| <b>Year One</b>     |   |           |
| <b>Fall</b>         |   |           |
| EAS 1010 & EAS 1020 | Earth Systems I-The Solid Earth and Earth's Environment I Lab | 4         |
| General elective    |   | 3         |
| A&S Core            |   | 3         |
| A&S Core            |   | 3         |
| UNIV 1010           | Enhancing First-Year Success                                  | 1         |
|                     | <b>Credits</b>  | <b>14</b> |
| <b>Spring</b>       |   |           |
| EAS 1030 & EAS 1040 | Earth's Dynamic Environment II and Earth's Environment II Lab | 4         |

|                     |                |           |
|---------------------|----------------|-----------|
| EAS elective (p. 4) |                | 3         |
| A&S Core            |                | 3         |
| A&S Core            |                | 3         |
| A&S Core            |                | 3         |
|                     | <b>Credits</b> | <b>16</b> |

|                       |  |           |
|-----------------------|--|-----------|
| <b>Year Two</b>       |  |           |
| <b>Fall</b>           |  |           |
| EAS 2200 & EAS 2210   | Mineralogy and Mineralogy Lab                          | 4         |
| CHEM 1110 & CHEM 1115 | General Chemistry 1 and General Chemistry 1 Laboratory | 4         |
| PHYS 1310 & CHEM 1125 | Physics I and General Chemistry 2 Laboratory           | 4         |
| A&S Core              |  | 3         |
|                       | <b>Credits</b>   | <b>15</b> |

|                       |  |             |
|-----------------------|--|-------------|
| <b>Spring</b>         |  |             |
| EAS 2400              | Field Techniques in the Geosciences                    | 2           |
| CHEM 1120 & CHEM 1125 | General Chemistry 2 and General Chemistry 2 Laboratory | 4           |
| MATH 1510             | Calculus I   | 0,4         |
| General elective      |  | 3           |
|                       | <b>Credits</b>   | <b>9-13</b> |

|                     |                             |           |
|---------------------|-----------------------------|-----------|
| <b>Year Three</b>   |                             |           |
| <b>Fall</b>         |                             |           |
| EAS 4050 & EAS 4060 | Petrology and Petrology Lab | 4         |
| MATH 1520           | Calculus II                 | 4         |
| A&S Core            |                             | 3         |
| General elective    |                             | 3         |
|                     | <b>Credits</b>              | <b>14</b> |

|                     |  |           |
|---------------------|--|-----------|
| <b>Spring</b>       |  |           |
| EAS 4100 & EAS 4110 | Surface Processes and Surface Processes Laboratory   | 4         |
| EAS 4300 & EAS 4310 | Structural Geology and Structural Geology Laboratory | 4         |
| A&S Core            |  | 3         |
| A&S Core            |  | 3         |
|                     | <b>Credits</b>                                       | <b>14</b> |

|               |                |          |
|---------------|----------------|----------|
| <b>Summer</b> |                |          |
| Field Camp    |                | 6        |
|               | <b>Credits</b> | <b>6</b> |

|                     |  |           |
|---------------------|--|-----------|
| <b>Year Four</b>    |  |           |
| <b>Fall</b>         |  |           |
| EAS elective (p. 4) |  | 3         |
| EAS elective (p. 4) |  | 3         |
| EAS 2420            | Computer Applications in Earth Science | 1         |
| A&S Core            |  | 3         |
| A&S Core            |  | 3         |
|                     | <b>Credits</b>                         | <b>13</b> |

|                     |                           |   |
|---------------------|---------------------------|---|
| <b>Spring</b>       |                           |   |
| EAS 4370            | Earth Dynamics            | 3 |
| EAS 4500            | Scientific Communications | 3 |
| EAS elective (p. 4) |                           | 3 |

|               |         |
|---------------|---------|
| A&S Core      | 3       |
| A&S Core      | 3       |
| <hr/>         |         |
| Credits       | 15      |
| <hr/>         |         |
| Total Credits | 116-120 |

### Program Notes

At least two earth and atmospheric sciences electives must be at the 3000-4000 level. Science electives outside of earth and atmospheric sciences may also be approved by the program director.