

# Bachelor of Science in Geological Sciences

The Bachelor of Science in Geological Sciences serves as a professional degree for students planning careers as geologists, geophysicists, or teachers, as well as for those planning to pursue graduate work in the geosciences or a profession such as law or business. Careers are available in the petroleum and related energy industries, resource evaluation, mineral exploration, geologic hazard monitoring, environmental control and reclamation, building foundation evaluation, groundwater contamination studies, soil testing, regional planning, watershed management, climate modeling, and college or secondary school teaching. Graduates may also work in state or federal agencies, in universities or museums, with consulting firms, or with service companies to the energy and mineral industries.

Degree requirements are divided into three categories: university-wide undergraduate degree requirements (the University core curriculum) and flag requirements, prescribed work for the degree, and major requirements. Taken together, these courses constitute a degree option, a degree plan with a particular concentration or emphasis. Thus, students may develop intellectually challenging yet different plans of study according to their personal interests and goals.

Students seeking the Bachelor of Science in Geological Sciences degree must choose one of four options--I: General Geology, II: Geophysics, III: Hydrogeology, or V: Teaching. (Option IV: Environmental Science and Sustainability is no longer offered.)

## Prescribed Work Common to All Geological Sciences Majors

Each student must complete the University's core curriculum. In the process of completing core curriculum and geological sciences degree requirements, students must also earn credit for seven flags including: two writing flags, one quantitative reasoning flag, one global cultures flag, one cultural diversity in the United States flag, one ethics flag, and one independent inquiry flag. In some cases, a course required for the degree/major may also be counted toward the core curriculum. Flags may be added to courses periodically; courses that may be used to fulfill flag requirements are identified in the [Course Schedule](#). Students are encouraged to discuss options for completing flag requirements with their academic advisor.

A course in one prescribed work area may not also be used to fulfill the requirements of another prescribed work or major requirement; the only exception to this rule is that a course that fulfills any other requirement may also be used to fulfill a core curriculum requirement, or a flag requirement if the course carries that flag, unless otherwise specified.

**GPA Requirements:** A cumulative grade point average of at least 2.00 is required on all work undertaken at the University for which a grade or symbol other than *Q*, *W*, *X*, or *CR* is recorded. In addition, a grade point average of at least 2.00 is required in geological sciences courses counted toward the major requirement.

**Course Grades:** A grade of at least *C-* is required in each course used to fulfill any of the requirements for the degree. The official grade in a course is the last one made; however, if a student repeats a course and has two or more grades, all grades and all semester hours are used to calculate the University grade point average and to determine the student's scholastic eligibility to remain in the University and the student's academic standing in the Jackson School of Geosciences.

**In-residence Coursework:** All University students must complete at least 60 semester hours of the coursework counted towards the degree in residence. Individual degree(s) or degree options may contain additional course residency requirements.

In addition, the student must fulfill the University's general requirements and the requirements of the Jackson School of Geosciences.

## Additional Requirements Specific to the BS Geological Sciences, Options I, II, & III

**In-residence Coursework:** Every student in the BS Geological Sciences, Option I, II or III degree plan must complete at least 36 semester hours of upper-division coursework in residence at the University. At least 18 of these upper-division hours must be in geological sciences and at least 12 hours must be from areas outside of geological sciences.

**Technical Coursework:** Students in the BS Geological Sciences, Option I, II or III must complete at least two-thirds of all technical coursework required for the degree (calculus, chemistry, and physics) at the University. Requests to take required technical coursework at another school, online, by correspondence or extension at the University must be approved by the JSG Academic Affairs Office prior to registration. Coursework completed outside of the University without approval may not be used to fulfill degree or school scholarship eligibility requirements.

**Total Degree Hours:** A total of 126 hours of coursework including core, prescribed, and major work is required.

## Prescribed Work

### BS Geological Sciences, Option I, II & III

- Mathematics 408C and 408D; or 408K, 408L, and 408M. Mathematics 408C or 408K also meets the mathematics requirement of the core curriculum. Algebra courses at the level of Mathematics 301 or the equivalent may not be counted toward the total number of semester hours required for the degree.
- Physics 301, 101L, 316, and 116L; or Physics 303K, 103M, 303L, and 103N.
- Chemistry 301 and 302. Together, requirements 2 and 3 also meet parts I and II of the science and technology requirement of the core curriculum.
- Geological Sciences 401 or 303, 416K, and 325G.
- Technical Electives:** Twelve semester hours of approved science and engineering courses with no more than six semester hours of lower-division courses. These courses may be coordinated with recommended upper-division GEO elective courses to form a geoscience course concentration. A list of approved courses is available in the JSG Advising Office.
- Foreign language/culture:** Students must complete one of the following options: (a) Second-semester proficiency in a foreign language; (b) First-semester level proficiency in a foreign language, and a three-hour course in the culture of the same language area (from approved list), or; (c) Two three-hour courses chosen from one foreign culture category (from approved list). A list of approved cultural courses is available in the JSG Advising Office. Courses that fulfill this requirement must be in addition to courses counted toward the core curriculum or flag requirements.

## Option I: General Geology

### Major Requirements

- Geological Sciences 405, 416M, 420K, 426P and 428.
- Six semester hours of approved field coursework. This requirement may be met by Geological Sciences 660A and 660B. All field coursework should be completed during the same summer semester.

## Option II: Geophysics

### Major Requirements

- Mathematics 427J and 427L
- Physics 315, 115L, 316, and 116L
- Geological Sciences 315L, 325C, 325K or 325M, 354, 365P, 465K and 366M.
- Six hours of upper-division Geological Sciences coursework.
- Six semester hours of approved field coursework. This requirement may be met by Geological Sciences 348K, 661A/661B, or 679G.
- Three additional hours of approved upper-division coursework in geological sciences.

## Option III: Hydrogeology

### Major Requirements

- Mathematics 427J
- Chemistry 204
- Geological Sciences 416M, 420K, 428, 476K, 476M, and 376S
- Six semester hours of approved field coursework that must include Geological Sciences 376L and an additional three semester hours of approved field coursework. This requirement may be met by Geological Sciences 660A/660B, or 377K.
- Nine additional semester hours of approved upper-division coursework in geological sciences.

## Option V: Teaching

The BS Geological Sciences, Option V: Teaching is designed to fulfill the course requirements for composite science teacher certification for middle school or secondary with geological sciences as the primary teaching field.

### Additional Requirements Specific to the BS Geological Sciences, Option V: Teaching

Students must meet the following requirements to graduate and be recommended for certification.

- University grade point average of at least 2.50
- Earned a grade of at least C- in each of the professional development courses and supporting courses listed below as well as all coursework required for the geological sciences degree.
- Successful passing of final teaching portfolio review, conducted by the UTeach-Natural Sciences program. Information about the portfolio review and additional certification requirements is available from the UTeach-Natural Sciences academic advisor.
- Composite certification requires 24 semester hours of coursework in the primary field, 12 hours in a second field, and six hours each in two additional fields.
- In addition, students must fulfill the University's general requirements and the requirements of the Jackson School of Geosciences.

Students must adhere to the current certification requirements, even if they differ from those listed in the University catalog.

## Prescribed Work

- Professional Development Sequence:
  - Curriculum and Instruction 651S
  - Curriculum and Instruction 365C or UTeach-Natural Sciences 350
  - Curriculum and Instruction 365D or UTeach-Natural Sciences 355
  - Curriculum and Instruction 365E or UTeach-Natural Sciences 360
  - UTeach-Natural Sciences 101, 110, and 170
- Supporting Courses:
  - Biology 337 (Topic 2: *Research Methods: UTeach*), Chemistry 368 (Topic 1: *Research Methods: UTeach*), or Physics 341 (Topic 7: *Research Methods: UTeach*)
  - History 329U or Philosophy 329U
- Middle grades certification: Students seeking middle grades certification, must also complete the following coursework:
  - Educational Psychology 350G, or both Psychology 301 and 304
  - Curriculum and Instruction 339E

## Major Requirements

- Mathematics 408C. This course also meets the mathematics requirement of the core curriculum. Algebra courses at the level of Mathematics 301 or the equivalent may not be counted toward the total number of semester hours required for the degree.
- To meet the requirements of composite certification, the student must complete the following courses. In meeting this requirement, the student also fulfills parts I and II of the science and technology requirement of the core curriculum.
  - Biology 311C and 311D
  - Chemistry 301 and 302
  - Physics 303K and 103M or Physics 303L and 103N; or an equivalent sequence
  - Enough additional approved coursework in biology, chemistry, or physics to provide the required 12 semester hours in a second field
- Astronomy 303, 307, or 367M
- Marine Science 307
- Geological Sciences 401 or 303, 405, 416K, 416M, and 420K or 320L
- Enough upper-division coursework to total at least 28 semester hours in geological sciences.
- Enough additional coursework to total 126 semester hours including core, prescribed and major work.