

Geology - BS

College of Science

Department of Geology

Graduation Requirements:

Students must complete the Minimum University Graduation and University Studies General Education and Depth Requirements.

Students must complete the [General Education Requirements](#):

- [GEO 1110](#) in conjunction with [CHEM 1220](#) will fulfill the Exploration requirement
- [MATH 1210](#) will fulfill the Quantitative Literacy (QL) requirement
- [PHYS 2220](#) will fulfill the Breadth Physical Sciences (BPS) requirement
- [ENGL 1010](#) and [ENGL 2010](#) will fulfill the Communications Literacy requirement
- Three credits of approved courses in: American Institutions (BAI), Creative Arts (BCA), Humanities (BHU), Life Sciences (BLS) and Social Sciences (BSS)

Students must also complete the [University Studies Depth Requirements](#):

- [GEO 4700](#) will partially fulfill the Communications Intensive (CI) requirement
- [PHYS 2210](#) will fulfill the Quantitative Intensive (QI) requirement
- [GEO 3200](#) will fulfill the Life and Physical Sciences (DSC) requirement
- Two credits of approved 3000-level or above courses in: Humanities and Creative Arts (DHA) and Social Sciences (DSS)

Geology Major, BS/BA

General Geology Option (78-80 credits)

- [GEO 1110](#) - Physical Geology (BPS) **3**
- [GEO 1115](#) - Physical Geology Laboratory **1**
- [GEO 3200](#) - The Earth Through Time (DSC) **4**
- [GEO 3500](#) - Minerals and Rocks **4**
- [GEO 3550](#) - Sedimentation and Stratigraphy **4**
- [GEO 3600](#) - Geomorphology **4**
- [GEO 3700](#) - Structural Geology **4**
- [GEO 4500](#) - Igneous and Metamorphic Petrology **4**
- [GEO 4700](#) - Geologic Field Methods (CI) **3**
- [GEO 5200](#) - Geology Field Camp **5**
- [CHEM 1210](#) - Principles of Chemistry I **4**
- [CHEM 1215](#) - Chemical Principles Laboratory I **1**
- [CHEM 1220](#) - Principles of Chemistry II (BPS) **4**
- [CHEM 1225](#) - Chemical Principles Laboratory II **1**
- [MATH 1210](#) - Calculus I (QL) **4**

- [MATH 1220](#) - Calculus II (QL) **4 or**
- [STAT 3000](#) - Statistics for Scientists (QI) **3**

- GEOG 1800 - Introduction to Geographic Information Sciences **3 or**
- WATS 5003 - Remote Sensing of Land Surfaces **4 or**
- WILD 5750 - Applied Remote Sensing **3 or**
- CS 1400 - Introduction to Computer Science--CS 1 **3**

- PHYS 2210 - Physics for Scientists and Engineers I (QI) **4**
- PHYS 2215 - Physics for Scientists and Engineers Lab I **1**
- PHYS 2220 - Physics for Scientists and Engineers II (BPS/QI) **4**
- PHYS 2225 - Physics for Scientists and Engineers Lab II **1**

Note:

Students must also select 12 credits from any Geology courses numbered 4800 or above, except GEO 5200. Must include one of the following courses:

- GEO 5620 - Global Geophysics (QI) **3**
- GEO 5640 - Introduction to Seismology **3**
- GEO 5660 - Applied Geophysics **4**
- GEO 5690 - Geodynamics **3**

Hydrogeology- Engineering Geology Emphasis (82-84 credits)

- GEO 1110 - Physical Geology (BPS) **3**
- GEO 1115 - Physical Geology Laboratory **1**
- GEO 3200 - The Earth Through Time (DSC) **4**
- GEO 3500 - Minerals and Rocks **4**
- GEO 3550 - Sedimentation and Stratigraphy **4**
- GEO 3600 - Geomorphology **4**
- GEO 3700 - Structural Geology **4**
- GEO 4700 - Geologic Field Methods (CI) **3**
- GEO 5200 - Geology Field Camp **5**
- GEO 5510 - Groundwater Geology (QI) **3**

- GEO 5520 - Techniques of Groundwater Investigations (CI) **3 or**
- GEO 5600 - Geochemistry **3**

- CHEM 1210 - Principles of Chemistry I **4**
- CHEM 1215 - Chemical Principles Laboratory I **1**
- CHEM 1220 - Principles of Chemistry II (BPS) **4**
- CHEM 1225 - Chemical Principles Laboratory II **1**
- MATH 1210 - Calculus I (QL) **4**
- MATH 1220 - Calculus II (QL) **4**

- MATH 2210 - Multivariable Calculus (QI) **3 or**

- MATH 2250 - Linear Algebra and Differential Equations (OI) **4**
- PHYS 2210 - Physics for Scientists and Engineers I (OI) **4**
- PHYS 2215 - Physics for Scientists and Engineers Lab I **1**
- PHYS 2220 - Physics for Scientists and Engineers II (BPS/OI) **4**
- PHYS 2225 - Physics for Scientists and Engineers Lab II **1**
- ENGR 2010 - Engineering Mechanics Statics **3**
- ENGR 2030 - Engineering Mechanics Dynamics **3**
- ENGR 2140 - Strength of Materials **3**
- CEE 3430 - Engineering Hydrology **3 or**
- CEE 4300 - Engineering Soil Mechanics **4**
- CEE 3500 - Civil and Environmental Engineering Fluid Mechanics **3**

Geoarchaeology Emphasis (74-77 credits)

- GEO 1110 - Physical Geology (BPS) **3**
- GEO 1115 - Physical Geology Laboratory **1**
- GEO 3200 - The Earth Through Time (DSC) **4**
- GEO 3500 - Minerals and Rocks **4**
- GEO 3550 - Sedimentation and Stratigraphy **4**
- GEO 3600 - Geomorphology **4**
- GEO 3700 - Structural Geology **4**
- GEO 4700 - Geologic Field Methods (CI) **3**
- GEO 5680 - Paleoclimatology **3**
- ANTH 1030 - World Archaeology (BSS) **3 or**
- ANTH 2330 - Principles of Archaeology (BSS) **3**
- ANTH 3300 - Archaeology in North America (DSS) **3 or**
- ANTH 3360 - Utah Archaeology (DSS) **3**
- ANTH 5300 - Archaeology Field School **3-5**
- ANTH 5330 - Geoarchaeology **3**
- CHEM 1210 - Principles of Chemistry I **4**
- CHEM 1215 - Chemical Principles Laboratory I **1**
- CHEM 1220 - Principles of Chemistry II (BPS) **4**
- CHEM 1225 - Chemical Principles Laboratory II **1**
- PHYS 2210 - Physics for Scientists and Engineers I (OI) **4**
- PHYS 2215 - Physics for Scientists and Engineers Lab I **1**

- BIOL 3010 - Evolution (DSC) **3 or**
- BIOL 3040 - Plants and Civilization (DSC) **3**
- MATH 1210 - Calculus I (QL) **4**
- STAT 3000 - Statistics for Scientists (QI) **3**
- GEOG 1800 - Introduction to Geographic Information Sciences **3 or**
- WATS 5003 - Remote Sensing of Land Surfaces **4 or**
- WILD 5750 - Applied Remote Sensing **3**
- PSC 3000 - Fundamentals of Soil Science **4 or**
- PSC 5130 - Soil Genesis, Morphology, and Classification **4**

Applied Environmental Geoscience Emphasis (81-83 credits)

- GEO 1110 - Physical Geology (BPS) **3**
- GEO 1115 - Physical Geology Laboratory **1**
- GEO 3200 - The Earth Through Time (DSC) **4**
- GEO 3500 - Minerals and Rocks **4**
- GEO 3550 - Sedimentation and Stratigraphy **4**
- GEO 3600 - Geomorphology **4**
- GEO 3700 - Structural Geology **4**
- GEO 4700 - Geologic Field Methods (CI) **3**
- GEO 5200 - Geology Field Camp **5**
- GEO 5600 - Geochemistry **3**
- CHEM 1210 - Principles of Chemistry I **4**
- CHEM 1215 - Chemical Principles Laboratory I **1**
- CHEM 1220 - Principles of Chemistry II (BPS) **4**
- CHEM 1225 - Chemical Principles Laboratory II **1**
- MATH 1210 - Calculus I (QL) **4**
- STAT 3000 - Statistics for Scientists (QI) **3**
- PHYS 2210 - Physics for Scientists and Engineers I (QI) **4**
- PHYS 2215 - Physics for Scientists and Engineers Lab I **1**
- BIOL 1610 - Biology I **4**
- BIOL 1620 - Biology II (BLS) **4**
- GEOG 1800 - Introduction to Geographic Information Sciences **3**
- PSC 3000 - Fundamentals of Soil Science **4 and**
- PSC 5130 - Soil Genesis, Morphology, and Classification **4**
- OR**
- WATS 3700 - Fundamentals of Watershed Science (CI) **3 and**
- WATS 4490 - Small Watershed Hydrology (QI) **4**

- GEO 5630 - Geologic Image Analysis **3 or**
- WATS 4930 - Advanced GIS and Spatial Analysis **3 or**
- WATS 5003 - Remote Sensing of Land Surfaces **4 or**
- WILD 5750 - Applied Remote Sensing **3**

- BIOL 2220 - General Ecology **3 or**
- CHEM 3650 - Environmental Chemistry (DSC) **3 or**
- PSC 3820 – Climate and Climate Change (DSC/QI) **3**

Geology Major Four Year Plan (Suggested Schedule)

Please meet with your advisor to complete your specific four year plan.

Freshman Year (29 credits)

Fall Semester (13 credits)

- CHEM 1210 - Principles of Chemistry I **4**
- CHEM 1215 - Principles of Chemistry Laboratory I **1**
- GEO 1110 - Physical Geology (BPS) **3**
- GEO 1115 - Physical Geology Laboratory **1**
- MATH 1210 - Calculus I (QL) **4**

Spring Semester (16 credits)

- CHEM 1220 - Principles of Chemistry II (BPS) **4**
- CHEM 1225 - Principles of Chemistry Laboratory II **1**
- GEO 3200 - The Earth Through Time (DSC) **4**
- GEO 3500 - Minerals and Rocks **4**
- ENGL 1010 - Introduction to Writing: Academic Prose (CL1) **3**

Sophomore Year (30 credits)

Fall Semester (15 credits)

- GEO 3550 - Sedimentation and Stratigraphy **4**
- PHYS 2210 - Physics for Scientists and Engineers I (QI) **4**
- PHYS 2215 - Physics for Scientists and Engineers Lab I **1**
- ENGL 2010 - Intermediate Writing: Research Writing in a Persuasive Mode (CL2) **3**
- Breadth American Institutions (BAI) course **3**

Spring Semester (15 credits)

- GEO 3700 - Structural Geology **4**
- PHYS 2220 - Physics for Scientists and Engineers II (BPS/QI) **4**
- PHYS 2225 - Physics for Scientists and Engineers Lab II **1**

- Breadth Creative Arts (BCA) course **3**
- Breadth Humanities (BHU) course **3**

Junior Year (26-28 credits)

Fall Semester (13-14 credits)

- GEO 3600 - Geomorphology **4**
- GEO 4500 - Igneous and Metamorphic Petrology **4** or GEO 5620 - Global Geophysics (QI) **3**
- GEOG 1800 - Introduction to Geographic Information Sciences **3** or CS 1400 - Introduction to Computer Science—CS 1 **3**
- Breadth Life Sciences (BLS) course **3**

Spring Semester (13-14 credits)

- GEO 5660 - Applied Geophysics **4** or GEO 5XXX - Geology elective **3**
- Breadth Social Sciences (BSS) course **3**
- Communications Intensive (CI) course **3**
- Electives **4**

Senior Year (33-36 credits)

Fall Semester (15-17 credits)

- GEO 4700 - Geologic Field Methods (CI) **3**
- GEO 4500 - Igneous and Metamorphic Petrology **4** or GEO 5620 - Global Geophysics (QI) **3**
- GEO 5XXX - Geology elective **3**
- MATH 1220 - Calculus II **4** or STAT 3000 - Statistics for Scientists (QI) **3**
- Depth Humanities and Creative Arts (DHA) course **3**

Spring Semester (13-14 credits)

- GEO 5660 - Applied Geophysics **4** or GEO 5XXX - Geology elective **3**
- GEO 5XXX - Geology elective **3**
- Depth Social Sciences (DSS) course **3**
- Electives **4**

Summer Semester (5 credits)

- GEO 5200 - Geology Field Camp **5**

Notes:

Students may need to complete prerequisite courses prior to enrolling in [MATH 1210](#). See the General Catalog for prerequisites or contact the Department of Mathematics and Statistics.

Only [GEO 5620](#) or [GEO 5620](#) is required, not both. A 3 or 4 credit elective course, respectively, may be substituted for whichever of these two courses is not taken.

Minimum University Requirements

Total Credits	120
Grade Point Average (most majors require higher GPA)	2.00 GPA
Credits of C- or better	100
Credits of upper-division courses (#3000 or above)	40
USU Credits (30 USU credits, 20 of which must be upper-division courses, 10 of which must be courses required for student's major)	30 USU credits
Completion of approved major program of study	See college advisor
Credits in minor (if required)	12
Credits in American Institutions (ECN 1500 ; HIST 1700 , HIST 2700 or HIST 2710 ; HONR 1300 ; POLS 1100 ; or USU 1300)	3
General Education Requirements and University Studies Depth Requirements	