

Welcome to the
Geology Major

in the College of Physical and Mathematical Sciences

College Advisement Center

Website: <https://science.byu.edu/advisement>
Email: science.math.advisement@byu.edu
Phone: 801-422-2674
Office: N-181 ESC

Geological Sciences Department

Website: www.geology.byu.edu
Email: geology@byu.edu
Phone: 801-422-3918
Office: S-389 ESC

Faculty Advisor – Jani Radebaugh*

Email: janirad@byu.edu
Phone: 801-422-9127
Office: S-383 ESC

Internship Coordinator – Keryn Ross

Email: volcano@gmail.com

University Career Services – Anna Kennington

Website: careers.byu.edu (Handshake--see flyer in packet)
Email: anna.kennington@byu.edu
Phone: 801-422-5944 (schedule appointment)
Office: C-106 BNSN



STEM Alliance--Connect with STEM employers, mentors, and clubs: www.stem.byu.edu

Club – Geology Club

Advisor: Ron Harris (ESC S-317)
Email: rharris@byu.edu
Phone: 801-422-9264

AAPG Chapter

Advisor: Sam Hudson (ESC S-337)
Email: sam.hudson@byu.edu
Phone: 801-422-4657

*Please meet with Dr. Jani Radebaugh soon after entering the major for important information about the course sequencing.

Things to Know

Resources for Graduation Planning

- Flow Charts and Major Academic Plans (MAPs) can be found here: <https://science.byu.edu/advisement/explore-majors-and-minors>.
- Academic advisors in N-181 ESC will help you understand course sequencing and help you plan classes to efficiently fill requirements. They can also help you with study skills and initial career exploration as well as connecting you with correct resources.
- Plan and register from your plan on MyMAP. Your academic advisor can help you understand how to best utilize this resource.
- Evaluate your current program. Periodically major programs are updated. An academic advisor would be happy to review the differences between the programs with you to help you determine what would be best for you.
- Consider meeting with a faculty advisor in your department. Contact info is found on the first page of this packet.

Tutoring Resources and Research

- Volunteer peer tutors are available through Y Serve if you need help with a class. Also, if you excel in a subject, consider serving your fellow students by becoming a tutor. Find out more here: <https://tutoring.byu.edu/>.
- Many departments provide TA Tutorial Labs and research opportunities. Check your department for details:
 - Chemistry and Biochemistry: C-100 BNSN, 801-422-3667, <https://www.chem.byu.edu/>
 - Computer Science: 3361 TMCB, 801-422-3027, csoffice@cs.byu.edu
 - Geological Sciences: S-389 ESC, 801-422-3918, geology@byu.edu
 - Mathematics: 275 TMCB, 801-422-2061, office@mathematics.byu.edu
 - Mathematics Education: 167 TMCB, 801-422-1735, office@mathed.byu.edu
 - Physics and Astronomy: N-283 ESC, 801-422-4361, physics_office@byu.edu
 - Statistics: 2152 WVB, 801-422-4505, statsec@stat.byu.edu

Prepare Early for a Career

- Check out Careers & Experiential Learning in 1134 WSC and at <https://ucs.byu.edu/>.
- Consider doing an internship.
 - Attend the STEM and Career Fairs held in fall and winter semesters.
 - Talk to your department about internship opportunities.
 - Use LinkedIn and Handshake (see flyer in this packet) to connect with alumni and apply for jobs/internships. BYU Connect is another great resource for networking (connect.byu.edu).
 - Talk with the college Career Director who can help you search for internships as well as assist you with many other career related strategies (see first page of this packet).
- Consider taking StDev 317 (Career Strategies) your junior year.
- Consider taking either Chem 502, CS 502, Geol 502, Math 502, PHSCS 502, or STAT 502 (1-credit Job Search Class). Class is held for 1 hour each week.

Physical and Mathematical Sciences, Geological Sciences

For students entering the degree program during the 2023-2024 curricular year.

The basic degree in geology prepares graduates for professional employment in industry or government or for advanced studies in geology, business, or law.



University Core and Graduation Requirements				Suggested Sequence of Courses			
University Core Requirements:							
Requirements	#Classes	Hours	Classes				
Religion Cornerstones							
Teachings and Doctrine of The Book of Mormon	1	2.0	REL A 275				
Jesus Christ and the Everlasting Gospel	1	2.0	REL A 250				
Foundations of the Restoration	1	2.0	REL C 225				
The Eternal Family	1	2.0	REL C 200				
The Individual and Society							
American Heritage	1-2	3-6.0	from approved list				
Global and Cultural Awareness	1	3.0	from approved list				
Skills							
First Year Writing	1	3.0	from approved list				
Advanced Written and Oral Communications	1	3.0	WRTG 316*				
Quantitative Reasoning	1	3-4.0	MATH 112* or 113*, or STAT 121*				
Languages of Learning (Math or Language)	1	3-4.0	MATH 112* or 113*, or STAT 121*				
Arts, Letters, and Sciences							
Civilization 1	1	3.0	from approved list				
Civilization 2	1	3.0	from approved list				
Arts	1	3.0	from approved list				
Letters	1	3.0	from approved list				
Biological Science	1	3-4.0	from approved list				
Physical Science	1	3.0	GEOL 210*				
Social Science	1	3.0	from approved list				
Core Enrichment: Electives							
Religion Electives	3-4	6.0	from approved list				
Open Electives	Variable	Variable	personal choice				
*THESE CLASSES CAN FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (9–14 hours overlap)							
Graduation Requirements:							
Minimum residence hours required		30.0					
Minimum hours needed to graduate		120.0					
				FRESHMAN YEAR			
				1st Semester			
				First-year Writing	3.0	JUNIOR YEAR	
				GEOL 111 (FW)	4.0	5th Semester	
				CHEM 105 or CHEM 111	4.0	WRTG 316 (FWSpSu)	
				Religion Cornerstone course	2.0	GEOL 491R (FW)	
				Total Hours	13.0	GEOL 375	
				2nd Semester			
				American Heritage	3.0	Civilization 1	
				CHEM 106, 107 (FWSpSu) or CHEM 112	3-4.0	Religion Cornerstone course	
				GEOL 112	4.0	STAT 121	
				MATH 112	4.0	Total Hours	
				Total Hours	14-15.0	14.5	
				SOPHOMORE YEAR			
				3rd Semester			
				GEOL 210 (F) (Begins meeting before start of Fall semester)	3.0	6th Semester	
				GEOL 230 (F)	3.0	GEOL 405	
				GEOL 351 (F)	4.0	GEOL 491R (F)	
				MATH 113	4.0	PHSCS 106	
				Religion Cornerstone course	2.0	Civilization 2	
				Total Hours	16.0	Religion elective	
				4th Semester			
				General Elective	3.0	General electives	
				GEOL 352 (W)	3.0	Total Hours	
				GEOL 370 (W)	3.0	14.0	
				PHSCS 105	3.0	Spring/Summer	
				Religion Cornerstone course	2.0	GEOL 420	
				Total Hours	14.0	GEOL 421	
				SENIOR YEAR			
				7th Semester			
				GEOL 400-level elective	3.0	GEOL 422	
				GEOL 400-level elective	3.0	Total Hours	
				GEOL 491R (FW)	2.0	6.0	
				Global & Cultural Awareness	3.0	8th Semester	
				Letters	3.0	GEOL 400-level elective	
				Religion Elective	2.0	GEOL 491R (FW)	
				Total Hours	14.5	Social Science	
				8th Semester			
				GEOL 400-level elective	3.0	Arts	
				GEOL 491R (FW)	0.5	Religion Elective	
				Social Science	3.0	Biological Science	
				Arts	3.0	Total Hours	
				Religion Elective	2.0	14.5	
				Biological Science	3.0		
				Total Hours	14.5		
**Note:The sequence of courses suggested may not fit the circumstances of every student. Students should contact their college advisement center for help in outlining an efficient schedule.							
Note: Students are encouraged to complete an average of 15 credit hours each semester or 30 credit hours each year, which could include spring and/or summer terms. Taking fewer credits substantially increases the cost and the number of semesters to graduate.							

Program Requirements

Licensure: This program meets the educational requirements designed to lead to an occupationally required professional license or certificate in the state of Utah. Students pursuing occupations requiring a license or certificate in a state other than Utah should contact the appropriate BYU academic advisement center as well as the licensing agency in the state where they intend to work to seek information and guidance regarding licensure and certification requirements.

No D credit is allowed in major courses.

Requirement 1 — Complete 12 Courses

GEOL 111 - Physical Geology 4.0

GEOL 112 - Historical Geology 4.0

GEOL 210 - Field Studies 3.0

GEOL 230 - Geological Communications 3.0

GEOL 351 - Mineralogy 4.0

GEOL 352 - Petrology 3.0

GEOL 370 - Sedimentology & Stratigraphy 3.0

GEOL 375 - Structural Geology 3.0

GEOL 405 - GeoMathematics 3.0

GEOL 420 - Geological Field Methods 2.0

GEOL 421 - Geological Mapping 2.0

GEOL 422 - Geologic Writing 2.0

Requirement 2 — Complete 2 hours

Take 4 times.

GEOL 491R - Geology Seminar - You may take up to 2.0 credit hours 0.5

Requirement 3 — Complete 3 of 8 Courses

GEOL 411 - Geomorphology 3.0

GEOL 435 - Groundwater 3.0

GEOL 440 - Solid Earth Geophysics 3.0

GEOL 445 - Geochemistry 3.0

GEOL 452 - Petrography to Petrogenesis 3.0

GEOL 460 - Economic & Resource Geology 3.0

GEOL 476 - Intro Seismic Interpretation 3.0

GEOL 480 - Paleontology 3.0

Requirement 4 — Complete 1 of 2 Options

Option 4.1

Complete 3 Courses

CHEM 105 - Gen College Chem 1+Lab Integr 4.0

CHEM 106 - General College Chemistry 2 3.0

CHEM 107 - Gen Coll Chem Lab 1.0

Option 4.2

Complete 2 Courses

CHEM 111 - Principles of Chemistry 1 4.0

CHEM 112 - Principles of Chemistry 2 3.0

Requirement 5 — Complete 1 of 2 Courses

STAT 121 - Principles of Statistics 3.0

STAT 201 - Stat for Engineers & Scientist 3.0

Requirement 6 — Complete 5 Courses

MATH 112 - Calculus 1 4.0

MATH 113 - Calculus 2 4.0

PHSCS 105 - General Physics 1 3.0

PHSCS 106 - General Physics 2 3.0

WRTG 316 - Technical Communication 3.0

THE DISCIPLINE

Geological sciences consist of a number of disciplines aimed at understanding the Earth's origin and development and the natural processes that have operated upon it and within it from the time of formation of the solar system. With the development of remote sensing technology and the exploration of the solar system by spacecraft, geological sciences have become increasingly important for understanding not only the Earth but the Moon, other planets and their moons, and small bodies that orbit the sun.

Understanding the dynamic processes of Earth and other planets is relevant to many societal needs, such as assessment and forecasting of natural hazards, environmental change, and discovery of energy and mineral resources. Some of the diverse disciplines that can be studied in this department include general geology, plate tectonics, volcanology, geochemistry, geophysics, paleontology, environmental geology, petroleum geology, hydrogeology, paleoclimatology, and planetary geology.

CAREER OPPORTUNITIES

Graduates have the opportunity to work both outdoors and in the laboratory, pursuing careers in energy, mineral, and water resources or in environmental evaluation with industry, government, or consulting firms. The substantial preparation in basic sciences and mathematics also leads to a broad spectrum of teaching opportunities. Some scholarship money is available for those who pursue a geological sciences degree as a pre-law track.

The most marketable terminal degree in geological sciences is the MS. Starting salaries for this degree are often very competitive with any other discipline.

MAP DISCLAIMER

While every reasonable effort is made to ensure accuracy, there are some student populations that could have exceptions to listed requirements. Please refer to the university catalog and your college advisement center/department for complete guidelines.

DEPARTMENT INFORMATION

Department of Geological Sciences

Brigham Young University

S-389 ESC

Provo, UT 84602

Telephone: (801) 422-3918

ADVISEMENT CENTER INFORMATION

Physical and Mathematical Sciences College Advisement Center

Brigham Young University

N-181 ESC

Provo, UT 84602

Telephone: (801) 422-2674

Geology BS

Requirements / Prerequisites

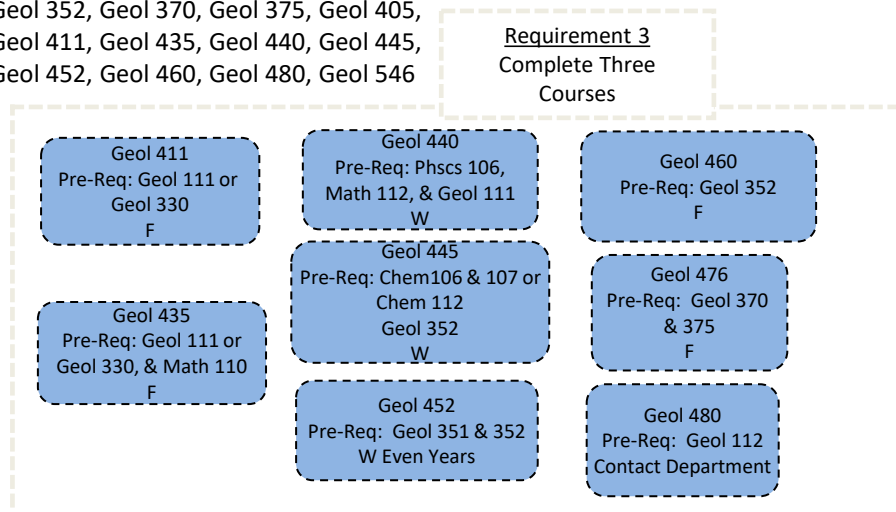
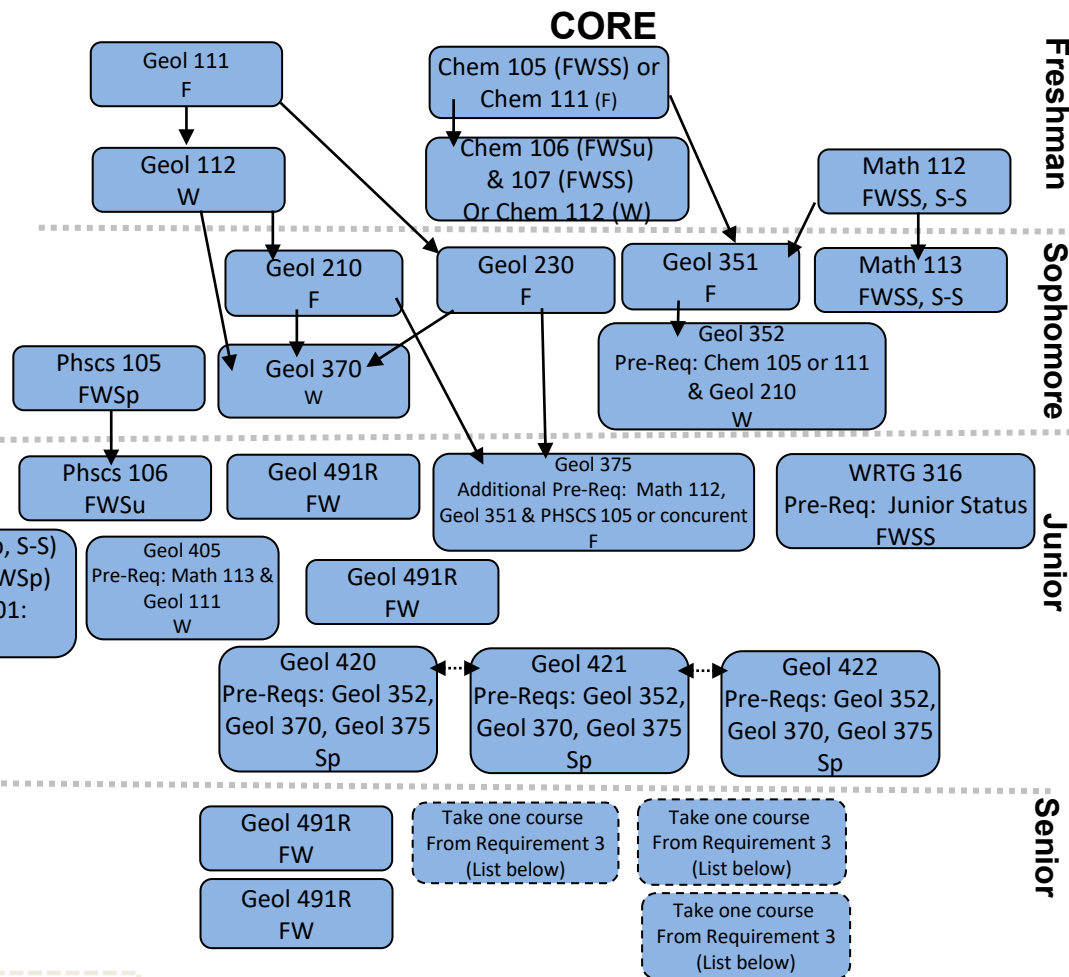
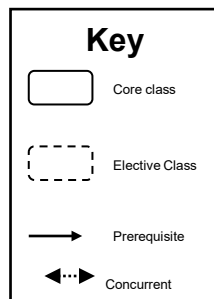
2023-2024 Academic Year

Major (74-75 hours)

1. No D credit is allowed in major courses.
2. Complete the following: Geol 111, Geol 112, Geol 210, Geol 230, Geol 351, Geol 352, Geol 370, Geol 375, Geol 405, Geol 420, Geol 421, Geol 422
3. Complete the following (2 credit hours): Geol 491R
4. Complete 3 courses from the following: Geol 411, Geol 435, Geol 440, Geol 445, Geol 452, Geol 460, Geol 476, Geol 480.
5. Complete either Chem 105, Chem 106, and Chem 107, or Chem 111 and 112.
6. Complete either Stat 121 or Stat 201.
7. Complete the following: WRTG 316, Math 112, Math 113, Phscs 105, Phscs 106.

Minor (16 hours)

1. No D credit is allowed in minor courses.
2. Complete Geol 111, Geol 112,
3. Complete 8 hours from the following:
Geol 100, Geol 109, Geol 210, Geol 351, Geol 352, Geol 370, Geol 375, Geol 405, Geol 411, Geol 435, Geol 440, Geol 445, Geol 452, Geol 460, Geol 480, Geol 546



handshake

BYU's own job board. Employers who want to hire BYU graduates or offer internships to current students post job openings to this website and students apply. Just like LinkedIn, employers can view student profiles and students can network as they apply for jobs and internships

Login to handshake.byu.edu >>> BYU Net ID

**you do not need to create an account, just sign in with you BYU information*



HOW TO MAKE THE MOST OUT OF HANDSHAKE:

1. COMPLETE YOUR PROFILE

- Upload your resume and it will auto-fill in your profile
- Completed profiles tailor your Handshake experience
- Information from your transcript is already uploaded
- Fill in the Summary/Bio section
- Fill in your past jobs and experiences, including all the bullet points you use on your resume
- Add a professional headshot and background photo

Remember: every word in your profile will be searchable by students and employers

4. EXPLORE FELLOW STUDENTS

- “Students” tab
- Search for fellow BYU students to view their profiles and job positions (Facebook stalking... “networking”)

5. ATTEND EVENTS

- The “Events” tab will be your key to attending info sessions, interviews, and Career Fairs
- The “Calendar” tab under “Events” will show you what events are coming soon
- Make sure to save events you are interested in or RSVP so you do not forget to attend
- Spread the word to your friends on social media

6. DOWNLOAD HANDSHAKE APP

- Search: “Handshake” not “Handshake Career Services”
- Input your BYU e-mail address: netID@byu.edu (it will forward emails to the e-mail you have on file with BYU)
- Handshake will send you a link via e-mail to enable your account in the app
- Navigate the app to perform all the functions of the website that have been previously mentioned

7. VISIT THE CAREER STUDIO

- Freshen up your resume, cover letter, or LinkedIn
- Receive networking help
- Practice interviewing with a mock interview
- Meet with a full-time Career Counselor in your field

8. GET A JOB, RING THE BELL

- Once you're hired, stop by the Career Studio to ring our Victory Bell and get a picture for the Victory Board



employers are
5X MORE LIKELY
to view a profile that has
at least one job/skill/organization

2. APPLY FOR JOBS

- Search for job titles, employers, or skills
- Apply for interesting jobs that meet your skill set

3. RESEARCH COMPANIES

- Under the “Jobs” Tab there is an “Employers” Tab
- Search for keywords or locations to find companies that are the right fit for you
- Plan to attend their info sessions on BYU Campus, connect with them at Career Fairs, or set up informational interviews to learn more

Remember: when looking at companies or jobs, Handshake will tell you what other BYU students have worked there. Use this resource to network and discover more information!

Geology Careers

There are many career opportunities for you in the geological sciences! While many of these jobs allow you to be outside and exploring the Earth, there are also careers that allow you to work in a lab, in an office, on a computer, even in your home. Many of these jobs require a graduate degree, but not all – many of our undergraduates have moved immediately into good jobs. Below are some ideas listed alphabetically; we can help you sort these by location, theme, potential pay, etc. as you move through the major.

Economic geologist: explore and recover metallic and nonmetallic deposits
Engineering geologist: geological data applied to structures, ground water, etc.
Environmental geologist: solve pollution, waste, urban, and hazards problems
Geochemist: nature and distribution of elements in ground water and earth materials
Geochronologist: determine ages and sequences of events in Earth's history
Geologist: materials, processes, products, and history of Earth
Geomorphologist: landforms as related to geologic and climactic processes
Geophysicist: using physics to study Earth's interior and its magnetic, electric, & gravity fields
Glacial geologist: properties and movement of glacier plus records of past climates
Hydrologist: Earth's water, from precipitation to surficial movement to groundwater.
Marine geologist: Ocean floor, ocean basins, and coastal environments
Mineralogist: mineral formation, composition, and properties
Oceanographer: physical, chemical, biological, and dynamics of oceans
Paleoecologist: distribution of ancient organisms and ancient environments
Paleontologist: study ancient life, its evolution and impacts on Earth
Petroleum geologist: exploration and production of hydrocarbons
Petrologist: origin and history of rocks
Planetary geologist: study of planets and moons and development of solar systems
Professor: teaching and research at the university level
Sedimentologist: origin, distribution of sediments, usually in relation to oil, gas, and coal
Seismologist: earthquakes, behavior and interpretation of earth's structure
Soil scientist: soils, their properties and distribution related to agriculture
Stratigrapher: time and space relations of rocks on large scales
Structural geologist: deformation, fracturing, and folding of Earth's crust
Earth Science Teacher: secondary and junior colleges
Volcanologist: volcanoes and their phenomena to predict natural hazards and nature of Earth

*Modified from the American Geological Institute Careers in Geosciences:
www.agiweb.org/workforce/brochure.html*