

BS in Earth & Space Science Education (694020) MAP Sheet

Physical and Mathematical Sciences, Geological Sciences

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

This major is designed to prepare students to teach in public schools. In order to graduate with this major, students are required to complete Utah State Office of Education licensing requirements. To view these requirements, go to <http://education.byu.edu/ess/licensing.htm> or contact Education Advisement Center, 350 MCKB, (801) 422-3426.



University Core and Graduation Requirements				Suggested Sequence of Courses			
University Core Requirements:							
Requirements	#Classes	Hours	Classes				
Religion Cornerstones				FRESHMAN YEAR			
Teachings and Doctrine of The Book of Mormon	1	2.0	REL A 275	1st Semester		JUNIOR YEAR	
Jesus Christ and the Everlasting Gospel	1	2.0	REL A 250	First-year Writing	3.0	GEOL 411	3.0
Foundations of the Restoration	1	2.0	REL C 225	GEOL 111	4.0	GEOL 491R	0.5
The Eternal Family	1	2.0	REL C 200	MATH 112	4.0	WRTG 316	3.0
The Individual and Society				PHSCS 105, 107	4.0	PHYS 276R	4.0
American Heritage	1-2	3-6.0	from approved list	Religion Cornerstone course	2.0	IP&T 371	1.0
Global and Cultural Awareness	1	3.0	SC ED 353*	Total Hours	17.0	IP&T 372	1.0
Skills				2nd Semester		Religion elective	
First Year Writing	1	3.0	from approved list	American Heritage	3.0	Total Hours	14.5
Advanced Written and Oral Communications	1	3.0	WRTG 316*	CHEM 105 or CHEM 111	4.0	6th Semester	
Quantitative Reasoning	1	4.0	MATH 112*	GEOL 112	4.0	PHIL 423 or Letters	3.0
Languages of Learning (Math or Language)	1	4.0	MATH 112*	PHSCS 106, 108	4.0	GEOL 491R	0.5
Arts, Letters, and Sciences				Religion Cornerstone course		Geology elective 2	
Civilization 1	1	3.0	from approved list	Total Hours	17.0	CPSE 402	2.0
Civilization 2	1	3.0	from approved list	SOPHOMORE YEAR			
Arts	1	3.0	from approved list	3rd Semester		SC ED 353	3.0
Letters	1	3.0	from approved list	CHEM 106, 107 or CHEM 112	3-4.0	Biological Science	3.0
Biological Science	1	3-4.0	from approved list	GEOL 210	3.0	Religion elective	2.0
Physical Science	1	3.0	GEOL 210*	PHSCS 137	3.0	Total Hours	16.5
Social Science	1	3.0	from approved list	Civilization 1	3.0	SENIOR YEAR	
Core Enrichment: Electives				Religion Cornerstone course		7th Semester	
Religion Electives	3-4	6.0	from approved list	Total Hours	14-15.0	IP&T 373	1.0
Open Electives	Variable	Variable	personal choice	4th Semester		GEOL 491R	0.5
*THESE CLASSES CAN FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (16-20 hours overlap)				Geology elective 1		Geology elective 3	3.0
Graduation Requirements:				GEOL 491R		PHYS 377	3.0
Minimum residence hours required		30.0		GEOL 491R	0.5	PHYS 378	1.0
Minimum hours needed to graduate		120.0		PHSCS 127	3.0	SC ED 375	3.0
				Civilization 2/Arts		General Elective	2.0
				Social Science		Religion elective	2.0
				Religion cornerstone course		Total Hours	15.5
				Total Hours		14.5	
				8th Semester		SC ED 476R or 496R	12.0
						Total Hours	12.0
				<p>**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.</p> <p>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.</p> <p>FOR UNIVERSITY CORE OR PROGRAM QUESTIONS, CONTACT THE ADVISEMENT CENTER.</p>			

Program Requirements

This major is designed to prepare students to teach in public schools. In order to graduate with this major, students are required to complete Utah State Office of Education licensing requirements. To view these requirements go to <https://www.schools.utah.gov/curr/licensing> or contact the Education Advisement Center, 350 MCKB, 801-422-3426. For students accepted into the major after December 16, 2019, grades below C in any required coursework in a teaching major or teaching minor will not be accepted. Teacher candidates must maintain a cumulative GPA of 2.7 or higher once admitted into the program and to qualify for student teaching. For additional details on admission and retention requirements for teaching majors and teaching minors, see Educator Preparation Program Requirements in the Undergraduate Catalog.

Requirement 1 —Complete 4 Courses

GEOL 111 - Physical Geology 4.0
GEOL 112 - Historical Geology 4.0
GEOL 210 - Field Studies 3.0
GEOL 411 - Geomorphology 3.0

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 15 Courses

GEOL 100 - Dinosaurs 3.0
GEOL 109 - Geology of Planets 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 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 8 Courses

MATH 112 - Calculus 1 4.0
PHSCS 105 - General Physics 1 3.0
PHSCS 106 - General Physics 2 3.0
PHSCS 107 - General Physics Lab 1 1.0
PHSCS 108 - General Physics Lab 2 1.0
PHSCS 127 - Descriptive Astronomy 3.0
PHSCS 137 - Energy, Climate, Environment 3.0
WRTG 316 - Technical Communication 3.0

Requirement 6 —Complete 2 Requirements

Professional Education Component:

Licensure requirements: Contact the Education Advisement Center, 350 MCKB, 801-422-3426, to schedule the final interview to clear your

application for the secondary teaching license. You should be registered for your last semester at BYU prior to the scheduled appointment.

Requirement 6.1

Complete 9 Courses

CPSE 402 - Educ Stdnts w/Disablt in ScEd 2.0
IP&T 371 - Integrating K-12 Ed Tec 1 1.0
IP&T 372 - Integrating K-12 Ed Tec 2 1.0
IP&T 373 - Tchng K-12 Online/Blended Lrn 1.0
PHY S 276 - Exploration of Teaching 4.0
PHY S 377 - Teaching Methods & Instruction 3.0
PHY S 378 - Practicum in Secondary Educ 1.0
SC ED 353 - Multi Cult Ed for Sc Ed 3.0
SC ED 375 - Ad Dev & Class Mgmt 3.0

Note: Fingerprinting and FBI clearance must be completed before enrollment in Phy S 276.

Requirement 6.2

Complete 12 hours

PHY S 476 - Secondary Student Teaching 0.0v
PHY S 496 - Acad Intern: Secondary Ed 0.0v

Student teachers/interns must complete three forms in their Educator accounts (PIBS, CDS, FED) and attach their TWS to the Educator account for their program. All four must be completed to be cleared for graduation.

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

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ADVISEMENT CENTER INFORMATION

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