GEOSCIENCES MAJOR, BACHELOR OF SCIENCE (BS)

There are three concentrations in the Geosciences BS: 1) Professional Geology concentration prepares students for the WA State Geology License exams as well as graduate school level research. 2) Climate Change and Environmental Justice prepares students to help study and support society in an ever changing world. 3) Geosciences is an option that allows students to best fit their interest by building a degree with a Geosciences advisor.

Geoscientists study the Earth and our relationship to it by providing opportunities to observe natural processes in action. By applying knowledge of the forces that are constantly reshaping our planet, one can seek to reconstruct the past and anticipate the future. You can benefit society by understanding our planet and the life it sustains. Employed in a wide spectrum of academic, industrial, and government positions, geoscientists can be found collecting samples from the moon, the ocean floor, and active lava flows. They discover and manage resources, consult on engineering and environmental issues, conduct research, teach, write, and use Geographic Information Systems (GIS) to make positive change.

Career Opportunities can include: Geotechnical and environmental fields, Hydrology, economic geology, GIS, energy companies, Governmental regulation and natural resource departments, and public health.

Required Science Core:		**15**
MATH 142	PRECALCULUS MATH II	
AND Choose any two of the following (CHEM 171 and CHEM 171L are required for the Professional Geology Concentration)		
BIOL 171	BIOLOGY I	
CHEM 171 & 171L	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LABORATORY I	
CHEM 172 & 172L	GENERAL CHEMISTRY II and GENERAL CHEMISTRY LABORATORY II	
CSCD 210	PROGRAMMING PRINCIPLES I	
MATH 161	CALCULUS I	
or HONS 161	CALCULUS I	
PHYS 151 & PHYS 161	GENERAL PHYSICS I and MECHANICS LABORATORY	
or PHYS 131	INTRODUCTORY PHYSICS I	
Required Core		**30**
GEOS 100	DISCOVERING GEOLOGY	
GEOS 113	THE EARTH'S CLIMATE AND WEATHER	
GEOS 200	GLOBALIZATION AND THE ENVIRONMENT	
GEOS 321	GEOGRAPHIC INFORMATION SYSTEMS I: SPATIAL ANALYSIS FOR SOCIAL SCIENCES	
or GEOS 323	GEOGRAPHIC INFORMATION SYSTEMS I: SPATIAL ANALYSIS FOR ENVIRONMENTAL SCIENCES	
GEOS 460	GEOSTATISTICS	
GEOS 497	WORKSHOP, SHORT COURSE, CONFERENCE, SEMINAR (variable title and credits)	
Choose one of the following Concentrations and Capstone		**45**
Please note that 60 credits of 300- or 400-level courses are required for graduation.		
Geosciences—45 credits		
In consultation of faculty advisor, take at least 45 credits (at least 35 must be taken at the 300- or 400-level, including capstone) of GEOS credit electives.		
All GEOS courses are possible electives to satisfy this concentration		
Professional Geology - 45 Credits		
GEOS 222	THE EARTH THROUGH TIME	
GEOS 311	EARTH MATERIALS	
GEOS 313	IGNEOUS AND METAMORPHIC PETROLOGY	
GEOS 411	SEDIMENTOLOGY AND STRATIGRAPHY	
GEOS 430	STRUCTURAL GEOLOGY	
GEOS 431	FIELD METHODS AND REGIONAL GEOLOGY	
Electives—choose at least three of the following courses		
GEOS 408	INVERTEBRATE PALEONTOLOGY	
GEOS 412	ADVANCED & APPLIED OPTICAL MINERALOGY	
GEOS 462	PRINCIPLES OF GEOCHEMISTRY	
GEOS 470	GROUNDWATER HYDROLOGY	

GEOS 475	ENGINEERING GEOLOGY OF SOILS: INTRODUCTION TO GEOTECHNICAL ENGINEERING
Capstone	
GEOS 490G	SENIOR CAPSTONE: GEOLOGY FIELD CAMP
Climate Change and Environmental Justice—45 credits	
GEOS 204	HOT EARTH: PEOPLE AND CLIMATE CHANGE
GEOS 230	WORLD GEOGRAPHY
GEOS 317	RESOURCES AND CONSERVATION
GEOS 352	ENVIRONMENTAL JUSTICE
GEOS 450	RESOURCES AND MANAGEMENT
Electives–choose at least 10 additional approved GEOS credits at 300–level or above, or PLAN 376, PLAN 430, or PLAN 442	
All GEOS courses are possible electives to satisfy this concentration–check with your advisor.	
Capstone	
GEOS 490	THE GEOSCIENTIST'S CAPSTONE
Total Credits	**90**

Plan of Study

The following plan of study is for a student with zero credits. Individual students may have different factors such as: credit through transfer work, Advanced Placement, Running Start, or any other type of college-level coursework that requires an individual plan.

Courses may be offered in different terms and not all courses are offered every term, checking the academic schedule is paramount in keeping an individual plan current. There may be some courses that have required prerequisites not listed in the plan, review the course descriptions for information. **Students should connect with an advisor to ensure they are on track to graduate.**

All Undergraduate students are required to meet the Undergraduate Degree Requirements (http://catalog.ewu.edu/undergraduate-degree/).

First Year

Fall Quarter	Credits	Winter Quarter	Credits	Spring Quarter	Credits
ENGL 101	5	ENGL 201	5	GEOS 113 (Natural Science BACR 2)	5
GEOS 100 (Natural Science BACR 1)	5	GEOS 200 (Social Science BACR 1)	5	MATH 142	5
MATH 114	5	MATH 141	5	Diversity - graduation requirement[1]	5
	15		**15**		**15**

Second Year

Fall Quarter	Credits	Winter Quarter	Credits	Spring Quarter	Credits
GEOS 321	5	Geosciences Concentration Elective[2]	5	Geosciences Concentration Elective[2]	5
Global Studies - graduation requirement (GEOS 230 recommended)[1]	5	Science Core[3]	5	Humanities & Arts BACR 2[1]	5
Humanities & Arts BACR 1[1]	5	Social Science BACR 2[1]	5	Elective - certificate, minor, or general elective	5
	15		**15**		**15**

Third Year

Fall Quarter	Credits	Winter Quarter	Credits	Spring Quarter	Credits
GEOS 497	1	GEOS 460	4	Geosciences Concentration Elective	5
Geosciences Concentration Elective[2]	5	Geosciences Concentration Elective[2]	5	Elective - certificate, minor, or general elective	5
Elective - certificate, minor, or general elective	5	Science Core[3]	5	Elective - certificate, minor, or general elective	5
Elective - certificate, minor, or general elective	5				
	16		**14**		**15**

Fourth Year

Fall Quarter	Credits	Winter Quarter	Credits	Spring Quarter	Credits
Geosciences Concentration Elective[2]	5	Geosciences Concentration Elective[2]	5	GEOS 490 or 490G (select capstone based on concentration (Senior Capstone - graduation requirement))	5
Elective - certificate, minor, or general elective	5	Elective - certificate, minor, or general elective	5	Geosciences Concentration Elective[2]	5
Elective - certificate, minor, or general elective	5	Elective - certificate, minor, or general elective	5	Elective - certificate, minor, or general elective	5
	15		**15**		**15**

Total Credits 180

1 University Graduation Requirements (UGR) and Breadth Area Course Requirements (BACR) courses may be less than 5 credits and additional credits may be required to reach the required 180 total credits needed to graduate. Students should connect with an advisor to ensure they are on track to graduate.

2 Choose one of the Concentrations and Capstone. Please note that 60 credits of 300 or 400-level courses are required for graduation.

Geosciences—In consultation of faculty advisor, take at least 45 credits (at least 35 must be taken at the 300- or 400 level, including capstone) of GEOS credit electives. All GEOS courses are possible electives to satisfy this concentration.
Professional Geology—45 credits required.
Climate Change and Environmental Justice—Electives 45 credits required—complete 25 credits from the approved list and choose at least 10 additional approved GEOS credits at 300—level or above, or PLAN 376, PLAN 430, or PLAN 442. All GEOS courses are possible electives to satisfy this concentration—check with your advisor.

3 Required Science Core—MATH 142 and choose two courses from the approved list (CHEM 171 (https://catalog.ewu.edu/search/?P=CHEM%20171) and CHEM 171L (https://catalog.ewu.edu/search/?P=CHEM%20171L) are required for the Professional Geology Concentration).

University Competencies and Proficiencies

English (http://catalog.ewu.edu/undergraduate-degree/#newitemtext)
Quantitative and Symbolic Reasoning (http://catalog.ewu.edu/undergraduate-degree/#mathcompproficienciestext)
Placement and Clearance (http://catalog.ewu.edu/placement/)
Prior Learning/Sources of Credit AP, CLEP, IB (http://catalog.ewu.edu/prior-learning/)

General Education Requirements (http://catalog.ewu.edu/undergraduate-degree/#generaleducationrequirementstext) (GER)

- Minimum Credits—180 cumulative credit hours
  - 60 upper-division credits (300 level or above)
  - 45 credits in residence (attendance) at Eastern, with at least 15 upper-division credits in major in residence at Eastern
- Minimum Cumulative GPA ≥2.0

Breadth Area Core Requirements (BACR)

Humanities and Arts (http://catalog.ewu.edu/undergraduate-degree/#humanitiesandfineartsgecrtext)
Natural Sciences (http://catalog.ewu.edu/undergraduate-degree/#naturalsciencesgecrtext)
Social Sciences (http://catalog.ewu.edu/undergraduate-degree/#socialsciencesgecrtext)

University Graduation Requirements (http://catalog.ewu.edu/undergraduate-degree/#universitygraduationrequirementstext) (UGR)

Diversity Course List (http://catalog.ewu.edu/undergraduate-degree/#cultureandgenderdiversityintheuslisttext)
World Language (http://catalog.ewu.edu/undergraduate-degree/#worldlanguagetext) (for Bachelor of Arts)
Global Studies Course List (http://catalog.ewu.edu/undergraduate-degree/#internationalstudiesrequirementtext)
Minor or Certificate (http://catalog.ewu.edu/undergraduate-degree/#majorminororcertificateugrtext)
Senior Capstone Course List (http://catalog.ewu.edu/undergraduate-degree/#capstonecourselisttext)

Application for Graduation (use EagleNET (https://inside.ewu.edu/eaglenet/)) must be made at least two terms in advance of the term you expect to graduate (undergraduate and post-baccalaureate).

Use the Catalog Archives (http://catalog.ewu.edu/archives/) to determine *two important catalog years*.
Requirements in Degree Works (https://inside.ewu.edu/records-and-registration/degree-works/) are based on these two catalog years:

a. The catalog *in effect at the student's first term* of current matriculation is used to determine **BACR** (Breadth Area Credit Requirements) **and UGR** (Undergraduate Graduation Requirements).
b. The catalog *in effect at the time the student declares a major or minor* is used to determine the program requirements.

Students who earn a BS in Geosciences from EWU should be able to:

- demonstrate knowledge of human—environment interactions;
- apply geoscience techniques to a complex problem;
- produce a professionally formatted report that effectively communicates;
- demonstrate advanced analytical skills in the geosciences in preparation for the professional job market or graduate studies.