

MAJOR IN GEOSCIENCES, ENVIRONMENTAL GEOLOGY CONCENTRATION

Requirements Effective Fall 2026

Freshman

		AUCC	Credits
CHEM 111	General Chemistry I (GT-SC2)	3A	4
CHEM 112	General Chemistry Lab I (GT-SC1)	3A	1
CO 150	College Composition (GT-CO2)	1A	3
GEOL 150 ¹	Dynamic Earth (GT-SC2)	3A	4
GEOL 154	Earth and Climate Change Through Time		4
GEOL 192	New Student Seminar--Exploring Geosciences		1
MATH 160 ²	Calculus for Physical Scientists I (GT-MA1)	1B	4
1C (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc)		1C	3
Social and Behavioral Sciences (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-bahvioral-sciences)		3C	3
Elective			3

Total Credits

30

Sophomore

CHEM 113	General Chemistry II		3
CHEM 114	General Chemistry Lab II		1
GEOL 310	Earth Materials		4
GEOL 311	Earth's Interior		3
GEOL 312	Earth's Surface		2
GEOL 313	Earth Systems		2
GEOL 314	Earth's Surface Laboratory		1
MATH 161 ³	Calculus for Physical Scientists II (GT-MA1)	1B	4
Select one course from the following			3
CO 300	Writing Arguments (GT-CO3)	2	
CO 301B	Writing in the Disciplines: Sciences (GT-CO3)	2	
JTC 300	Strategic Writing and Communication (GT-CO3)	2	
Select one course from the following:			5
PH 121	General Physics I (GT-SC1)	3A	
PH 141	Physics for Scientists and Engineers I (GT-SC1)	3A	
Historical Perspectives (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)		3D	3

Total Credits

31

Junior

GEOL 344	Stratigraphy and Sedimentology	4A	3
GEOL 372	Structural Geology	4B	4
GEOL 376	Geologic Field Methods	4A,4C	2
GEOL 446	Environmental Geology		3
NR 319	Introduction to Geospatial Science		4
SOCR 240	Introductory Soil Science		4

Select one course from the following:			3
STAT 301	Introduction to Applied Statistical Methods		
STAT 315	Intro to Theory and Practice of Statistics		
Arts and Humanities (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/ 3B #arts-humanities)			3
Total Credits			26
Summer			
GEOL 476	Field Geoscience Capstone	4A,4C	4
Total Credits			4
Senior			
GEOL 454	Geomorphology		3
Environmental Geoscience list: Select one of the following courses			3-4
GEOL 366	Low-Temperature Geochemistry		
GEOL 415	Critical Zone Science		
GEOL 452	Hydrogeology		
SOCR 470	Soil Physics		
Directed Technical Electives (See list below):			12
Arts and Humanities (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/ 3B #arts-humanities)			3
Electives ⁴			7-8
Total Credits			29
Program Total Credits:			120

Directed Technical Electives

Code	Title	Credits		
Select a minimum of 12 credits from a minimum of four courses.				
A minimum of 6 credits must be from GEOL subject code:				
AREC 342	Water Law, Policy, and Institutions	3	GEOL 494A	Independent Study: Environmental/Engineering Geology ⁵ 1-18
ATS 440/GES 440	Sea Level Rise and a Sustainable Future	3	GEOL 498	Research ⁵ 1-6
BZ 471 & BZ 472	Stream Biology and Ecology and Stream Biology and Ecology Laboratory	4	GEOL 541	Geostatistics 2
CIVE 322	Basic Hydrology	3	GEOL 546	Sedimentary Basin Analysis 3
CIVE 440	Nonpoint Source Pollution	3	GEOL 548	Petroleum Geology 4
CIVE 515	River Mechanics	3	GEOL 551	Groundwater Modeling 3
CIVE 529	Environmental Organic Chemistry	3	GEOL 552	Advanced Topics in Hydrogeology 2-3
CIVE 538	Aqueous Chemistry	3	GEOL 554	Remote Sensing of the Earth System 3
DSCI 335	Inferential Reasoning in Data Analysis	3	GR 410	Climate Change: Science, Policy, Implications 3
ECON 340/AREC 340	Introduction-Economics of Natural Resources	3	GR 430	Land Change Science and Remote Sensing 3
GEOL 332	Optical Mineralogy	2	MATH 261	Calculus for Physical Scientists III 4
GEOL 342	Paleontology	3	MATH 340	Intro to Ordinary Differential Equations 4
GEOL 343	Dinosaur Paleontology Field Camp	1	MATH 369	Linear Algebra I 3
GEOL 364	Igneous and Metamorphic Petrology	3	NR 323/GR 323	Remote Sensing and Image Interpretation 3
GEOL 366	Low-Temperature Geochemistry ⁶	3	NR 400	Public Communication in Natural Resources 3
GEOL 415	Critical Zone Science ⁶	3	NR 422	GIS Applications in Natural Resource Management 4
GEOL 440	Geodetic and Near-Surface Geophysical Methods	4	NR 426	Programming for GIS I 2
GEOL 442	Applied Geophysics	4	NR 427	Programming for GIS II 2
GEOL 447	Mineral Deposits	3	NR 450	Geospatial Project Design and Analysis 4
GEOL 452	Hydrogeology ⁶	4	NR 453	Geospatial Field Methods in Natural Resources 2
GEOL 476	Field Geoscience Capstone ⁷	1-6	NR 503/GR 503	Remote Sensing and Image Analysis 4
			PHIL 565	Seminar in Environmental Philosophy 3
			POLS 361	U.S. Environmental Politics and Policy 3
			SOC 461	Water and Social Justice 3

SOCR 375	Soil Biogeochemistry	3
SOCR 440	Pedology and Soil Survey	4
SOCR 467	Soil and Environmental Chemistry	3
SOCR 470	Soil Physics ⁶	3
STAT 315	Intro to Theory and Practice of Statistics ⁸	3
WR 417	Watershed Measurements	3
WR 418	Land Use and Water Quality	3
WR 419	Water Quality Analyses	3
WR 474	Snow Hydrology	3
WR 524/CIVE 524	Modeling Watershed Hydrology	3

¹ GEOL 110, GEOL 120, GEOL 122, or GEOL 124 in combination with GEOL 121 may be substituted for GEOL 150.

² MATH 155 may be substituted for MATH 160.

³ Students who substituted MATH 155 for MATH 160 should substitute MATH 255 for MATH 161.

⁴ Select enough elective credits to bring the program total to a minimum of 120 credits, of which at least 42 must be upper-division (300- to 400-level).

⁵ A maximum of one credit may be counted toward Directed Technical Electives.

⁶ May be selected as a Directed Technical Elective if not taken in to fulfill the Environmental Geoscience requirement.

⁷ Additional credits of GEOL 476 in addition to the 4 required credits to satisfy the major may be taken as electives.

⁸ May be selected as a Directed Technical Elective if not taken in the junior year to fulfill the statistics requirement.