

MAJOR IN GEOLOGY, ENVIRONMENTAL GEOLOGY CONCENTRATION

Requirements Effective Fall 2024

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	Historical and Analytical Geology		4
GEOL 192	New Student Seminar--Exploring Geosciences		1
MATH 160 ²	Calculus for Physical Scientists I (GT-MA1)	1B	4
Diversity, Equity, and Inclusion (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#diversity-equity-inclusion)		1C	3
Social and Behavioral Sciences (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-bahvioral-sciences)		3C	3
Electives			3
Total Credits			30

Sophomore

CHEM 113	General Chemistry II		3
CHEM 114	General Chemistry Lab II		1
GEOL 232	Mineralogy		3
GEOL 344	Stratigraphy and Sedimentology	4A	4
GEOL 364	Igneous and Metamorphic Petrology	4B	4
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 (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)		3D	3
Total Credits			30

Junior

GEOL 366	Sedimentary Petrology and Geochemistry	4A,4B	4
GEOL 372	Structural Geology	4B	4
GEOL 376	Geologic Field Methods	4A,4C	3
NR 319	Introduction to Geospatial Science		4
SOCR 240	Introductory Soil Science		4
Select one course from the following:			3-5
PH 122	General Physics II (GT-SC1)	3A	

PH 142	Physics for Scientists and Engineers II (GT-SC1)	3A	
SOCR 470	Soil Physics		
Select one course from the following:			3-4
MATH 340	Intro to Ordinary Differential Equations		
STAT 301	Introduction to Applied Statistical Methods		
STAT 315	Intro to Theory and Practice of Statistics		
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)			3B 3
Total Credits			28-31
Summer			
GEOL 436	Geology Summer Field Course	4C	6
Total Credits			6
Senior			
GEOL 446	Environmental Geology		3
GEOL 452	Hydrogeology		4
GEOL 454	Geomorphology		4
WR 416	Land Use Hydrology		3
Directed Technical Electives (See list below):			6
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)			3B 3
Electives ⁴			0-3
Total Credits			23-26
Program Total Credits:			120

Directed Technical Electives

Code	Title	Credits	
Select a minimum of 6 credits from a minimum of two courses:			
AREC 342	Water Law, Policy, and Institutions	3	
ATS 440/GES 440	Sea Level Rise and a Sustainable Future	3	
BZ 471 & BZ 472	Stream Biology and Ecology and Stream Biology and Ecology Laboratory	4	
CIVE 322	Basic Hydrology	3	
CIVE 440	Nonpoint Source Pollution	3	
CIVE 455	Applications in Geotechnical Engineering	3	
CIVE 515	River Mechanics	3	
CIVE 529	Environmental Organic Chemistry	3	
CIVE 538	Aqueous Chemistry	3	
DSCI 335	Inferential Reasoning in Data Analysis	3	
ECON 340/AREC 340	Introduction-Economics of Natural Resources	3	
GEOL 342	Paleontology	3	
GEOL 415	Critical Zone Science	3	
GEOL 440	Geodetic and Near-Surface Geophysical Methods	4	
GEOL 442	Applied Geophysics	4	
GEOL 447	Mineral Deposits	3	
GEOL 494A	Independent Study: Environmental/Engineering Geology ⁵	1-18	
GEOL 498	Research ⁵	1-6	
GEOL 540	Petrophysics and Well Log Interpretation	3	
GEOL 541	Geostatistics	2	
GEOL 546	Sedimentary Basin Analysis	4	
GEOL 548	Petroleum Geology	4	
GEOL 551	Groundwater Modeling	3	
GEOL 552	Advanced Topics in Hydrogeology	2-3	
GEOL 553	Use of Tracers in Hydrogeology	3	
GEOL 554	Remote Sensing of the Earth System	3	
GR 410	Climate Change: Science, Policy, Implications	3	
MATH 261	Calculus for Physical Scientists III	4	
MATH 340	Intro to Ordinary Differential Equations	4	
MATH 369	Linear Algebra I	3	
NR 323/GR 323	Remote Sensing and Image Interpretation	3	
NR 400	Public Communication in Natural Resources	3	
NR 422	GIS Applications in Natural Resource Management	4	
NR 426	Programming for GIS I	2	
NR 427	Programming for GIS II	2	
NR 450	Geospatial Project Design and Analysis	4	
NR 453	Geospatial Field Methods in Natural Resources	2	
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	4	
SOCR 467	Soil and Environmental Chemistry	3	

SOCR 470	Soil Physics ⁶	3
STAT 315	Intro to Theory and Practice of Statistics ⁷	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 the junior year to fulfill the physics requirement.

⁷ May be selected as a Directed Technical Elective if not taken in the junior year to fulfill the statistics requirement.