

MAJOR IN GEOLOGY, GEOLOGY CONCENTRATION

Requirements Effective Fall 2025

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-behavioural-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	4
GEOL 364	Igneous and Metamorphic Petrology		3
GEOL 372	Structural Geology	4B	4
GEOL 376	Geologic Field Methods	4A,4C	3
NR 319	Introduction to Geospatial Science		4
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		3
Arts and Humanities (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/ 3B #arts-humanities)			
Elective			2-3
Total Credits			27
Summer			
GEOL 436	Geology Summer Field Course	4C	6
Total Credits			6
Senior			
Select a minimum of 15 credits from the following Technical Electives. A minimum of 9 credits must be from the GEOL subject code:			15
ATS 440/GES 440	Sea Level Rise and a Sustainable Future		
CHEM 245	Fundamentals of Organic Chemistry		
CHEM 335			
CHEM 341	Modern Organic Chemistry I		
CHEM 473			
CHEM 474			
CIVE 322	Basic Hydrology		
CIVE 440	Nonpoint Source Pollution		
CIVE 529	Environmental Organic Chemistry		
DSCI 335	Inferential Reasoning in Data Analysis		
GR 323/NR 323	Remote Sensing and Image Interpretation		
GEOL 332	Optical Mineralogy		
GEOL 340	Glacial Geology		
GEOL 342	Paleontology		
GEOL 343	Dinosaur Paleontology Field Camp		
GEOL 366	Low-Temperature Geochemistry		
GEOL 401	Geology of the Rocky Mountain Region		
GEOL 415	Critical Zone Science		
GEOL 440	Geodetic and Near-Surface Geophysical Methods		
GEOL 442	Applied Geophysics		
GEOL 446	Environmental Geology		
GEOL 447	Mineral Deposits		
GEOL 452	Hydrogeology		
GEOL 454	Geomorphology		
MATH 261	Calculus for Physical Scientists III		
MATH 340	Intro to Ordinary Differential Equations		
MATH 369	Linear Algebra I		
NR 300	Biological Diversity		
NR 400	Public Communication in Natural Resources		
NR 422	GIS Applications in Natural Resource Management		
NR 426	Programming for GIS I		
NR 427	Programming for GIS II		
NR 450	Geospatial Project Design and Analysis		
NR 453	Geospatial Field Methods in Natural Resources		
NR 503/GR 503	Remote Sensing and Image Analysis		
PH 314	Introduction to Modern Physics		
PH 361	Physical Thermodynamics		
SOCR 440	Pedology and Soil Survey		
SOCR 455	Microbiomes of Soil Systems		
SOCR 470	Soil Physics		

STAT 315 ⁴	Intro to Theory and Practice of Statistics	
WR 406	Seasonal Snow Environments	
WR 416	Land Use Hydrology	
WR 418	Land Use and Water Quality	
Arts and Humanities (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/ 3B #arts-humanities)		3
Electives ⁵		8
Total Credits		26
Program Total Credits:		120

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 STAT 315 can be used to fulfill the Technical Elective requirement if not taken for the Statistics requirement in Junior year.

⁵ 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).