MAJOR IN GEOLOGY, HYDROGEOLOGY CONCENTRATION

Requirements
Effective Fall 2023

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]	Physical Geology for Scientists and Engineers	3A	4
GEOL 154	Historical and Analytical Geology		4
MATH 124	Logarithmic and Exponential Functions (GT-MA1)	1B	1
MATH 125	Numerical Trigonometry (GT-MA1)	1B	1
MATH 126	Analytic Trigonometry (GT-MA1)	1B	1
MATH 160	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-behavioral-sciences)		3C	3
	Total Credits		**29**

Sophomore

CHEM 113	General Chemistry II		3
CHEM 114	General Chemistry Lab II		1
Select one 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	
GEOL 232	Mineralogy		3
GEOL 344	Stratigraphy and Sedimentology		4
GEOL 364	Igneous and Metamorphic Petrology	4B	4
MATH 161	Calculus for Physical Scientists II (GT-MA1)	1B	4
PH 141	Physics for Scientists and Engineers I (GT-SC1)	3A	5
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
MATH 261	Calculus for Physical Scientists III		4
Select one course from the following:			3-5
PH 142	Physics for Scientists and Engineers II (GT-SC1)	3A	
SOCR 470	Soil Physics		
STAT 301 or 315	Introduction to Applied Statistical Methods Intro to Theory and Practice of Statistics		3

Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)		3B	6
	Total Credits		**27-29**
Summer			
GEOL 436	Geology Summer Field Course	4C	6
	Total Credits		**6**
Senior			
GEOL 452	Hydrogeology		4
GEOL 454	Geomorphology		4
MATH 340	Intro to Ordinary Differential Equations		4
NR 319 or 322	Introduction to Geospatial Science Intro. to Geographic Information Systems		4
WR 416	Land Use Hydrology		3
Select 6 credits from Directed Technical Electives [2]			6
CIVE 440	Nonpoint Source Pollution		
CIVE 532	Wells and Pumps		
GEOL 442	Applied Geophysics		
GEOL 446	Environmental Geology		
GEOL 447	Mineral Deposits		
GEOL 498[3]	Research		
GEOL 540	Petrophysics and Well Log Interpretation		
GEOL 541	Geostatistics		
GEOL 546	Sedimentary Basin Analysis		
GEOL 548	Petroleum Geology		
GEOL 551	Groundwater Modeling		
GEOL 552	Advanced Topics in Hydrogeology		
GEOL 553	Use of Tracers in Hydrogeology		
GEOL 579	Solid Earth Inverse Methods and Practices		
MATH 332	Partial Differential Equations		
MATH 369	Linear Algebra I		
MATH 450	Introduction to Numerical Analysis I		
SOCR 470[4]	Soil Physics		
WR 418	Land Use and Water Quality		
Elective[5]			1-3
	Total Credits		**26-28**
	Program Total Credits:		**120**

1. GEOL 120, GEOL 122, or GEOL 124 in combination with GEOL 121 may be substituted for GEOL 150.
2. At least one of the selected courses must be a geology course.
3. Only one credit may be used to fulfill the Directed Technical Elective requirement.
4. May be selected as a Directed Technical Elective if not taken in the junior year to fulfill the physics requirement.
5. Select enough credits to bring the program total to a minimum of 120 credits, of which at least 42 must be upper-division (300- 400-level).