

GEOLOGICAL SCIENCES, BACHELOR OF SCIENCE (5008)

Program Coordinator

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Geological science is often known as the science of the 21st century, as it is ground zero for tackling global challenges like managing land, water, ocean, space, mineral, and energy resources in a sustainable way. Society's interest in the environment and climate change is growing fast. The time has never been better to become a geological scientist.

The B.S. degree in Geological Sciences can provide a wide variety of career options, including jobs in the corporate (oil & gas, mining, environmental, engineering), government (surveys, agencies, park service), and academic sectors. Our program takes a holistic approach, as the traditional geology has become increasingly interdisciplinary. With three concentrations (Geology, Environmental Earth Science, and General), the program has a common core, providing the knowledge base for students to pursue the Professional Geologist licensure. Each concentration has different other requirements, specializing in different subjects. Our classes feature interactive learning, both in the field exploring the earth and in the lab doing simulations and analytical works. Students also enjoy excellent opportunities to work with faculty and other students on a variety of research topics.

Concentrations

- Geology (GEOL)
- Environmental Earth Science (ENES)
- General (GGEN)

Program Requirements (30-48 hours)

A baccalaureate degree requires a minimum of 120 unduplicated semester hours. More information can be found at www.wku.edu/registrar/degree_certification.php. (https://www.wku.edu/registrar/degree_certification.php)

Students who began WKU in the Fall 2014 and thereafter should review the Colonnade requirements located at: <https://www.wku.edu/colonnade/colonnaderequirements.php>. (<https://www.wku.edu/colonnade/colonnaderequirements.php>)

The major in Geological Sciences requires a minimum of 30-48 semester hours and leads to a Bachelor of Science degree. Other required math and science cognate courses total an additional 11-17 semester hours. This major provides students with a versatile background in geological sciences for entry-level employment or graduate school.

Geological Sciences Major - Common Core (22 hours)

Code	Title	Hours
GEOL 111	The Earth	3
GEOL 112	Earth's Past and Future	3
GEOL 113	The Earth Laboratory	1
GEOL 114	Earth's Past and Future Lab	1
GEOL 350	Mineralogy and Petrology	4

GEOL 360	Sedimentology and Stratigraphy	4
GEOL 408	Structural Geology	4
GEOL 499	Professional Preparation in Geology	2
Total Hours		22

Geology Concentration

Code	Title	Hours
In addition to the Common Core, take the following courses to fulfill the Geology concentration:		22

Required Course (10 hours)		
GEOL 380	Introductory Field Techniques	3
GISC 316	Geographic Information Systems I	4
GEOG 300	Writing in the Geosciences	3
Elective Courses (16 hours)		
Select 16 hours from any 200-level or above GEOL course or from GEOG 391 or GEOG 452 with advisor approval.		16
Total Hours		48

Additional Required Courses Outside of the Major

Code	Title	Hours
Take the following required courses towards the Geology concentration:		
MATH 136	Calculus I	4
MATH 137	Calculus II	4
CHEM 120 & CHEM 121	College Chemistry I and College Chemistry I Laboratory	5
PHYS 231 & PHYS 232	Introduction to Physics and Biophysics I and Laboratory for Physics and Biophysics I	4
Total Hours		17

Environmental Earth Science Concentration

Code	Title	Hours
In addition to the Common Core, take the following courses to fulfill the Environmental Earth Science concentration:		22

Required Course (19 hours)		
GEOL 250	Environmental Geology	3
GEOL 310	Global Hydrology	3
GEOL 415	Applied Environmental Geology	3
GEOL 420	Geomorphology	3
GISC 316	Geographic Information Systems I	4
GEOG 300	Writing in the Geosciences	3
Elective Courses (7 hours)		
Select 7 hours from any 300-400 level GEOL course with advisor approval.		7
Total Hours		48

Additional Required Courses Outside of the Major

Code	Title	Hours
Take the following additional courses towards the Environmental Earth Science concentration:		
MATH 183	Introductory Statistics	3

CHEM 105 & CHEM 106	Fundamentals of General Chemistry and Fundamentals of General Chemistry Laboratory (or higher)	4
BIOL 207 & BIOL 208	General Microbiology and General Microbiology Laboratory	4

Total Hours 11

General Concentration

A second major or a minor of at least 24 hours is required with this concentration.

Code	Title	Hours
In addition to the Common Core, take the following courses to fulfill the General Concentration:		22
Elective Courses (8 hours)		
Select 8 hours from any 300-level or above GEOL course with advisor approval.		8
Total Hours		30

Additional Required Courses Outside of the Major

Code	Title	Hours
Take the following additional courses towards the General Concentration:		
MATH 115 or MATH 116 or MATH 183 or MATH 136	Applied College Algebra College Algebra Introductory Statistics Calculus I	3-4
CHEM 120 & CHEM 121	College Chemistry I and College Chemistry I Laboratory	5
BIOL 120 & BIOL 121 or BIOL 122 & BIOL 123 or PHYS 180 & PHYS 181 or PHYS 201 or PHYS 231 & PHYS 232 or PHYS 255 & PHYS 256	Biological Concepts: Cells Metabolism and Genetics and Biological Concepts: Cells, Metabolism, and Genetics Lab Biological Concepts: Evolution, Diversity, and Ecology and Biological Concepts: Evolution, Diversity, and Ecology Lab Introductory Modern Physics and Introductory Modern Physics Laboratory College Physics I Introduction to Physics and Biophysics I and Laboratory for Physics and Biophysics I University Physics I and University Physics I Lab	4-5
Total Hours		12-14

Finish in Four Plans

Geological Sciences, Geology Concentration

First Year			
Fall	Hours	Spring	Hours
GEOL 111		3 GEOL 112	3
GEOL 113		1 GEOL 114	1
ENG 100		3 CHEM 120 & CHEM 121	5
HIST 101 or HIST 102		3 ENG 200	3
COMM 145		3 GEOL 250	3

GEOG 175	2		
		15	15

Second Year			
Fall	Hours	Spring	Hours
GEOL 330		4 GEOL 350	4
GEOL 380		3 GEOL 360	4
MATH 136		4 MATH 137	4
Colonnade - Arts & Humanities		3 Colonnade - Connections Social & Cultural	3
Colonnade - Social & Behavioral		3	
		17	15

Third Year			
Fall	Hours	Spring	Hours
PHYS 231 & PHYS 232		4 GEOL 408	4
GISC 316		4 GEOL Concentration Elective	3
GEOL Concentration Elective		3 GEOL 300	3
Colonnade - Systems		3 Colonnade - Local to Global	3
		GEOL Concentration Elective (GEOL 399)	3
		14	16

Fourth Year			
Fall	Hours	Spring	Hours
GEOL 499		2 GEOL Concentration Elective	3
GEOL Concentration Elective		3 General Elective or GEOL 399	2
GEOL Concentration Elective		3 General Elective	3
General Elective		3 General Elective	3
General Elective		3 General Elective	3
		14	14

Total Hours 120

Geological Sciences, Environmental Earth Science Concentration

First Year			
Fall	Hours	Spring	Hours
GEOL 111		3 GEOL 112	3
GEOL 113		1 GEOL 114	1
ENG 100		3 ENG 200	3
MATH 115		3 CHEM 105 & CHEM 106	4
HIST 101 or HIST 102		3 GEOL 250	3
GEOG 175		2	
		15	14

Second Year			
Fall	Hours	Spring	Hours
GEOL 330		4 GEOL 350	4
GEOL 310		3 GEOL 360	4
Colonnade - Arts & Humanities		3 MATH 183	3
BIOL 207 & BIOL 208		4 Colonnade - Connections Social & Cultural	3
COMM 145		3	
		17	14

Third Year

Fall	Hours	Spring	Hours
GEOL 420		3 GEOL 408	4
GISC 316		4 GEOL 415	3
GEOL Concentration Elective - GEOL 301 or 311 or 315 or 440 or 445 or 465		3 GEOL Concentration Elective or GEOL 399	1
Colonnade - Local to Global		3 GEOG 300	3
Colonnade - Systems (GEOL 315 or GEOL 101)		3 Colonnade - Social & Cultural	3
		16	14

Fourth Year

Fall	Hours	Spring	Hours
GEOL 499		2 General Elective or GEOL 399	3
GEOL Concentration Elective - GEOL 301 or 311 or 315 or 440 or 445 or 465		3 General Elective	3
GEOL Concentration Elective		3 General Elective	3
General Elective		3 General Elective	3
General Elective		3 General Elective	3
General Elective or GEOL 399		1	
		15	15

Total Hours 120