

GEOLOGICAL SCIENCES, BACHELOR OF SCIENCE (5008)

Program Coordinator

Nahid Gani, nahid.gani@wku.edu, (270) 745-2813

Geological science can assist in tackling global challenges like managing land, water, ocean, space, mineral, and energy resources in a sustainable way. 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 work. 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**

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 ENG 200	3
COMM 145		3 CHEM 120 & CHEM 121	5
HIST 101 or HIST 102		3 Geology Concentration Elective 1 - Recommend GEOL 250	3

GEOL 175	2
Total Hours	15

Second Year

Fall	Hours	Spring	Hours
GEOL 350		4 GEOL 360	4
GEOL 380		3 Geology Concentration Elective 2	3
MATH 136		4 MATH 137	4
Colonnade: Explorations (Arts & Humanities)		3 Colonnade: Connections (Social & Cultural)	3
Colonnade: Explorations (Social & Behavioral)		3	
Total Hours	17	Total Hours	14

Third Year

Fall	Hours	Spring	Hours
PHYS 231 & PHYS 232		4 GEOL 408	4
GISC 316		4 Geology Concentration Elective 4	3
Colonnade: Connections (Systems) - Recommend GEOL 301/315		3 Colonnade: Writing in the Disciplines - Recommend GEOL 300	3
Geology Concentration Elective 3		3 Colonnade: Connections (Local to Global)	3
		Geology Concentration Elective 5	3
Total Hours	14	Total Hours	16

Fourth Year

Fall	Hours	Spring	Hours
GEOL 499		2 General Elective - Recommend GEOL 399	3
Geology Concentration Elective 6		3 General Elective	3
General Elective - Recommend GEOL 399		3 General Elective	3
General Elective		3 General Elective	3
General Elective		3 General Elective	3
Total Hours	14	Total Hours	15

Total Hours 120

Geological Sciences - Environmental Earth Science (EES) 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
COMM 145		3 CHEM 105 & CHEM 106	4
HIST 101 or HIST 102		3 GEOL 250	3
GEOL 175		2	
Total Hours	15	Total Hours	14

Second Year

Fall	Hours	Spring	Hours
GEOL 350		4 GEOL 360	4
GEOL 301, GEOL 311, GEOL 315, GEOL 440, GEOL 445, or GEOL 465 (EES Choice 1)		3 GEOL 310	3

Colonnade: Explorations (Arts & Humanities)	3	BIOL 207 & BIOL 208	4
MATH 183	3	Colonnade: Connections (Local to Global)	3
Colonnade: Explorations (Social & Behavioral)	3		
	16		14
Third Year			
Fall	Hours	Spring	Hours
GEOL 420		3 GEOL 408	4
Colonnade: Connections (Systems) - Recommend GEOL 301/315		3 GEOL 415	3
GISC 316		4 GEOL 301, GEOL 311, GEOL 315, GEOL 440, GEOL 445, or GEOL 465 (EES Choice 2)	3
EES Elective		3 Colonnade: Writing in the Disciplines - Recommend GEOG 300	3
Colonnade: Connections (Social & Cultural)		3 General Elective - Recommend GEOL 399	3
	16		16
Fourth Year			
Fall	Hours	Spring	Hours
GEOL 499		2 General Elective - Recommend GEOL 399	3
General Elective - Recommend GEOL 399		3 General Elective	3
General Elective		3 General Elective	3
General Elective		3 General Elective	3
General Elective		3 General Elective	3
	14		15

Total Hours 120

Geological Sciences - General 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
HIST 101 or HIST 102		3 CHEM 120 & CHEM 121	5
COMM 145		3 Course in 2nd Major or Minor	3
GEOG 175		2	
	15		15

Second Year

Fall	Hours	Spring	Hours
GEOL 350		4 GEOL 360	4
MATH 115 (or MATH 116 or MATH 183 or MATH 136)		3 General Concentration Elective 2	3
General Concentration Elective 1		3 Course in 2nd Major or Minor	3
Colonnade Explorations - Arts & Humanities		3 Colonnade Connections - Social & Cultural	3

Colonnade Explorations - Social & Behavioral	3	Course in 2nd Major or Minor	3
	16		16
Third Year			
Fall	Hours	Spring	Hours
Cognate science requirements w/Lab		4 GEOL 408	4
Course in 2nd Major or Minor		3 Course in 2nd Major or Minor	3
Colonnade Connection - Systems (GEOL 301)		3 ENG 300 or GEOG 300	3
General Concentration Elective 3		3 Colonnade Connections - Local to Global	3
		Course in 2nd Major or Minor	3
	13		16
Fourth Year			
Fall	Hours	Spring	Hours
GEOL 499		2 General Elective	3
Course in 2nd Major or Minor		3 General Elective	3
Course in 2nd Major or Minor		3 General Elective	3
General Elective		3 General Elective	3
General Elective		3 General Elective	3
	14		15
Total Hours 120			