Geology (GEOL)

The Department of Geosciences offers the Bachelor of Science degree in geology and the Bachelor of Science degree in earth science (http://catalog.uark.edu/undergraduatecatalog/collegesandschools/jwilliamfulbrightcollegeofartsandsciences/earthsciences/). It is emphasized that students wishing to become practicing professional geologists should hold the Bachelor of Science degree in geology at a minimum. It is further recognized that practicing professional geologists typically hold a Master of Science degree. The education of students pursuing the Bachelor of Science in earth science degree should reflect general education in the liberal arts with emphasis in geology.

The goal of the program leading to the Bachelor of Science degree in geology is to provide students with a broad spectrum of the various subdisciplines of geology, while at the same time honoring an emphasis in the traditional areas of mineralogy, igneous, metamorphic and sedimentary petrology, structural geology and stratigraphic principles. This curriculum will prepare students to enter graduate programs without deficiencies at the University of Arkansas or other established programs.

Along with the normal degree program, the department offers a B.S. in geology with a concentration in geophysics.

For requirements for the M.S. degree in geology, see the *Graduate School Catalog*.

B.S. in Geology

Requirements for a Major in Geology leading to the B.S. Degree: In addition to the state minimum core (http://catalog.uark.edu/undergraduatecatalog/gened/stateminimum/) and the Fulbright College of Arts and Sciences Graduation Requirements (http://catalog.uark.edu/undergraduatecatalog/collegesandschools/jwilliamfulbrightcollegeofartsandsciences/), the following course requirements must be met. **Bolded** courses from the list below may be applied to portions of the University Core requirements.

State Minimum Core		35
CHEM 1103 & CHEM 1101L	**University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture) and University Chemistry I Laboratory (ACTS Equivalency = CHEM 1414 Lab)**	**4**
CHEM 1123 & CHEM 1121L	**University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture) and University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)**	**4**
MATH 2554	**Calculus I (ACTS Equivalency = MATH 2405)**	**4**
MATH 2564	**Calculus II (ACTS Equivalency = MATH 2505)**	**4**
Select one physics sequence from the following:		8
PHYS 2013 & PHYS 2011L	**College Physics I (ACTS Equivalency = PHYS 2014 Lecture) and College Physics I Laboratory (ACTS Equivalency = PHYS 2014 Lab)**	
PHYS 2033 & PHYS 2031L	**College Physics II (ACTS Equivalency = PHYS 2024 Lecture) and College Physics II Laboratory (ACTS Equivalency = PHYS 2024 Lab)**	
or		
PHYS 2054	**University Physics I (ACTS Equivalency = PHYS 2034)**	
PHYS 2074	**University Physics II (ACTS Equivalency = PHYS 2044 Lecture)**	
World language up to the Elementary II level		6
A science elective 3000-level or higher as approved by advisor		3
A minimum of 45 credit hours of geology courses to include:		45
GEOS 1113 & GEOS 1111L	**Physical Geology (ACTS Equivalency = GEOL 1114 Lecture) and Physical Geology Laboratory (ACTS Equivalency = GEOL 1114 Lab)**	
GEOS 2313	Mineralogy	
GEOS 3413	Sedimentary Geology	
GEOS 3514	Structural Geology	
GEOS 3873	Geological Data Analysis	
GEOS 4053	Geomorphology	
GEOS 4063	Principles of Geochemistry	
or GEOS 443	Geophysics	
GEOS 4223	Stratigraphy and Sedimentation	
or GEOS 33		
GEOS 4686	Geology Field Camp	
GEOS 4924	Earth System History (ACTS Equivalency = PHSC 1104)	
Nine credit hours of geology courses chosen from GEOS electives 3000-level or higher		
General Electives		7-18
Total Hours		**120**

Writing Requirement: A scholarly writing assignment will be included in all geoscience courses numbered 2000 and above. Those papers submitted in geoscience courses 3000 and above will fulfill the Fulbright College writing requirement. The college writing requirement may also be met by the completion of an honors thesis.

Geology B.S.
Nine-Semester Degree Program

State minimum core requirements may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute with general electives. Students should consult with their academic advisor.

This program requires a summer field camp after the junior year.

First Year			Units
	Fall	Spring	Summer
ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013)	3		
MATH 2554 Calculus I (ACTS Equivalency = MATH 2405)	4		
GEOS 1113 Physical Geology (ACTS Equivalency = GEOL 1114 Lecture) & GEOS 1111L Physical Geology Laboratory (ACTS Equivalency = GEOL 1114 Lab)	4		

CHEM 1103 University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture) & CHEM 1101L University Chemistry I Laboratory (ACTS Equivalency = CHEM 1414 Lab)	4		
ENGL 1023 Composition II (ACTS Equivalency = ENGL 1023)		3	
MATH 2564 Calculus II (ACTS Equivalency = MATH 2505)		4	
CHEM 1123 University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture) & CHEM 1121L University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)		4	
U.S. History State Minimum Core		3	
General Electives		1	
Year Total:	15	15	

Second Year	Fall	Spring	Units Summer
GEOS 2313 Mineralogy	3		
Select one of the following:	4		
PHYS 2054 University Physics I (ACTS Equivalency = PHYS 2034) or PHYS 2013/2011L College Physics I (ACTS Equivalency = PHYS 2014 Lecture)			
Social Sciences State Minimum Core	3		
Fine Arts State Minimum Core	3		
World language at the Elementary I level	3		
GEOS 3413 Sedimentary Geology		3	
Select one of the following:		4	
PHYS 2074 University Physics II (ACTS Equivalency = PHYS 2044 Lecture) or PHYS 2033/2031L College Physics II (ACTS Equivalency = PHYS 2024 Lecture)			
GEOS 3873 Geological Data Analysis		3	
Social Sciences State Minimum Core		3	
World language at the Elementary II level		3	
Year Total:	16	16	

Third Year	Fall	Spring	Units Summer
GEOS 4223 Stratigraphy and Sedimentation or GEOS 3313	3		
GEOS elective 3000-level or higher	3		
Social Sciences State Minimum Core	3		
General Electives	6		
GEOS 3514 Structural Geology		4	
GEOS 4053 Geomorphology		3	
Humanities State Minimum Core		3	
General Electives		5	
GEOS 4686 Geology Field Camp			6
Year Total:	15	15	6

Fourth Year	Fall	Spring	Units Summer
GEOS 4063 Principles of Geochemistry or GEOS 4433 Geophysics	3		
GEOS electives 3000-level or higher	3		
Science elective 3000-level or higher	3		
General Electives	6		
GEOS 4924 Earth System History (ACTS Equivalency = PHSC 1104)		4	
GEOS electives 3000-level or higher		3	
Year Total:	15	7	

Total Units in Sequence: 120

Requirements for B.S. in Geology With Geosciences Concentration

The following credit hour requirements must be met (see Degree Completion Program Policy for additional information). In addition, the Fulbright College Writing Requirement will be satisfied by completing the scholarly writing assignments in any GEOS course numbered 3000-level or higher, or by completion of an honors thesis.

State minimum core (http://catalog.uark.edu/undergraduatecatalog/gened/stateminimum/) requirements may vary by individual, based on placement and previous course credit earned. Once all core requirements are met, students may substitute with general electives in consultation with their academic adviser.

State Minimum Core		35
CHEM 1103 & CHEM 1101L	University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture) and University Chemistry I Laboratory (ACTS Equivalency = CHEM 1414 Lab)	4
CHEM 1123 & CHEM 1121L	University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture) and University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)	4
PHYS 2054	University Physics I (ACTS Equivalency = PHYS 2034)	4
PHYS 2074	University Physics II (ACTS Equivalency = PHYS 2044 Lecture)	4
PHYS 2094	University Physics III	4
MATH 2554	Calculus I (ACTS Equivalency = MATH 2405)	4
MATH 2564	Calculus II (ACTS Equivalency = MATH 2505)	4
MATH 2574	Calculus III (ACTS Equivalency = MATH 2603)	4
MATH 2584	Elementary Differential Equations	4
46 credit hours in geosciences (GEOS) and physics (PHYS) courses from the following:		45

GEOS 1113 & GEOS 1111L	Physical Geology (ACTS Equivalency = GEOL 1114 Lecture) and Physical Geology Laboratory (ACTS Equivalency = GEOL 1114 Lab)	
GEOS 2313	Mineralogy	
GEOS 3413	Sedimentary Geology	
GEOS 3514	Structural Geology	
GEOS 4053	Geomorphology	
GEOS 4223	Stratigraphy and Sedimentation	
GEOS 4433	Geophysics	
GEOS 4924	Earth System History (ACTS Equivalency = PHSC 1104)	
GEOS 4686	Geology Field Camp	
PHYS 3113	Analytical Mechanics	
PHYS 3453	Electromagnetic Theory I	
PHYS 3613	Modern Physics	
PHYS 4073	Introduction to Quantum Mechanics	
PHYS 4991	Physics Senior Seminar	
General Electives		4
Total Hours		**120**

Writing Requirement: A scholarly writing assignment will be included in all geoscience courses numbered 2000 and above. Those papers submitted in geoscience courses 3000 and above will fulfill the Fulbright College writing requirement. The college writing requirement may also be met by the completion of an honors thesis.

Eight-Semester Degree Plan for a Bachelor of Science in Geology with a Concentration in Geophysics

Students enrolling in the eight-semester degree plan should review the Eight-Semester Degree Completion Policy (http://catalog.uark.edu/undergraduatecatalog/academicregulations/eightsemesterdegreecompletionpolicy/).

State minimum core requirements may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute with general electives in consultation with their academic advisor.

First Year			Units
	Fall	Spring	Summer
ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013) (Satisfies General Education Outcome 1.1)[1]	3		
MATH 2554 Calculus I (ACTS Equivalency = MATH 2405) (Satisfies General Education Outcome 2.1)[1]	4		
PHYS 2054 University Physics I (ACTS Equivalency = PHYS 2034) (Satisfies General Education Outcome 3.4)[1]	4		
CHEM 1103 University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture) & CHEM 1101L University Chemistry I Laboratory (ACTS Equivalency = CHEM 1414 Lab)	4		
ENGL 1023 Composition II (ACTS Equivalency = ENGL 1023) (Satisfies General Education Outcome 1.1)[1]		3	
PHYS 2074 University Physics II (ACTS Equivalency = PHYS 2044 Lecture)		4	
MATH 2564 Calculus II (ACTS Equivalency = MATH 2505)		4	
GEOS 1113 Physical Geology (ACTS Equivalency = GEOL 1114 Lecture) & GEOS 1111L Physical Geology Laboratory (ACTS Equivalency = GEOL 1114 Lab)		4	
Year Total:	15	15	

Second Year			Units
	Fall	Spring	Summer
PHYS 2094 University Physics III	4		
MATH 2584 Elementary Differential Equations	4		
CHEM 1123 University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture) & CHEM 1121L University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)	4		
GEOS 2313 Mineralogy	3		
PHYS 3613 Modern Physics		3	
MATH 2574 Calculus III (ACTS Equivalency = MATH 2603)		4	
GEOS 3413 Sedimentary Geology		3	
State Minimum Core—Fine Arts (Satisfies General Education Outcome 3.1)[1]		3	
State Minimum Core—U.S. History or Government (Satisfies General Education Outcome 4.2)[1]		3	
Year Total:	15	16	

Third Year			Units
	Fall	Spring	Summer
PHYS 3113 Analytical Mechanics	3		
GEOS 4223 Stratigraphy and Sedimentation	3		
State Minimum Core—Social Science (Satisfies General Education Outcome 3.3)[1]	6		
State Minimum Core—Humanities (Satisfies General Education Outcomes 3.2 and 4.1)[1]	3		
GEOS 3514 Structural Geology		4	
GEOS 4053 Geomorphology		3	
State Minimum Core—Social Science		3	
General Electives (Choose one course that satisfies General Education Learning Outcome 5.1)[1]		5	
GEOS 4686 Geology Field Camp			6

Year Total:	15	15	6

Fourth Year	Fall	Spring	Units Summer
PHYS 4073 Introduction to Quantum Mechanics	3		
GEOS 4433 Geophysics	3		
State Minimum Core—Social Science	3		
General Electives	6		
PHYS 3453 Electromagnetic Theory I		3	
PHYS 4991 Physics Senior Seminar		1	
GEOS 4924 Earth System History (ACTS Equivalency = PHSC 1104) (Satisfies General Education Outcomes 1.2 and 6.1)[1]		4	
Year Total:	15	8	
Total Units in Sequence:			**120**

[1] Students must complete the State Minimum Core (https://nam11.safelinks.protection.outlook.com/?url=http%3A%2F%2Fcatalog.uark.edu%2Fundergraduatecatalog%2Fgened%2Fstateminimum%2F&data=04%7C01%7Crcc003%40uark.edu%7C92f936f375f845bf930708d8e3ec5fa1%7C79c742c4e61c4fa5be89a3cb566a80d1%7C0%7C0%7C637509951644018253%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=ZHBCul1Vytd%2FCnZSMgcmPS5ZljYEvtv2HPmN6hSxflk%3D&reserved=0) and the requirements of their major(s) as outlined in the Catalog of Studies. These courses also fulfill many, if not all, of the General Education Requirements (https://nam11.safelinks.protection.outlook.com/?url=http%3A%2F%2Fcatalog.uark.edu%2Fundergraduatecatalog%2Fgened%2Fgeneraleducation%2F&data=04%7C01%7Crcc003%40uark.edu%7C92f936f375f845bf930708d8e3ec5fa1%7C79c742c4e61c4fa5be89a3cb566a80d1%7C0%7C0%7C637509951644018253%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000&sdata=r35av68n3oEQW9FsIIqBgmbsTnUENpJF7EoP4AD4Bks%3D&reserved=0). Please visit these pages in the links provided and consult with your academic advisor when making course selections to fulfill these requirements.

Minor in Geology

Requirements for a Minor in Geology: A minor in geology shall be awarded upon completion of the following course work:

GEOS 1113 & GEOS 1111L	Physical Geology (ACTS Equivalency = GEOL 1114 Lecture) and Physical Geology Laboratory (ACTS Equivalency = GEOL 1114 Lab)	4
GEOS 1133 & GEOS 1131L	Earth Science (ACTS Equivalency = GEOL 1124 Lecture) and Earth Science Laboratory (ACTS Equivalency = GEOL 1124 Lab)	4
GEOS 2313	Mineralogy	3
Two GEOS Courses at the 3000-level		6
One GEOS Course at the 4000-level		3
Total Hours		**20**

Students are advised to consult with a geology faculty member to develop the course work program that best complements their major area of study.

Requirements for Departmental Honors in Geology: The Departmental Honors Program in Geology provides upper-division undergraduate students with an opportunity to formally participate in geologic research activities. Honors candidates carry out independent study and research under the guidance of the geology faculty. Outstanding student achievement will be recognized by awarding the distinction “Geology Scholar *Cum Laude*” at graduation. Higher degree distinctions may be awarded to truly outstanding students based upon the whole of their academic program and quality of honors research.

Honors candidates in geology must do the following:

1. Satisfy departmental and college requirements for a bachelor’s degree with honors,
2. Become a candidate no later than the second semester of their junior year,
3. Enroll in six hours of honors research GEOS 3901, GEOS 3911, GEOS 4972H, GEOS 4982H,
4. Take 12 hours in Honors Studies, which may include 6 hours of thesis,
5. Complete junior and senior honors courses GEOS 3901, GEOS 3911, GEOS 4972H, GEOS 4982H, and
6. Achieve a cumulative grade-point average of 3.30 in geology courses.

Teacher Licensure Requirements:

Students interested in pursuing a minor in STEM Education or Secondary Teacher Licensure in mathematics, biology, chemistry, physics, or computer science at the undergraduate level should consult with a STEM Education faculty adviser, teach@uark.edu. Another option to obtain secondary teacher licensure is to complete the one-year Master of Arts in Teaching (http://catalog.uark.edu/undergraduatecatalog/collegesanddepartments/fulbrightcollegeofartssciencesandmathematicalsciences/graduatecatalog/programsofstudy/teachereducation/).