GEOLOGY - B.S.

College of Sciences and Humanities
Department of Earth Sciences
www.kent.edu/earth-sciences

About This Program

The Geology B.S. program blends rigorous coursework with hands-on experiences to equip you with the skills needed to study the earth's physical structure, natural resources and environmental systems. With access to cutting-edge technologies and experienced faculty, you will gain the knowledge and skills to launch a rewarding career in the geology field. Read more...

Contact Information

- **Carrie Schweitzer** | cschweit@kent.edu | 330-672-2505
- Speak with an Advisor
- Chat with an Admissions Counselor

Program Delivery

- **Delivery:**
  - In person
- **Location:**
  - Kent Campus

Examples of Possible Careers and Salaries*

Geological technicians, except hydrologic technicians

- 1.5% slower than the average
- 9,800 number of jobs
- $48,390 potential earnings

Geoscientists, except hydrologists and geographers

- 3.2% about as fast as the average
- 25,100 number of jobs
- $99,240 potential earnings

Hydrologic technicians

- -2.1% decline
- 3,100 number of jobs
- $58,570 potential earnings

Hydrologists

- -0.1% little or no change
- 6,300 number of jobs
- $92,060 potential earnings

* Source of occupation titles and labor data comes from the U.S. Bureau of Labor Statistics' Occupational Outlook Handbook. Data comprises projected percent change in employment over the next 10 years; nation-wide employment numbers; and the yearly median wage at which half of the workers in the occupation earned more than that amount and half earned less.

Admission Requirements

The university affirmatively strives to provide educational opportunities and access to students with varied backgrounds, those with special talents and adult students.

First-Year Students on the Kent Campus: First-year admission policy on the Kent Campus is selective. Admission decisions are based upon cumulative grade point average, strength of high school college preparatory curriculum and grade trends. Students not admissible to the Kent Campus may be administratively referred to one of the seven regional campuses to begin their college coursework. For more information, visit the admissions website for first-year students.

First-Year Students on the Regional Campuses: First-year admission to Kent State's campuses at Ashtabula, East Liverpool, Geauga, Salem, Stark, Trumbull and Tuscarawas, as well as the Twinsburg Academic Center, is open to anyone with a high school diploma or its equivalent. For more information on admissions, contact the Regional Campuses admissions offices.

International Students: All international students must provide proof of proficiency of the English language (unless they meet specific exceptions) through the submission of an English language proficiency test score or by completing English language classes at Kent State's English as a Second Language Center before entering their program. For more information, visit the admissions website for international students.

Former Students: Former Kent State students who have not attended another institution since Kent State and were not academically dismissed will complete the re-enrollment process through the Financial, Billing and Enrollment Center. Former students who attended another college or university since leaving Kent State must apply for admissions as a transfer or post-undergraduate student.

Transfer Students: Students who attended an educational institution after graduating from high school or earning their GED must apply as transfer students. For more information, visit the admissions website for transfer students.

Admission policies for undergraduate students may be found in the University Catalog's Academic Policies.

Students may be required to meet certain criteria to progress in their program. Any progression requirements will be listed on the program's Coursework tab

Program Requirements

Major Requirements

Code	Title	Credit Hours
Major Requirements (courses count in major GPA)		
BSCI 10002	LIFE ON PLANET EARTH (KBS)	3-4
or BSCI 10110	BIOLOGICAL DIVERSITY (ELR) (KBS) (KLAB)	
CHEM 10058	GENERAL CHEMISTRY FOR LIFE SCIENCES I (KBS)	4
or CHEM 10060	GENERAL CHEMISTRY I (KBS)	
CHEM 10062	GENERAL CHEMISTRY I LABORATORY (KBS) (KLAB)	1
ESCI 22000	DEGREE AND CAREER PATHS IN EARTH SCIENCES (ELR)	1
ESCI 23063	EARTH MATERIALS I	4

ESCI 31070	EARTH MATERIALS II (WIC) [1]	4
ESCI 31080	STRUCTURAL GEOLOGY	4
ESCI 34061	PRINCIPLES OF PALEONTOLOGY	4
ESCI 42035	DATA ANALYSIS IN THE EARTH SCIENCES	3-5
or MATH 12002	ANALYTIC GEOMETRY AND CALCULUS I (KMCR)	
or MATH 30011	BASIC PROBABILITY AND STATISTICS	
ESCI 43092	FIELD GEOLOGY (ELR)	3
ESCI 44070	SEDIMENTOLOGY AND STRATIGRAPHY	4
ESCI 45045	EARTH SYSTEM SCIENCE	3
MATH 11010	ALGEBRA FOR CALCULUS (KMCR)	3
MATH 11022	TRIGONOMETRY (KMCR)	3
PHY 13001	GENERAL COLLEGE PHYSICS I (KBS)	4
PHY 13021	GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB)	1
Earth Electives, choose from the following:		4
ESCI 11040 & ESCI 11041	HOW THE EARTH WORKS (KBS) and HOW THE EARTH WORKS LABORATORY (KBS) (KLAB)	
ESCI 11042 & ESCI 11043	EARTH AND LIFE THROUGH TIME (KBS) and EARTH AND LIFE THROUGH TIME LABORATORY (KBS) (KLAB)	
Major Elective, choose from the following:		3
ESCI 11040	HOW THE EARTH WORKS (KBS)	
ESCI 11042	EARTH AND LIFE THROUGH TIME (KBS)	
ESCI 21062	ENVIRONMENTAL EARTH SCIENCE (KBS)	
ESCI 21080	ALL ABOUT THE OCEANS (KBS)	
Additional Requirements (courses do not count in major GPA)		
UC 10001	FLASHES 101	1
Foreign Language (see Foreign Language College Requirement below)		8
American Civic Literacy Requirement [2]		3
Kent Core Composition		6
Kent Core Humanities and Fine Arts (minimum one course from each) [2]		6-9
Kent Core Social Sciences (must be from two disciplines) [2]		3-6
General Electives (total credit hours depends on earning 120 credit hours, including 39 upper-division credit hours)		13
Additional Requirements or Concentration		
Choose from the following:		21
Additional Requirements for Students Not Declaring a Concentration		
Environmental Geology Concentration		
Minimum Total Credit Hours:		**120**

1 A minimum C grade must be earned to fulfill the writing-intensive requirement.

2 If students complete the American Civic Literacy requirement by taking HIST 12061, the course will apply to the Kent Core Humanities category. If they complete it with POL 10101, the course will apply to the Kent Core Social Sciences category.

Additional Requirements for Students Not Declaring a Concentration

Code	Title	Credit Hours
Major Requirements (courses count in major GPA)		
Earth Science (ESCI) Upper-Division Electives (30000 or 40000 level) [1]		15-16
Science Electives, choose from the following: [2]		4-5
CHEM 10059 & CHEM 10063	GENERAL CHEMISTRY FOR LIFE SCIENCES II and GENERAL CHEMISTRY II LABORATORY (KBS) (KLAB)	
CHEM 10061 & CHEM 10063	GENERAL CHEMISTRY II (KBS) and GENERAL CHEMISTRY II LABORATORY (KBS) (KLAB)	
GEOG 49070	GEOGRAPHIC INFORMATION SCIENCE	
PHY 13002 & PHY 13022	GENERAL COLLEGE PHYSICS II (KBS) and GENERAL COLLEGE PHYSICS LABORATORY II (KBS) (KLAB)	
Additional Requirements (courses do not count in major GPA)		
General Elective		1
Minimum Total Credit Hours:		**21**

1 ESCI 41073 and ESCI 41077 may **not** count toward the elective requirement.

2 Students who intend to pursue graduate studies in geology are recommended to complete both of the following science lecture and lab course sequences: CHEM 10061, CHEM 10063, PHY 13002, PHY 13022.

Environmental Geology Concentration Requirements

Code	Title	Credit Hours
Concentration Requirements (courses count in major GPA)		
CHEM 10059	GENERAL CHEMISTRY FOR LIFE SCIENCES II	4
or CHEM 10061	GENERAL CHEMISTRY II (KBS)	
CHEM 10063	GENERAL CHEMISTRY II LABORATORY (KBS) (KLAB)	1
ESCI 32066	GEOMORPHOLOGY	4
ESCI 40380	BIOGEOCHEMISTRY	3
or ESCI 43042	ENVIRONMENTAL GEOCHEMISTRY	
Environmental Geology Concentration Electives, choose from the following:		9
ESCI 40380	BIOGEOCHEMISTRY	
ESCI 42030	REMOTE SENSING	
ESCI 42065	WATERSHED HYDROLOGY	
ESCI 42066	PHYSICAL HYDROGEOLOGY	
ESCI 42068	CONTAMINANT HYDROLOGY AND HYDROGEOLOGY	
ESCI 43042	ENVIRONMENTAL GEOCHEMISTRY	
ESCI 43043	ENVIRONMENTAL MINERALOGY	
ESCI 43044	ENVIRONMENTAL ISOTOPES	
ESCI 44040	EARTH'S ENERGY TRANSITION	
Minimum Total Credit Hours:		**21**

Graduation Requirements

Minimum Major GPA	Minimum Overall GPA
2.000	2.000

Foreign Language College Requirement, B.S.

- Students pursuing the Bachelor of Science degree in the College of Sciences and Humanities must complete 8 credit hours of foreign language.[1]

- The following programs are exempt from this requirement: The Bachelor of Science in Cybercriminology and the Bachelor of Science in Medical Laboratory Science.[2]
- Minimum Elementary I and II of the same language

[1] All students with prior foreign language experience should take the foreign language placement test to determine the appropriate level at which to start. Some students may start beyond the Elementary I level and will complete the requirement with fewer credit hours and courses. This may be accomplished by (1) passing a course beyond Elementary I through Intermediate II level; (2) receiving credit through one of the alternative credit programs offered by Kent State University; or (3) demonstrating language proficiency comparable to Elementary II of a foreign language. When students complete the requirement with fewer than 8 credit hours and two courses, they will complete remaining credit hours with general electives.

[2] The Bachelor of Science in Medical Laboratory Science exemption exists under another college policy (Three-Plus-One Programs). The Bachelor of Science in Cybercriminology exemption is due to its extensive collaboration with and contribution from the Information Technology program in the College of Applied and Technical Studies, which does not have a foreign language requirement.

Roadmaps

Geology Major (No Concentration)

This roadmap is a recommended semester-by-semester plan of study for this program. Students will work with their advisor to develop a sequence based on their academic goals and history. Courses designated as critical (!) must be completed in the semester listed to ensure a timely graduation.

Semester One		Credits
MATH 11010	ALGEBRA FOR CALCULUS (KMCR)	3
UC 10001	FLASHES 101	1
Earth Electives		4
Foreign Language		4
Kent Core Requirement		3
	Credit Hours	**15**
Semester Two		
BSCI 10002 or BSCI 10110	LIFE ON PLANET EARTH (KBS) or BIOLOGICAL DIVERSITY (ELR) (KBS) (KLAB)	3-4
MATH 11022	TRIGONOMETRY (KMCR)	3
Major Elective		3
Foreign Language		4
Kent Core Requirement		3
	Credit Hours	**16**
Semester Three		
CHEM 10058 or CHEM 10060	GENERAL CHEMISTRY FOR LIFE SCIENCES I (KBS) or GENERAL CHEMISTRY I (KBS)	4
CHEM 10062	GENERAL CHEMISTRY I LABORATORY (KBS) (KLAB)	1
ESCI 22000	DEGREE AND CAREER PATHS IN EARTH SCIENCES (ELR)	1
ESCI 23063	EARTH MATERIALS I	4
American Civic Literacy Requirement		3
Kent Core Requirement		3
	Credit Hours	**16**
Semester Four		
ESCI 31070	EARTH MATERIALS II (WIC)	4
ESCI 31080	STRUCTURAL GEOLOGY	4
PHY 13001	GENERAL COLLEGE PHYSICS I (KBS)	4
PHY 13021	GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB)	1
	Credit Hours	**13**
Semester Five		
ESCI 34061	PRINCIPLES OF PALEONTOLOGY	4
ESCI 42035 or MATH 12002 or MATH 30011	DATA ANALYSIS IN THE EARTH SCIENCES or ANALYTIC GEOMETRY AND CALCULUS I (KMCR) or BASIC PROBABILITY AND STATISTICS	3-5
Kent Core Requirement		3
Kent Core Requirement		3
	Credit Hours	**13**
Semester Six		
Earth Science (ESCI) Upper-Division Elective (30000 or 40000 level)		3
Science Electives		4-5
Kent Core Requirement		3
General Elective		3
	Credit Hours	**14**
Third Summer Term		
ESCI 43092	FIELD GEOLOGY (ELR)	3
	Credit Hours	**3**
Semester Seven		
Earth Science (ESCI) Upper-Division Electives (30000 or 40000 level)		6
General Electives		9
	Credit Hours	**15**
Semester Eight		
ESCI 44070	SEDIMENTOLOGY AND STRATIGRAPHY	4
ESCI 45045	EARTH SYSTEM SCIENCE	3
Earth Science (ESCI) Upper-Division Electives (30000 or 40000 level)		6-7
General Elective		2
	Credit Hours	**15**
	Minimum Total Credit Hours:	**120**

Environmental Geology Concentration

This roadmap is a recommended semester-by-semester plan of study for this program. Students will work with their advisor to develop a sequence based on their academic goals and history. Courses designated as critical (!) must be completed in the semester listed to ensure a timely graduation.

Semester One		Credits
MATH 11010	ALGEBRA FOR CALCULUS (KMCR)	3
UC 10001	FLASHES 101	1
Earth Electives		4
Foreign Language		4
Kent Core Requirement		3
	Credit Hours	**15**

Semester Two		
BSCI 10002 or BSCI 10110	LIFE ON PLANET EARTH (KBS) or BIOLOGICAL DIVERSITY (ELR) (KBS) (KLAB)	3-4
MATH 11022	TRIGONOMETRY (KMCR)	3
Major Elective		3
Foreign Language		4
Kent Core Requirement		3
	Credit Hours	**16**
Semester Three		
CHEM 10058 or CHEM 10060	GENERAL CHEMISTRY FOR LIFE SCIENCES I (KBS) or GENERAL CHEMISTRY I (KBS)	4
CHEM 10062	GENERAL CHEMISTRY I LABORATORY (KBS) (KLAB)	1
ESCI 22000	DEGREE AND CAREER PATHS IN EARTH SCIENCES (ELR)	1
ESCI 23063	EARTH MATERIALS I	4
American Civic Literacy Requirement		3
Kent Core Requirement		3
	Credit Hours	**16**
Semester Four		
CHEM 10059 or CHEM 10061	GENERAL CHEMISTRY FOR LIFE SCIENCES II or GENERAL CHEMISTRY II (KBS)	4
CHEM 10063	GENERAL CHEMISTRY II LABORATORY (KBS) (KLAB)	1
ESCI 31070	EARTH MATERIALS II (WIC)	4
Kent Core Requirement		3
	Credit Hours	**12**
Semester Five		
ESCI 32066	GEOMORPHOLOGY	4
ESCI 34061	PRINCIPLES OF PALEONTOLOGY	4
ESCI 42035 or MATH 12002 or MATH 30011	DATA ANALYSIS IN THE EARTH SCIENCES or ANALYTIC GEOMETRY AND CALCULUS I (KMCR) or BASIC PROBABILITY AND STATISTICS	3-5
Kent Core Requirement		3
	Credit Hours	**14**
Semester Six		
ESCI 31080	STRUCTURAL GEOLOGY	4
ESCI 40380 or ESCI 43042	BIOGEOCHEMISTRY or ENVIRONMENTAL GEOCHEMISTRY	3
PHY 13001	GENERAL COLLEGE PHYSICS I (KBS)	4
PHY 13021	GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB)	1
Kent Core Requirement		3
	Credit Hours	**15**
Third Summer Term		
ESCI 43092	FIELD GEOLOGY (ELR)	3
	Credit Hours	**3**
Semester Seven		
Environmental Geology Concentration Electives		6
General Electives		7
	Credit Hours	**13**
Semester Eight		
ESCI 44070	SEDIMENTOLOGY AND STRATIGRAPHY	4
ESCI 45045	EARTH SYSTEM SCIENCE	3
Environmental Geology Concentration Elective		3
General Electives		6
	Credit Hours	**16**
	Minimum Total Credit Hours:	**120**

University Requirements

All students in a bachelor's degree program at Kent State University must complete the following university requirements for graduation.

NOTE: University requirements may be fulfilled in this program by specific course requirements. Please see Program Requirements for details.

Flashes 101 (UC 10001)	1 credit hour
Course is not required for students with 30+ transfer credits (excluding College Credit Plus) or age 21+ at time of admission.	
American Civic Literacy	3 credit hours
Experiential Learning Requirement (ELR)	varies
Students must successfully complete one course or approved experience.	
Kent Core (see table below)	36-37 credit hours
Writing-Intensive Course (WIC)	1 course
Students must earn a minimum C grade in the course.	
Upper-Division Requirement	39 credit hours
Students must successfully complete 39 upper-division (numbered 30000 to 49999) credit hours to graduate.	
Total Credit Hour Requirement	120 credit hours

Kent Core Requirements

Kent Core Composition (KCMP)	6
Kent Core Mathematics and Critical Reasoning (KMCR)	3
Kent Core Humanities and Fine Arts (KHUM/KFA) (min one course each)	9
Kent Core Social Sciences (KSS) (must be from two disciplines)	6
Kent Core Basic Sciences (KBS/KLAB) (must include one laboratory)	6-7
Kent Core Additional (KADL)	6
Total Credit Hours:	**36-37**

Program Learning Outcomes

Graduates of this program will be able to:

1. Understand and communicate to others on the nature of scientific investigation and evidence.
2. Understand and communicate to others on the complex interrelationships of the biosphere, atmosphere, hydrosphere and lithosphere through geologic time.
3. Understand Earth materials and interpret geologic and environmental processes.
4. Synthesize geologic information to understand and solve geologic and environmental problems.

5. Demonstrate critical thinking skills.
6. Develop the skills to work as a geologist in the field and in the laboratory.

Program Policies

Foreign Language Requirements

In general, students may elect any foreign language taught through the Department of Modern and Classical Language Studies. However, certain majors, concentrations and minors require specific languages or limit the languages from which students may choose. In addition, students who plan to pursue graduate study may need particular languages for that study. In such cases, students should seek the advice of the appropriate department before selecting a language.

Progress Toward Fulfillment

College of Sciences and Humanities students are encouraged to begin meeting the foreign language requirement as early as possible in their program to ensure timely degree completion.

Mandatory Outcomes Assessment

In addition to the other General Requirements of the college, candidates for an undergraduate degree in the College of Sciences and Humanities are required, as a condition of graduation, to participate in an outcomes assessment. These outcomes assessments are conducted by each undergraduate degree program in the College of Sciences and Humanities.

Full Description

The Bachelor of Science degree in Geology is designed for those interested in a professional career in the field. The curriculum focuses on minerals, rocks, landforms, fossils, structural geology, geochemistry and field mapping, among others. Supplemental courses include introductory chemistry, physics, biology and mathematics. Students are also encouraged to specialize in an applied or theoretical area of the science.

The program features a capstone summer field course in the Black Hills of South Dakota.

The Geology major includes the following optional concentration:

- The **Environmental Geology** optional concentration provides students with specialized training for careers in the well-established and growing field of environmental geology, including water resources, resource management and energy resources. The concentration's curriculum focuses on hydrology, hydrogeology and environmental monitoring techniques.

Geology students may apply early to the M.S. degree in Geology and double count 9 credit hours of graduate courses toward both degree programs. See the Combined Bachelor's/Master's Degree Program Policy in the University Catalog for more information.