

# GEOLOGY - B.S.

College of Arts and Sciences  
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

- **Joseph Ortiz** | jortiz@kent.edu | 330-672-2225
- Speak with an Advisor
- Chat with an Admissions Counselor

## Program Delivery

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

## Examples of Possible Careers and Salaries\*

### Geological and hydrologic technicians

- 5.5% faster than the average
- 19,000 number of jobs
- \$50,630 potential earnings

### Geoscientists, except hydrologists and geographers

- 4.9% about as fast as the average
- 31,800 number of jobs
- \$93,580 potential earnings

### Hydrologists

- 5.3% faster than the average
- 7,000 number of jobs
- \$84,040 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 who graduated from high school three or more years ago.

**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 English language proficiency (unless they meet specific exceptions) by earning a minimum 525 TOEFL score (71 on the Internet-based version), minimum 75 MELAB score, minimum 6.0 IELTS score or minimum 48 PTE Academic score, or by completing the ELS level 112 Intensive Program. For more information, visit the admissions website for international students.

**Transfer Students:** Students who have attended any other educational institution after graduating from high school must apply as undergraduate transfer students. For more information, visit the admissions website for transfer students.

**Former Students:** Former Kent State students or graduates who have not attended another college or university since Kent State may complete the reenrollment or reinstatement form on the University Registrar's website.

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

Some programs may require that students meet certain requirements before progressing through the program. For programs with progression requirements, the information is shown on the program's Coursework tab.

## Program Requirements

### Major Requirements

Code	Title	Credit Hours
<b>Major Requirements (courses count in major GPA)</b>		
BSCI 10002 or BSCI 10110	LIFE ON PLANET EARTH (KBS) BIOLOGICAL DIVERSITY (ELR) (KBS) (KLAB)	3-4
CHEM 10060	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
ESCI 31070	EARTH MATERIALS II (WIC) <sup>1</sup>	4
ESCI 31080	STRUCTURAL GEOLOGY	4
ESCI 34061	PRINCIPLES OF PALEONTOLOGY	4
ESCI 41092	SUMMER FIELD CAMP (ELR)	6
ESCI 42035 or MATH 30011	DATA ANALYSIS IN THE EARTH SCIENCES BASIC PROBABILITY AND STATISTICS	3
ESCI 44070	SEDIMENTOLOGY AND STRATIGRAPHY	4

MATH 12002	ANALYTIC GEOMETRY AND CALCULUS I (KMCR)	5
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)	
<b>Additional Requirements (courses do not count in major GPA)</b>		
UC 10001	FLASHES 101	1
Foreign Language (see Foreign Language College Requirement below)		8
Kent Core Composition		6
Kent Core Humanities and Fine Arts (minimum one course from each)		9
Kent Core Social Sciences (must be from two disciplines)		6
General Electives (total credit hours depends on earning 120 credit hours, including 39 upper-division credit hours)		14
<b>Additional Requirements or Concentration</b>		
Choose from the following:		21
Additional Requirements for Students Not Declaring a Concentration		
Environmental Geology Concentration		
<b>Minimum Total Credit Hours:</b>		<b>120</b>

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

## Additional Requirements for Students Not Declaring a Concentration

Code	Title	Credit Hours
<b>Major Requirements (courses count in major GPA)</b>		
Earth Science (ESCI) Upper-Division Electives (30000 or 40000 level) <sup>1</sup>		15-16
Science Elective(s), choose from the following: <sup>2</sup>		4-5
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)	
<b>Additional Requirements (courses do not count in major GPA)</b>		
General Elective		1
<b>Minimum Total Credit Hours:</b>		<b>21</b>

<sup>1</sup> The following courses may **not** count toward the elective requirement: ESCI 41073, ESCI 41077 and ESCI 41079.

<sup>2</sup> Students who intend to pursue graduate studies in geology are recommended to complete both science lecture and lab courses: CHEM 10061, CHEM 10063, PHY 13002, PHY 13022.

## Environmental Geology Concentration Requirements

Code	Title	Credit Hours
<b>Concentration Requirements (courses count in major GPA)</b>		
CHEM 10061	GENERAL CHEMISTRY II (KBS)	4
CHEM 10063	GENERAL CHEMISTRY II LABORATORY (KBS) (KLAB)	1
ESCI 32066	GEOMORPHOLOGY	4
ESCI 40380	BIOGEOCHEMISTRY	3
or ESCI 43040	PRINCIPLES OF GEOCHEMISTRY	
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 43040	PRINCIPLES OF GEOCHEMISTRY	
ESCI 43042	ENVIRONMENTAL GEOCHEMISTRY	
ESCI 43043	ENVIRONMENTAL MINERALOGY	
ESCI 43044	ENVIRONMENTAL ISOTOPES	
<b>Minimum Total Credit Hours:</b>		<b>21</b>

## 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 Arts and Sciences must complete 8 credit hours of foreign language.<sup>1</sup>
- The following programs are exempt from this requirement: The Bachelor of Science in Cybercriminology and the Bachelor of Science in Medical Laboratory Science.<sup>2</sup>
- Minimum Elementary I and II of the same language

<sup>1</sup> 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.

<sup>2</sup> 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 major. However, courses designated as critical (!) must be completed in the semester listed to ensure a timely graduation.

Semester One		Credits
UC 10001	FLASHES 101	1
Earth Electives		4
Foreign Language		4
Kent Core Requirement		3
Kent Core Requirement		3
<b>Credit Hours</b>		<b>15</b>
Semester Two		Credits
BSCI 10002	LIFE ON PLANET EARTH (KBS) or BIOLOGICAL DIVERSITY (ELR) (KBS) (KLAB)	3-4
Major Elective		3
Foreign Language		4
Kent Core Requirement		3
<b>Credit Hours</b>		<b>13</b>
Semester Three		Credits
CHEM 10060	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
Kent Core Requirement		3
Kent Core Requirement		3
<b>Credit Hours</b>		<b>16</b>
Semester Four		Credits
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
<b>Credit Hours</b>		<b>13</b>
Semester Five		Credits
ESCI 34061	PRINCIPLES OF PALEONTOLOGY	4
ESCI 42035	DATA ANALYSIS IN THE EARTH SCIENCES or BASIC PROBABILITY AND STATISTICS	3
MATH 30011		
MATH 12002	ANALYTIC GEOMETRY AND CALCULUS I (KMCR)	5
Kent Core Requirement		3
<b>Credit Hours</b>		<b>15</b>
Semester Six		Credits
Earth Science (ESCI) Upper-Division Elective (30000 or 40000 level)		3
Science Elective(s)		4-5
Kent Core Requirement		3
General Electives		4
<b>Credit Hours</b>		<b>15</b>
Third Summer Term		Credits
ESCI 41092	SUMMER FIELD CAMP (ELR)	6
<b>Credit Hours</b>		<b>6</b>

### Semester Seven

Earth Science (ESCI) Upper-Division Electives (30000 or 40000 level)	6
General Electives	9
<b>Credit Hours</b>	<b>15</b>

### Semester Eight

ESCI 44070	SEDIMENTOLOGY AND STRATIGRAPHY	4
Earth Science (ESCI) Upper-Division Electives (30000 or 40000 level)	6	
General Elective	2	
<b>Credit Hours</b>	<b>12</b>	
<b>Minimum Total Credit Hours:</b>	<b>120</b>	

## Environmental Geology Concentration

This roadmap is a recommended semester-by-semester plan of study for this major. However, courses designated as critical (!) must be completed in the semester listed to ensure a timely graduation.

Semester One		Credits
UC 10001	FLASHES 101	1
Earth Electives		4
Foreign Language		4
Kent Core Requirement		3
Kent Core Requirement		3
<b>Credit Hours</b>		<b>15</b>
Semester Two		Credits
BSCI 10002	LIFE ON PLANET EARTH (KBS) or BIOLOGICAL DIVERSITY (ELR) (KBS) (KLAB)	3-4
Major Elective		3
Foreign Language		4
Kent Core Requirement		3
<b>Credit Hours</b>		<b>13</b>
Semester Three		Credits
CHEM 10060	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
Kent Core Requirement		3
Kent Core Requirement		3
<b>Credit Hours</b>		<b>16</b>
Semester Four		Credits
CHEM 10061	GENERAL CHEMISTRY II (KBS)	4
CHEM 10063	GENERAL CHEMISTRY II LABORATORY (KBS) (KLAB)	1
ESCI 31070	EARTH MATERIALS II (WIC)	4
MATH 12002	ANALYTIC GEOMETRY AND CALCULUS I (KMCR)	5
<b>Credit Hours</b>		<b>14</b>
Semester Five		Credits
ESCI 32066	GEOMORPHOLOGY	4
ESCI 34061	PRINCIPLES OF PALEONTOLOGY	4
ESCI 42035	DATA ANALYSIS IN THE EARTH SCIENCES or BASIC PROBABILITY AND STATISTICS	3
MATH 30011		
Kent Core Requirement		3
<b>Credit Hours</b>		<b>14</b>

**Semester Six**

ESCI 31080	STRUCTURAL GEOLOGY	4
ESCI 40380	BIOGEOCHEMISTRY	3
or	or PRINCIPLES OF GEOCHEMISTRY	
ESCI 43040	or ENVIRONMENTAL GEOCHEMISTRY	
or		
ESCI 43042		
PHY 13001	GENERAL COLLEGE PHYSICS I (KBS)	4
PHY 13021	GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB)	1
Kent Core Requirement		3

<b>Credit Hours</b>	<b>15</b>
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**Third Summer Term**

ESCI 41092	SUMMER FIELD CAMP (ELR)	6
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<b>Credit Hours</b>	<b>6</b>
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**Semester Seven**

Environmental Geology Concentration Electives		6
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General Electives		8
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<b>Credit Hours</b>	<b>14</b>
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**Semester Eight**

ESCI 44070	SEDIMENTOLOGY AND STRATIGRAPHY	4
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Environmental Geology Concentration Elective		3
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General Electives		6
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<b>Credit Hours</b>	<b>13</b>
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<b>Minimum Total Credit Hours:</b>	<b>120</b>
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## 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.	
Diversity Domestic/Global (DIVD/DIVG)	2 courses
Students must successfully complete one domestic and one global course, of which one must be from the Kent Core.	
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 (KCOMP)	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
<b>Total Credit Hours:</b>	<b>36-37</b>

## 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.

## 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.

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.

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.