

# B.S. in Geology

## College of Sciences and Technology

2007-2008

Academic Advising Center

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This document has been created for advising purposes only. Please contact the appropriate department for major and/or graduation requirements.

### What is the study of Geology?

A Geoscientist is someone who studies the Earth's physical makeup and history. Geology is the science that provides the key to finding new sources of useful Earth materials and to understanding Earth processes that affect our lives. Geoscientists provide basic information to society for solving problems and establishing policy for resource management, environmental protection, public health, safety and welfare.

Geoscientists are curious about the Earth. How was it formed? How is it changing? What effects will shrinking glaciers have on the oceans and climate? How do islands form? What makes a continent move? Why did the dinosaurs become extinct? What makes a mountain?

Geoscientists are concerned about the Earth. Is there a global warming trend? How and where should we dispose industrial wastes? How can we fill society's growing demands

for energy and conserve natural resources for future generations?

Geoscientists enjoy the Earth. It is an outdoor laboratory filled with opportunities to observe Earth processes in action. By applying knowledge of forces that shape the Earth, Geoscientists seek to reconstruct the past and anticipate the future.

#### Contact Information:

[geology.wvu.edu/dept/index.shtml](http://geology.wvu.edu/dept/index.shtml)

#### Department Chair:

R. Scott Babcock  
ES 240A  
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#### Undergraduate Advisor:

Vicki Critchlow  
ES 240  
critch@geol.wvu.edu

### Why should I consider a Geology Major?

Do you like to know why and how things work? Do you enjoy the outdoors? Are you concerned about the environment? Are you

interested in travel? Do you like to analyze things? Are science and nature among your favorite subjects? Have you ever wondered why the

Earth appears as it does? If you answer "yes" to most of these questions the Geosciences could offer a good career for you.

### Declaring a Geology Major:

You may declare your Geology major upon completion of GEOL 211. Come to the

Geology Office, ES 240, to declare your major. You will be assigned a Geology faculty

advisor at that time.

### Mid Program Checkpoint:

Students intending to complete a Bachelor's of Arts degree in Geology within four years should complete the following courses by the start of their junior year. Students are expected to follow all prerequisite requirements for courses and seek early departmental advisement.

#### Coursework:

Complete GEOL 211, 212, and 310.

Complete CHEM 121 .

Complete MATH 114, 115, and 124.

#### Other Activities:

Declare your Geology major.

Meet with your Geology faculty advisor.

If you want to do senior research, find an advisor and a project.

### Sample Career Fields:

- U.S. Geological Survey
- Department of Natural Resources
- Oil and Mining companies
- NASA
- U.S. Forest Service
- U.S Army Corps of Engineers
- Explorations Geologist
- Museum Curator
- Climate Change Scientist
- Earthquake or Volcano Monitor
- Engineering Geologist

# *B.S. in Geology Major Requirements: 97-110 Credits*

## The Core:[pre-requisites in brackets]

GEOL 211 Physical Geology [MATH 114] (5)  
GEOL 212 Historical Geology [212] (4)  
GEOL 306 Mineralogy [211, CHEM121, CHEM 122] (4)  
GEOL 310 Geomorphology [211] (5)  
GEOL 318 Structural Geology [211; PHYS 114 or 121] (5)  
GEOL 352 Geophysics [318, PHYS 121] (4)  
GEOL 406 Petrology [306] (4)  
GEOL 410a+b Field Camp [318, 407a] (12)  
GEOL 415 Stratigraphy & Sedimentation [212, 306, 310] (4)  
CHEM 121, 122, 123 General Chemistry 121, 122, 123 w/labs [MATH 114 or placement] (5,5,4)  
MATH 124 Calculus & Analytic Geometry I [MATH 115 or placement] (5)  
MATH 125 Calculus & Analytic Geometry II [MATH 124] (5)  
or MATH 128 Accelerated Calculus (5)  
PHYS 121/131: Physics with Calculus I/lab [MATH 124 or concurrent enrollment] (4, 1)  
PHYS 122/132: Physics with Calculus II/lab [PHYS 121] (4,1)

## **Choose one:**

GEOL 442 Introduction to Remote Sensing (5)  
GEOL 447 Introduction to GIS (3)  
GEOL 448 Applied Geostatistics (3)

## Geology Concentration – the core, plus:

GEOL 316 Research in Marine Paleontology [212] (4)  
GEOL 407 Advanced Petrography [406] (3)

## **One of:**

MATH 204 Elementary Linear Algebra [MATH 124] (4)  
MATH 224 Multivariable Calculus and Geometry (5)  
MATH 341 Probability and Statistics (4)

## **Two Geology electives:**

GEOL 411, 423, 424, 425, 428, 430, 450, 451, 454, 456  
\* or substitute courses under advisement

## Geology Concentration—Thesis Option:

Core Courses with the exception that one of GEOL 442, 447, 448 is waived

GEOL 316: Research in Marine Paleontology [212] (4)  
GEOL 407: Advanced Petrography [406] (3)

## **One of the following—with consultation with advisor:**

GEOL 411, 423, 425, 450, 454, 456

Successful application to the department approving the thesis topic

Complete at least 4 credits of GEOL 490

## *Other Geology options:*

B.A. in Geology (70 credits)  
B.A. in Geology with Thesis Option (68-71 credits)  
B.A. Ed. in Elementary Earth Science (75-77 credits)  
B.A. Ed. in Secondary Earth Science (86-88 credits)  
B.A. Ed. in Secondary Earth Science/General Science (107-108 credits)  
Minor in Geology (25 credits)

## Environmental Geology Concentration – the core, plus:

GEOL 314: Engineering Geology [211, PHYS 121] (3)  
GEOL 473: Groundwater Hydrology [211, PHYS 122] (4)

## **One of the following:**

MATH 204: Elementary Linear Algebra [MATH 124] (4)  
MATH 224: Multivariable Calculus and Geometry (5)  
MATH 341: Probability and Statistics (4)

9 Additional Credits chosen from:

GEOL 413, 430, 440, 449, 450, 451, 452, 461, 462, 470, 472, 474

## Environmental Geology Concentration – Thesis Option:

Core Courses with the exception that one of GEOL 442, 447, 448 is waived

GEOL 314 Engineering Geology [211, PHYS 121] (3)  
GEOL 473 Groundwater Hydrology [211, PHYS 122] (4)  
MATH 204 Elementary Linear Algebra (4)

## **One of the following—with consultation with advisor**

GEOL 413, 440, 450, 451, 452, 461, 462, 470, 472, 474

Successful application to the department approving the thesis topic

Complete at least 4 credits of GEOL 490

## Geophysics Concentration – the core, plus:

GEOL 452 Applied Geophysics [352] (5)

**One or more of the following:** GEOL 453/456/457

**One or more of the following:** GEOL 432, 449, 450, 451, 454, 472, 473 or 4 additional credits from the Math or Physics courses listed below.

8 additional credits selected from: MATH 204, 224, 225, 331, PHYS 123/133, 325, 368, 369

MATH 240 Introduction to Statistics (4)

## Geophysics Concentration – Thesis Option:

Core Courses with the exception that one of GEOL 442, 447, 448 is waived

GEOL 452 Applied Geophysics [352] (5)

**At least one of the following:** GEOL 449, 450, 451, 453, 472, 473 or 4 additional credits from Math or Physics, listed below

## **One of the following:**

MATH 204, 224, 225, 331, PHYS 123/133, 325, 368, 369

## **One of the following:**

GEOL 454, 456, 457

These required or elective courses will also satisfy the GUR or other Graduation Requirement:

QSR: MATH 124

LSCI: GEOL 211, 212

CHEM 121

PHYS 121/131, 122/132

WP: GEOL 310, 316, 318, 440, 452, 461, 470\*

\* Must accrue three WP points to complete the Writing Proficiency requirement. GEOL 316 is three points. All others are one.