

2009-2010

# *B.A. in Geology*

College of Sciences and Technology

## *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.

## *Why Should I Consider This 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.

## *How to Declare:*

You may declare your Geology major upon completion of GEOL211. 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:*

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.

### **Coursework:**

GEOL 211, 212

CHEM 121

MATH 124

PHYS 121

### *Contact Information:*

**Geology Department Website:**  
<http://geology.wvu.edu>

**Department Chair:**  
Scott Babcock  
ES 240A, 360-650-3592  
[babcock@wvu.edu](mailto:babcock@wvu.edu)

**Undergraduate Advisor:**  
Vicki Critchlow  
ES 240, 360-650-3582  
[critch@geol.wvu.edu](mailto:critch@geol.wvu.edu)

### *Sample Careers:*

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.A. in Geology Major Requirements: 75 Credits

## Major Requirements:

### The Core:

GEOL 211 Physical Geology (5)

GEOL 212 Historical Geology (4)

GEOL 213 GIS in Geology (3)

GEOL 306 Mineralogy (4)

GEOL 310 Geomorphology (5)

GEOL 318 Structural Geology (5)

GEOL 406 Igneous and Metamorphic Petrology (4)

### \*15 additional Geology credits at the 200-level and above under advisement from faculty advisor.

CHEM 121 General Chemistry I (5)

MATH 124 Calculus & Analytic Geometry I (5)

Choose group A or B:

A. PHYS 114: Principles of Physics I (5)

PHYS 115: Principles of Physics II (5)

B. PHYS 121: Physics with Calculus I/ lab (5)

PHYS 122: Physics with Calculus II/lab (5)

Group B is preferred and required for graduate students.

### 10 Additional science credits chosen from:

MATH 125 Calculus & Analytic Geometry II (5)

MATH 240 Introduction to Statistics (4)

CHEM 122 General Chemistry II w/Lab (5)

CHEM 123 General Chemistry III w/Lab (4)

BIOL 204 Introduction to Evolution, Ecology & Biodiversity (4)

There is a thesis option for the B.A. in Geology. Consult with your advisor for additional information if you are interested in pursuing the thesis option (see next column.)

These courses are offered within this major and may be used to satisfy GUR or Writing Proficiency requirements.

**QSR:** MATH 124 or higher

**LSCI:** GEOL 211, 212; CHEM 121; PHYS 115, 121, 122

**SCI:** PHYS 114

**WP:** Three Writing Proficiency points are required for graduation (they are noted as WP1, WP2, and WP3). Check [Classfinder](#) or [Online Timetable](#) for departmental offerings each quarter.

### Optional Thesis Option: 74-81 credits

\*Thesis option requires at least 7 credits at the 200-level or above, under advisement

**One of the Following research methods courses in consultation with advisor:**

GEOL 411 Field Geology of Western United States (3)

GEOL 413 Fluvial Geomorphology(4)

GEOL 415 Stratigraphy and Sedimentology(4)

GEOL 423 Advanced Igneous Petrology (4)

GEOL 425 Advanced Metamorphic Petrology (5)

GEOL 440 Glacial Geology (4)

GEOL 450 Advanced Topics in Structural Geology(4)

GEOL 451 Active Tectonics Seminar (4)

GEOL 452 Applied Geophysics (5)

GEOL 453 Plate Tectonics (4)

GEOL 454 Magnetic Fabrics and Geologic Processes (4)

GEOL 456 Principles of Orogeny Seminar (3)

GEOL 457 Practical Paleomagnetism (4)

GEOL 461 Analytical Geochemistry(2)

GEOL 463 Intro to Seismology (4)

GEOL 472 Surface Water Hydrology (4)

GEOL 473 Ground Water Hydrology (4)

GEOL 474 Ground Water Contamination (3)

Successful Application to the department approving the thesis option

Complete at least 4 credits GEOL 490 Senior Thesis (1-5)

An accompanying minor in one of the sciences or in Mathematics is recommended.

## *Other Geology Options:*

B.A. Geology with Thesis Option (73-81 credits)

B.S Geology (94-112 credits)

B.S. Geology with Thesis Option (97-102 credits)

B.A.Ed. Elementary Earth Science (75-77 credits)

B.A. Ed. Secondary Earth Science (86-88 credits)

B.A.Ed. Secondary Earth Science/General Science (107-108 credits)

Minor in Geology (25 credits)