YOUR FUTURE IN GEOLOGY
GEOLOGICAL SCIENCES
THE STUDY OF:

• The physical Earth.

• Earth’s history and the processes that have shaped it.

• The interactions of solid Earth, oceans, atmosphere, and life.

• The Earth as the substrate for human society.

Literally a world of scholarly and professional possibilities.
GEOLOGISTS PURSUE CAREERS IN:

- Water resource management and environmental monitoring
- Energy resource exploration
- Economic resource exploration
- Public service through governmental agencies:
  - U. S. Geological Survey
  - Bureau of Land Management
  - Environmental Protection Agency
  - National Oceanic and Atmospheric Administration
  - National Aeronautic and Space Administration
  - Department of Energy
  - Nuclear Regulatory Commission
  - National Science Foundation
  - Department of Energy
  - National Forest Service
  - National Park Service
  - Smithsonian Institution
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• Public service through semi- or non-governmental agencies
  • National Research Council of the National Academies
  • American Geophysical Institute
  • Many environmental and conservation groups
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But beyond this...

Geologists understand society’s relationship with our physical environment and are better able to live responsibly as individuals and citizens.
WITH OTHER PROFESSIONAL QUALIFICATIONS, GEOLOGISTS BECOME:

- Civil engineers
- Secondary educators
- Environmental consultants to the health and legal professions
- Policy advocates with many non-governmental organizations
- And, of course, faculty and researchers in the Academy.
WHO BECOMES A GEOLOGIST?

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Then Geology might be right for you. Of course it helps if you’re fond of rocks!
GEOLOGY ENCOMPASSES DIVERSE DISCIPLINES:

- **Historical Geology** - reconstructing the history of the Earth's surface
- **Mineralogy** - the study of the chemistry and physical properties of the materials rocks are made of
- **Volcanology** - the study of volcanoes and volcanism.
- **Geomorphology** - the study of the features of the Earth's changing surface
- **Structural Geology** - the study of the mechanics of rock deformation
- **Stratigraphy and Sedimentology** - the study of the rock record preserved in layers of sediment
- **Petrology** - the study of the rock record preserved in igneous and metamorphic rocks
BUT GEOLOGISTS ARE INTERDISCIPLINARIANS:

- **Hydrogeology** - the study of the physical and chemical interactions of surface, ground, and ocean waters with the physical Earth - requires its practitioners to explore issues of Physics and Chemistry.

- **Paleontology** - the study of the history of life as preserved in the rock record - requires researchers who are as much evolutionary biologist as geologist.

- **Seismology and Geophysics** - employ the methods of Physics to study the Earth’s interior.

- **Economic Geology** - the identification and extraction of commercially significant minerals - occupies the intersection of Geology, Economics, and Business.

- **Environmental Geologists** - who study geological hazards, employ the mathematical skills of an actuary.
Any competent Geology program can educate you in these fields.

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• The quality of personal interaction between students and faculty.
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• Maryland’s commitment to Undergraduate Research
FACULTY - STUDENT INTERACTIONS

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You can normally expect your upper level Geology classes to have fewer than twelve students.
Geology students at Maryland are encouraged to serve as interns in the laboratories of faculty researchers. Everyone benefits from this system:

- Faculty, many of whom specialize in the laboratory intensive area of Geochemistry, get the help they need.
- Students learn valuable laboratory analytic skills and become part of the culture of scientific research.
- The result: By the time you are a sophomore, you can be part of the research enterprise at an acclaimed research university.
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• The NASA Goddard Laboratories
• Chesapeake Bay Institute
• The Estuarine Research Center of the Maryland Academy of Natural Sciences
BUT THERE’S MORE!

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WE HAVE A SENIOR THESIS REQUIREMENT.
EVERY GEOLOGY MAJOR SPENDS TWO SEMESTERS:

• Identifying a research problem
• Designing a research program
• Gathering and analyzing data.
• Giving progress reports and a final presentation to the entire Geology faculty.
• Thesis research will be done under the supervision of an advisor, and with access to the full support from the entire Department faculty
• But the student enjoys full intellectual independence, as well as bearing full responsibility.
THUS:

The degree you earn not only says that you did well in coursework, it says that you have proven your ability to perform professional quality scientific research - a credential of exceptional value.
SPECIAL OPPORTUNITIES

• Through our commitment to individual research, Geology undergraduates develop close relationships with faculty and become involved in many aspects of their faculty research. Sometimes, these collaborations yield exceptional opportunities.

• Imagine checking your e-mail to find an invitation to join a departmental researcher for the summer in Tanzania or Brazil. Sound good?

• It's actually happened to some of our better students.

• Next time, it could be you.

• Interested? Talk to the Geology Undergraduate Advisor (jmerck@umd.edu).