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

GEOLOGISTS PURSUE CAREERS IN:

- Water resource management and environmental monitoring
- Energy resource exploration
- Economic resource exploration
- Public service through governmental agencies
- Public service through semi- or non- governmental agencies
  - National Research Council of the National Academies
  - American Geophysical Institute
  - Many environmental and conservation groups

GEOLOGISTS PURSUE CAREERS IN:

- Water resource management and environmental monitoring
- Energy resource exploration
- Economic resource exploration
- Public service through governmental agencies
- Public service through semi- or non- governmental agencies

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?

Although there are many approaches, geologists generally divide their time between:

- **The field**

WHO BECOMES A GEOLOGIST?

Although there are many approaches, geologists generally divide their time between:

- **The field**
- **The laboratory**

WHO BECOMES A GEOLOGIST?

Although there are many approaches, geologists generally divide their time between:

- **The field**
- **The laboratory**
- **The office**

WHO BECOMES A GEOLOGIST?

Although there are many approaches, geologists generally divide their time between:

- **The field**
- **The laboratory**
- **The office**

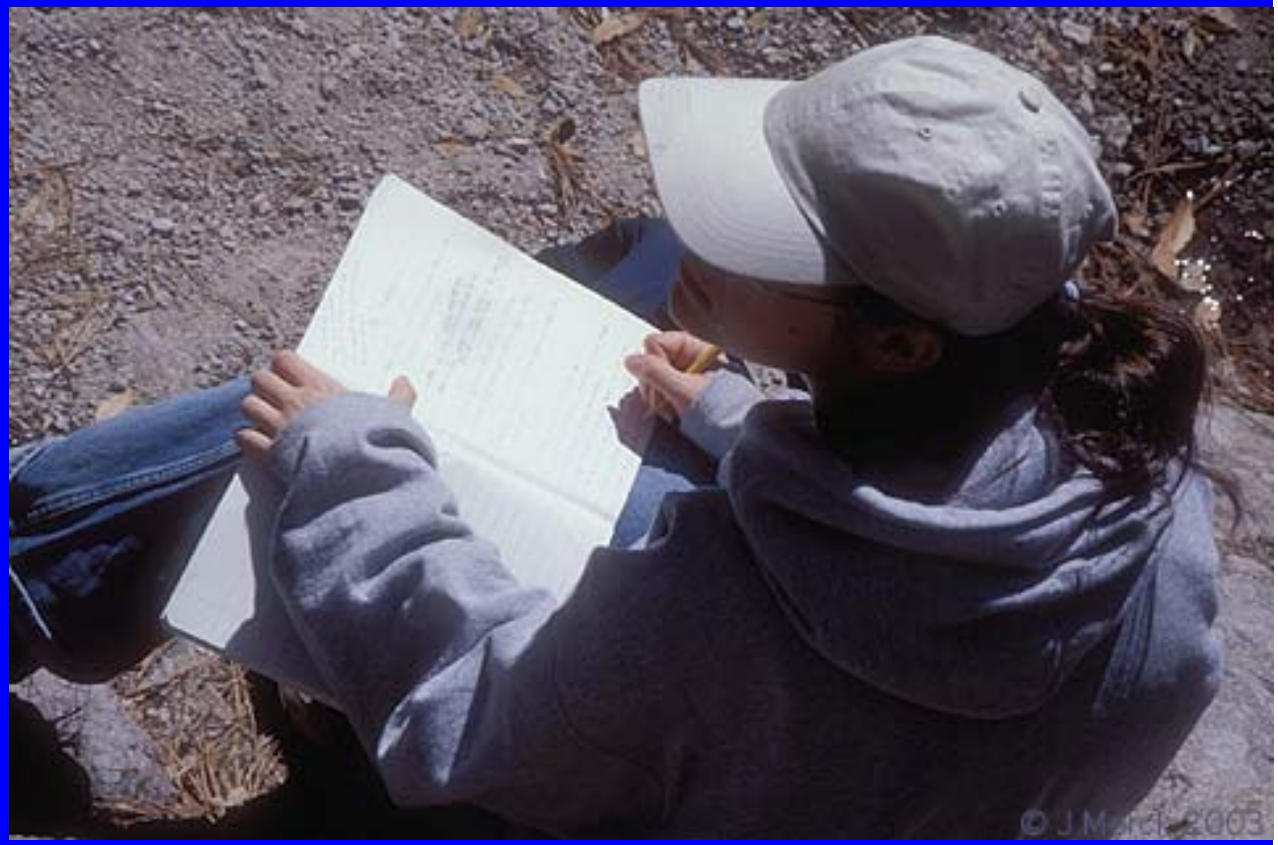
If you enjoy:

- **Being outdoors observing nature**

WHO BECOMES A GEOLOGIST?

Although there are many approaches, geologists generally divide their time between:

- **The field**
- **The laboratory**
- **The office**



If you enjoy:

- **Being outdoors observing nature**
- **Thinking about the natural world and society's dependence and influence on it.**

Then Geology might be right for you

WHO BECOMES A GEOLOGIST?

Although there are many approaches, geologists generally divide their time between:

- **The field**
- **The laboratory**
- **The office**

If you enjoy:

- **Being outdoors observing nature**
- **Thinking about the natural world and society's dependence and influence on it.**

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.

WHAT MAKES GEOLOGY AT MARYLAND DIFFERENT?

- **The quality of personal interaction between students and faculty.**

Any competent Geology program can educate you in these fields.

WHAT MAKES GEOLOGY AT MARYLAND DIFFERENT?

- **The quality of personal interaction between students and faculty.**
- **Maryland's commitment to Undergraduate Research**

FACULTY - STUDENT INTERACTIONS

- **Because we are a small department, our classes facilitate excellent communication between students and faculty, and the development of close mentoring relationships.**

FACULTY - STUDENT INTERACTIONS

- **Because we are a small department, our classes facilitate excellent communication between students and faculty, and the development of close mentoring relationships.**
- **You can normally expect your upper level Geology classes to have fewer than twelve students.**

UNDERGRADUATE RESEARCH

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 - 1 university.**

THANKS TO OUR LOCATION, STUDENTS HAVE ACCESS TO RESEARCHERS AT:

- **The Smithsonian Institution**

THANKS TO OUR LOCATION, STUDENTS HAVE ACCESS TO RESEARCHERS AT:

- **The Smithsonian Institution**
- **The Carnegie Institute of Washington**

THANKS TO OUR LOCATION, STUDENTS HAVE ACCESS TO RESEARCHERS AT:

- **The Smithsonian Institution**
- **The Carnegie Institute of Washington**
- **The United States Geological Survey**

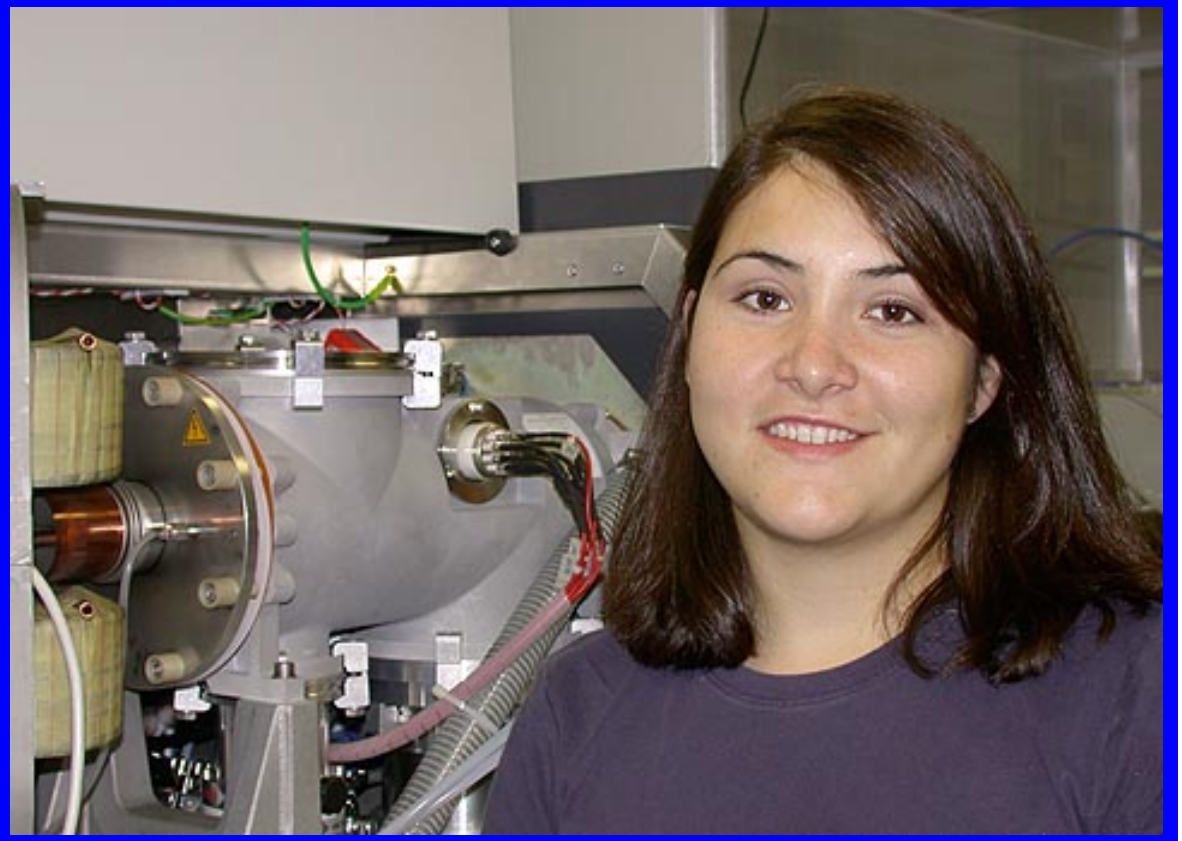
THANKS TO OUR LOCATION, STUDENTS HAVE ACCESS TO RESEARCHERS AT:

- **The Smithsonian Institution**
- **The Carnegie Institute of Washington**
- **The United States Geological Survey**
- **The NASA Goddard Laboratories**
- **Chesapeake Bay Institute**
- **The Estuarine Research Center of the Maryland Academy of Natural Sciences**

BUT THERE'S MORE!

Departments in many universities have a SENIOR THESIS option for their more talented students. Senior theses are a chance to:

- **Learn the skills of a true scientific researcher**



BUT THERE'S MORE!

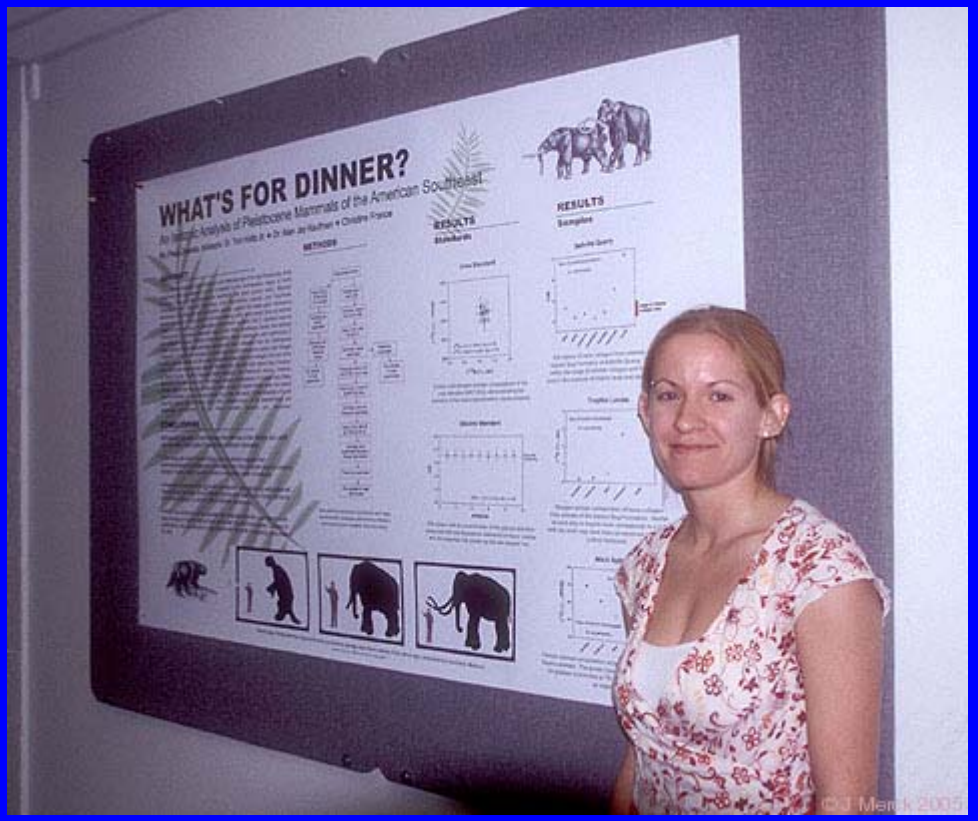
Departments in many universities have a SENIOR THESIS option for their more talented students. Senior theses are a chance to:

- **Learn the skills of a true scientific researcher**
- **Independently identify a significant question and design and implement a research program to address it.**

BUT THERE'S MORE!

Departments in many universities have a SENIOR THESIS option for their more talented students. Senior theses are a chance to:

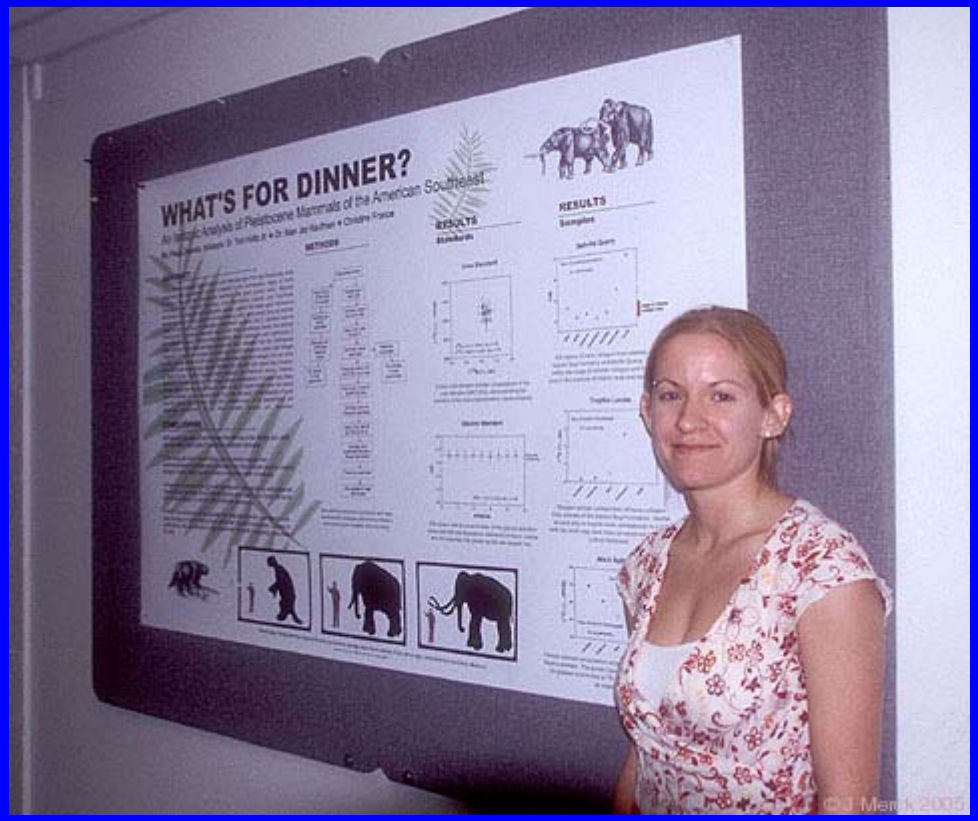
- **Learn the skills of a true scientific researcher**
- **Independently identify a significant question and design and implement a research program to address it.**
- **Master the skills of presenting results in a professional manner.**



BUT THERE'S MORE!

Departments in many universities have a SENIOR THESIS option for their more talented students. Senior theses are a chance to:

- **Learn the skills of a true scientific researcher**
- **Independently identify a significant question and design and implement a research program to address it.**
- **Master the skills of presenting results in a professional manner.**

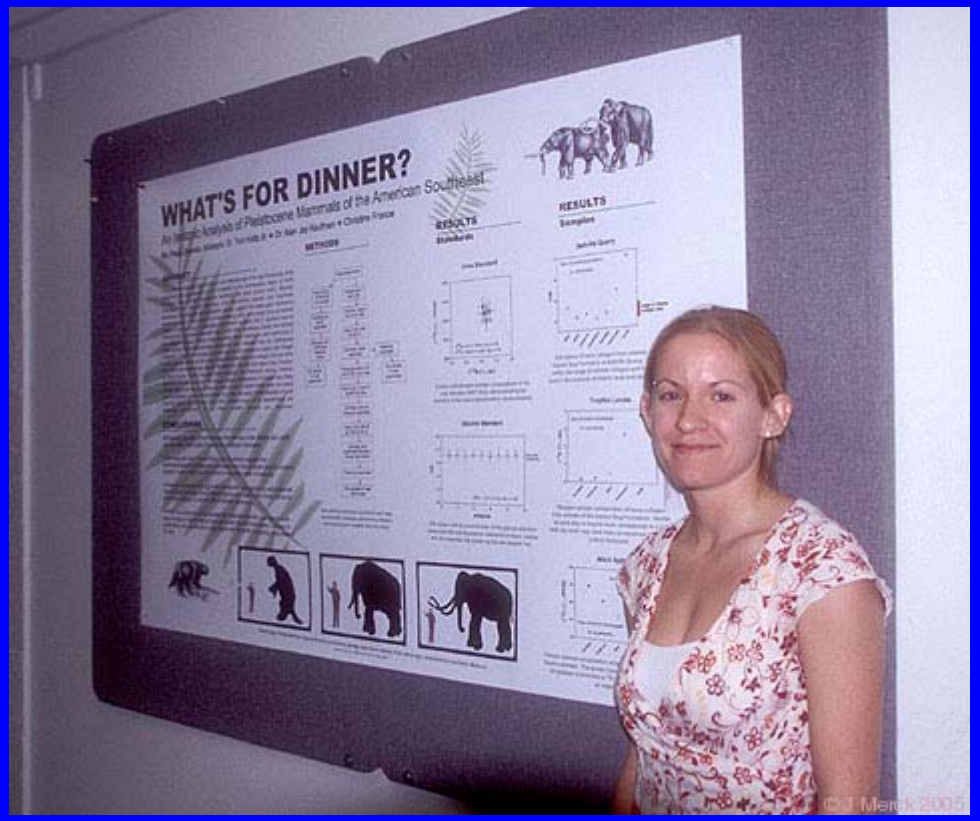


The Department of Geology at Maryland does not have a senior thesis option...

BUT THERE'S MORE!

Departments in many universities have a SENIOR THESIS option for their more talented students. Senior theses are a chance to:

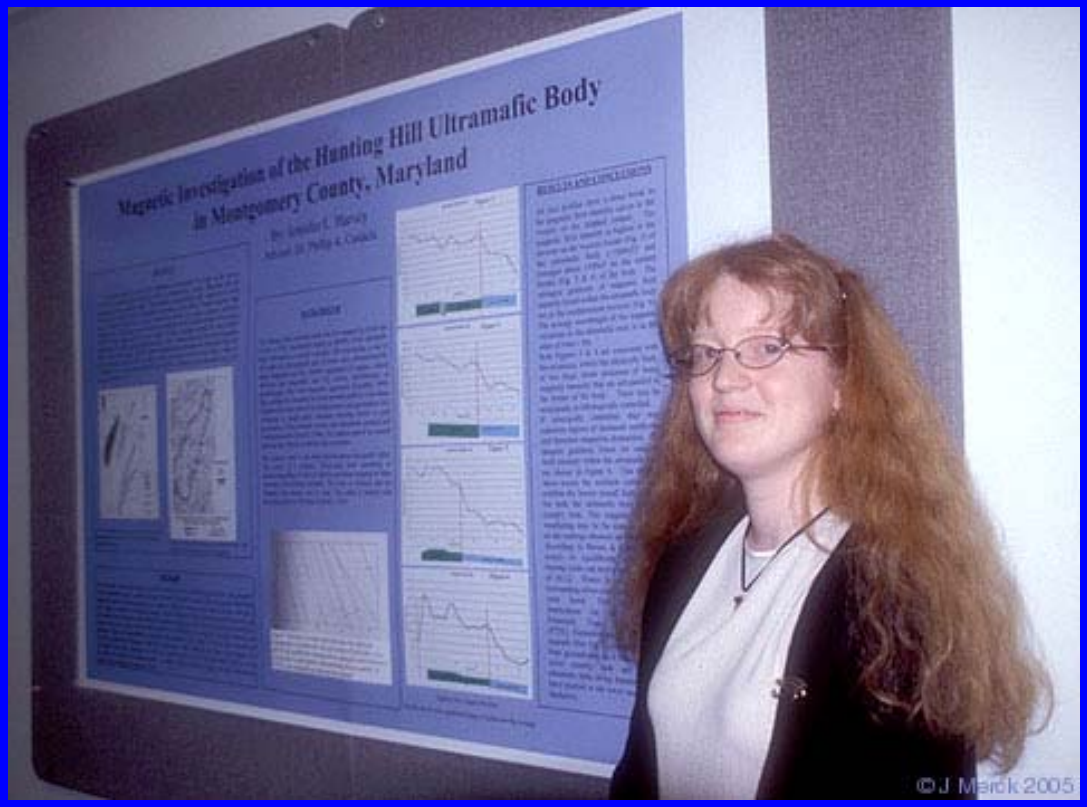
- **Learn the skills of a true scientific researcher**
- **Independently identify a significant question and design and implement a research program to address it.**
- **Master the skills of presenting results in a professional manner.**



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).**