

Graduate Studies in the Department of Geology



The Chesapeake Bay, Maryland's most distinctive geomorphic feature, was created in part by an asteroid impact some 50 million years ago.

Graduate Program

We offer programs leading to the M.S. and Ph.D. degrees. The M.S. normally requires two years, including courses, completion of a research thesis, and an oral defense. The Ph.D. commonly requires two or three years after the M.S. degree, or four to five years from the time of admission pursued directly from the Bachelor level. The Ph.D. program includes course work, a qualifying examination, dissertation, and an oral defense.

This program trains students to conduct independent and original research, most often achieved via collaboration between students and faculty. Research follows two central themes: 1) Earth's interior processes, and 2) Earth's surface processes. These areas are not mutually exclusive, and students are encouraged to develop a program that suits their interests.

Research

Interior processes

- mineralogy
- petrology
- geochemistry
- geochronology
- ore genesis
- planetary geochemistry
- structural geology and tectonics

Surface processes

- hydrology
- sedimentation
- integrated stratigraphic methods
- environmental studies
- low-temperature geochemistry
- evolutionary biology

Facilities

Mass Spectrometry Facilities

- two solid source MS
- four gas source MS including
- peripheral inlet devices for carbonate, water and organic isotope analyses
- two inductively-coupled plasma MS (multicollector and magnetic sector)
- two UV lasers for in situ analyses with plasma MS
- clean labs

Electron Microprobe Facility

- JEOL 8900 "superprobe" with an Oxford Instruments mini-CL

Computational Facility

- Sun Microsystem computer network with access to supercomputer facilities

Experimental Petrology Facility

- high-temperature and crustal pressure equipment for dry or hydrothermal experiments, including TZM and rapid quench vessels
- atomic absorption equipment
- mineral-microbiological experimentation
- automated X-ray diffractometer
- fluid inclusion stage

Hydrology Facility

- electromagnetic and Ott velocity meters
- digitizing equipment
- ion chromatograph
- laboratory and field hydrogeology equipment

Structure Facility

- color image analysis system
- microstructures and fabrics analysis
- instruments and to measure reflectance
- research microscopes
- rock preparatoin laboratories



Overturned syncline developed in deep ocean turbidites of the Neoproterozoic Otavi Group in northern Namibia. Numerical modeling in the Laboratory for Structural Geology & Tectonics is aimed at understanding the kinematic history of multilayered folds.

The Department

The department was established in 1973 and its graduate program begun in 1982. A strong sense of collegiality and cooperative spirit characterizes the Department, which currently has ~25 graduate students.

Faculty and student research focuses primarily on structural, geochemical, and petrologic investigations of tectonic and metamorphic processes; mechanisms of sediment transport; sedimentary cycling; surface, near-surface, and deep-crustal fluid flow; and laboratory, geochemical and field studies of magmatic and ore-forming processes.

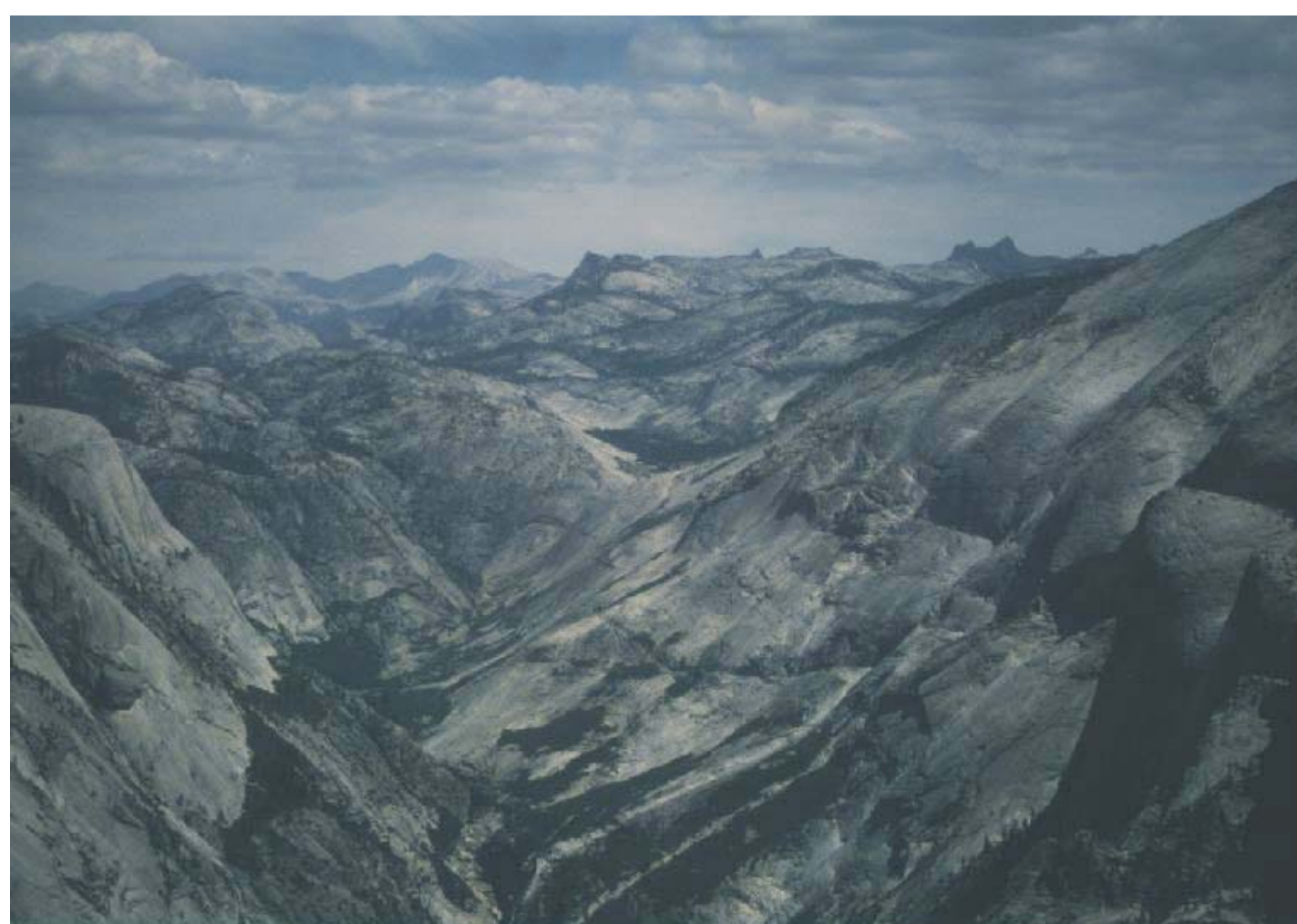
Application

A baccalaureate degree in geology, chemistry, physics, mathematics or a related science and the General Graduate Record Exam (GRE) are required. TOEFL is required of all foreign students for whom English is not their native language.

All students can apply directly to the Department of Geology by completing an application form. Alternately, students can apply electronically via the web at: <http://www.inform.umd.edu/grad/>. Students from international institutions must apply directly to the graduate school and pay the international application fee.

Financial Aid

Teaching assistantships, research assistantships, and graduate school fellowships, with 12-month stipends range from approximately \$18,342 to \$21,607 and include health care benefits and tuition remission, were available to qualified applicants in 2003-2004.



View looking northeast across the granitic T uolumne Intrusive S uite from the top of Half Dome in Yosemite National P ark. F ield area of P. M. P i ccoli and P. A. Candela