

Michigan Technological University
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Graduate School
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Michigan Technological University

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**GRADUATE PROGRAMS IN GEOLOGICAL
SCIENCES AND ENGINEERING**



Admission and Financial Support

Research assistantships, teaching assistantships, and fellowships are available. We require a completed application, statement of purpose, the verbal/quantitative/analytical Graduate Record Exam (GRE), and transcripts of undergraduate/graduate courses. A minimum of three letters of recommendation are required from faculty members or other professionals. The Graduate School also requires that international students take the TOEFL exam.

About Michigan Tech

Michigan Technological University is a leading public research university of international stature, conducting research, developing new technologies, and preparing students to create the future for a prosperous and sustainable world. Michigan Tech offers more than 120 undergraduate and graduate degree programs in engineering, forestry and environmental sciences, computer sciences, technology, business and economics, natural sciences, arts, humanities, and social sciences.

How to Apply

1. Download an application form from the Graduate School webpage.
2. Submit the completed application online, or mail or fax it to the Graduate School.
3. Track the status of your application online.

Visit the Graduate School webpage for complete details about admissions and program requirements.

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Michigan Tech

Create the Future . . .
Change the World.



MichiganTech



**GRADUATE PROGRAMS IN GEOLOGICAL SCIENCES
AND ENGINEERING**

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The Department of Geological and Mining Engineering and Sciences integrates basic and applied research and prepares graduate students for leadership in careers in the earth sciences, geological engineering, and geophysics. Faculty and graduate students address basic scientific questions, engineering applications, and societal issues through their research. The department offers the **MS and PhD in both Geology and Geological Engineering**, and an **MS in Applied Geophysics**. These programs consist of advanced course work and independent research. The department also offers the **Master's International Program in Mitigation of Natural Geological Hazards**, which includes a year of intensive course work followed by a two-year stint in the US Peace Corps.



GRADUATE PROGRAMS IN GEOLOGICAL SCIENCES AND ENGINEERING



Challenging, Flexible Programs for a Variety of Students

The department's graduate programs are challenging yet flexible, to accommodate individual needs, backgrounds, and interests. Graduate students traditionally come from undergraduate earth science programs, but the department welcomes interest from students from a range of disciplines, including engineering, physics, computer science, environmental science, and economics. Interdisciplinary graduate study is also encouraged, incorporating the natural sciences, engineering, and social sciences. Faculty and graduate students participate in Michigan Tech research centers such as the Remote Sensing Institute, the Center for Water and Society, and the Sustainable Futures Institute. Faculty also advise students in multidisciplinary PhD programs in Environmental Engineering and Atmospheric Sciences. Close interaction with industry is encouraged.

The Master's International program in Mitigation of Natural Geological Hazards is the first and only Peace Corps program of its kind. This MS-level program addresses disaster preparedness and mitigation in at-risk communities in the developing world.

- With \$2.3 million from the National Science Foundation, students in the Master's International program in Natural Hazards apply remote sensing to hazard mitigation and resource development in Central America and are building a new educational system of applied research and engineering.
- Faculty member John Gierke was named 2007 Michigan Distinguished Professor of the Year.
- Students and faculty use seismic methods to better image underground reservoirs, often working in close cooperation with industry.
- Researchers in our Subsurface Visualization Lab help companies extract oil from abandoned or nearly abandoned fields, enhancing US energy independence.

- The department is home to the Keweenaw Volcano Observatory, which maintains the Michigan Tech Volcanoes Page (www.geo.mtu.edu/volcanoes), one of the first webpages to provide information on the subject to both scientists and the general public.
- Students and faculty in the Hydrogeology Lab collaborate with environmental engineers and scientists to find ways to reduce pollution in groundwater.
- Students have easy access to Michigan Tech's Seaman Mineral Museum, the finest museum of its kind in the state and among the best in the nation.

Research

The breadth of the faculty's research reflects the complexity of earth systems and the problems arising from human-earth interactions. Research activities include development of complex computational models of earth systems; laboratory experiments analyzing earth material phenomena; analysis of remote sensing data; and field measurements of volcanologic, hydrologic, and petroleum systems. Research funding averages nearly \$3 million per year.

Facilities

The department is housed in the in the \$44-million Dow Environmental Sciences and Engineering Building. Specialized laboratories include the Laboratory for Atmospheric Remote Sensing, Subsurface Visualization Laboratory, Seismic Petrophysics Laboratory, and the Environmental Magnetism Laboratory. Due to the quantitative nature of much of the research in the department, computational facilities are especially well equipped.

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Selected Funding Agencies

- National Science Foundation
- Department of Energy
- Department of Education
- Environmental Protection Agency
- NASA



Research Areas

- atmospheric remote sensing
- environmental/aqueous geochemistry
- geochemistry and ore deposits
- mineralogy and petrology
- paleomagnetism/ environmental magnetism
- physical, environmental, and social hydrology
- reflection seismic imaging and petrophysics
- stratigraphy and basin analysis
- subsurface visualization
- volcanology
- water resources management
- watershed modeling and analysis