# EARTH SCIENCES, MA

## Contact

Gregory D. Hoke, Chair
earthenvsciences@syr.edu
204 Heroy Geology Laboratory
315-443-2672

## Faculty

Tripti Bhattacharya, Daniel Curewitz, Gregory Hoke, Linda Ivany, Christopher Junium, Zunli Lu, Jessica Mejia, Aaron Mohammed, Robert Moucha, Cathryn Newton, Joshua Russell, Scott Samson, Christopher Scholz, Jay Thomas, John Tillotson, Sam Tuttle, Tao Wen

Graduate study in the Department of Earth and Environmental Sciences offers students opportunities for field-based geological and geophysical research worldwide. Ongoing research in the Department is focused primarily in the areas of solid earth sciences/tectonics/crustal evolution, climate science and water resources/hydrology. The Department is housed in the William B. Heroy Geology Laboratory, which contains state-of-the-art analytical and computing facilities, modern well-equipped teaching spaces. All of the faculty are engaged in research and teaching.

The Department typically has a combination of students pursuing either the M.S. or Ph.D. degree. Several of our faculty-led research projects are large collaborative, multi-institutional, multi-national programs that afford our graduate students opportunities to work in diverse parts of the world with teams of internationally recognized scholars. Department faculty and graduate students are currently pursuing field studies worldwide.

## Admission

Applicants must hold a B.S. or a B.A. degree and have completed at least three Earth Science courses, such as: Paleobiology, Sedimentology, Mineralogy, Structural Geology, Geochemistry, Geophysics, Climatology, Geomorphology and/or Hydrogeology. In addition, all incoming graduate students are expected to have successfully completed a full year (2 semesters) of Calculus, Chemistry, and either Physics or Biology. Any missing coursework must be completed during the first two years of graduate study. It is recommended that applicants have already participated in a field course or approved field experience. The department admits only students that have identified faculty advisors, so it is recommended you contact potential advisors in your field of interest prior to submitting your application. GRE scores are now optional for admission and departmental support (teaching and research assistantships) for the graduate program in earth and environmental sciences. We evaluate applications based on fit with your advisor, grades and GPA, coursework, personal statement and research experience, letters of recommendation. International/non-native English speakers must present scores from one of the Syracuse University approved proficiency examinations. While we require a minimum composite TOEFL score of 85 and no sub-score below 20, competitive applicants typically have scores > 100.

## Degree Programs

The department offers programs of graduate study leading to the M.A., M.S., and Ph.D. Minimum requirements for each degree are an average GPA of 3.0 in major subjects and an overall average of 2.8.

Students who wish to continue graduate study toward a Ph.D. in Earth Sciences following a master's degree must submit a Syracuse University Graduate School application form, including letters of reference, to the department.

### Department Research Support

The department has various funds available to support graduate student travel and research.

## Facilities

The Heroy Geology Laboratory has well-equipped laboratories and graduate student offices. The department houses state-of-the-art workstation-based seismic data processing, GIS, and image-processing facilities; first-class laboratory space for clean and ultra-clean geochemistry. The department hosts two regional user facilities - the Electron Microprobe Lab (with a Cameca SXFive instrument, plus a Renishaw Raman Spectrometer) and the Multi-Sensor Core Logging Lab. Also housed in Heroy are the stable isotope geochemistry lab, the paleoclimate dynamics lab, a low-temperature geochemistry lab, a water chemistry lab and a water dynamics lab. Amongst other instrumentation are a scanning electron microscope, a number of unmanned aerial vehicles (drones) with various cameras, geophysical equipment such as ground-penetrating radar and resistivity systems, and a 384-core computing cluster. The department also has a range of sample preparation facilities.

## Student Learning Outcomes

1. Develop deeper knowledge than the BS or BA degree in the Earth Sciences, with multidisciplinary emphasis outside EAR

## M.A. in Earth Sciences

Thirty credits are required. At least 15 of these must be at or above the 600 level. The student is required to pass a comprehensive written examination. No thesis is required.