

**Department of Geology
COLLEGE OF ARTS & SCIENCES**

**SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN**

APPLICATION DEADLINE: March 1, 2014

The Department of Geology is pleased to offer the following research project for the summer of 2014. Interested students are urged to contact the faculty member(s) directing the project that most interests them. By contacting the faculty member, you can discover more about the project, learn what your responsibilities will be and, if possible, develop a timetable for the twelve-week research period.

Impacts of hydraulic fracturing for natural gas on groundwater resources in eastern Ohio

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Project Description

Hydraulic fracturing for natural gas and oil resources is gaining popularity in the United States, and in the past few years Ohio has been increasingly targeted for this process. “Fracking” may increase energy independence of the United States, and replacement of coal and oil resources with natural gas has several environmental advantages, including reducing emissions of carbon dioxide. However, many people are concerned that fracking will contribute to contamination of groundwater resources, as the process involves injection of large volumes of water into the ground to help recover gas and oil. Some studies have found that drinking water wells near fracking areas have an increased concentration of methane derived from natural gas. However, there is very little data on these groundwater resources from before fracking takes place, so it can be hard to definitively link groundwater contamination to this process.

This research project involves tracking groundwater quality along a continuum of fracking activity to assess whether fracking contributes to increased methane concentration in groundwater. We also measure concentrations of salts, acids, and other hydrocarbons in water, including benzene and other carcinogens. The WISE student will be expected to help with both field and laboratory work. Our study area is in Carroll County, Ohio: the location of the most fracking wells in Ohio.