

**DEPARTMENT OF GEOLOGY
McMicken-College of Arts & Sciences**

**SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN**

APPLICATION DEADLINE: MARCH 1, 2005

The Department of Geology is pleased to offer the following research project for the summer of 2005. 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.

Laser Raman Spectroscopy of Scale Minerals in Drinking Water Systems

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Lead and arsenic in drinking water supplies are issues of great concern for the U.S. regulatory community and for individual water utilities and are therefore areas of great current interest in the academic arena as well. Lead at the tap derives from leaching of lead from brass fittings and from solder joints in household plumbing and from dissolution of Pb minerals deposited within water lines. Arsenic is natural to many water supplies, but its behavior is strongly modified by reactions with iron deposits within drinking water pipes. A new technique for assessing the character of the Pb and Fe deposits in pipes is Laser Micro-Raman Spectroscopy. The summer project for a WISE participant will be to use this technique, in conjunction with more standard laboratory procedures, to fully characterize either Pb or Fe deposits from a water utility experiencing problems with Pb or As release.