

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

**SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN**

APPLICATION DEADLINE: MARCH 1, 2005

The Department of Biology 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.

MOLECULAR Genetics at Geothermal Temperatures

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The Grogan lab studies the genetics and molecular biology of unusual micro-organisms that thrive in geothermal environments (see www.biology.uc.edu/faculty/grogan/grog.htm). These hyperthermophilic archaea grow optimally at conditions (high temperature and low pH) that rapidly kill all well-studied organisms. They represent a source extremely thermostable enzymes for biotechnology and molecular clues regarding the early evolution of cellular life. Over the past several years, we have been able to develop simple genetic techniques for two *Sulfolobus* species, and are now combining these with techniques of biochemistry and molecular biology to investigate basic genetic processes at the molecular level. In 2005, a WISE participant would have a choice of projects that investigate the molecular genetics of these simple cells that thrive under extreme conditions. Possible research topics address the phenomena of genetic recombination or DNA repair.