

**DEPARTMENT OF BIOLOGICAL SCIENCES  
COLLEGE OF ARTS AND SCIENCES**

**SUMMER RESEARCH OPPORTUNITIES  
FOR UNDERGRADUATE WOMEN**

**APPLICATION DEADLINE: MARCH 1, 2004**

*The Department of Biological Sciences is pleased to offer the following research project(s) for the summer of 2004. 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.*

**Genetic and Molecular Biology Research**

**Professor Dennis Grogan**

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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](http://www.biology.uc.edu/faculty/grogan/grog.htm)). These hyperthermophilic archaea grow optimally at conditions of high temperature and low pH that rapidly kill all "model" organisms. They represent a source of 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 genetic techniques for two *Sulfolobus* species, and are now supplementing these with techniques of biochemistry and molecular biology. In 2004, a WISE participant would have a choice of several projects that investigate how these simple cells function under extreme conditions. The topics include i) properties of DNA exchange and recombination, ii) repair of DNA damage, and iii) targeted mutation of specific genes identified through genomic sequencing.