

**Department of Biological Sciences
COLLEGE OF ARTS and SCIENCES**

**SUMMER RESEARCH OPPORTUNITIES
FOR UNDERGRADUATE WOMEN**

APPLICATION DEADLINE: March 1, 2012

The Department of Biological Sciences is pleased to offer the following research project for the summer of 2012. 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.

PROJECT TITLE: Deleterious consequences of stress experienced before adulthood:

**Professor Daniel Buchholz
Department of Biological Sciences
832 Rieveschl
Cincinnati, OH 45221-0006
Tel: (513) 556-9725
Fax: (513) 556-5299
Email: buchhodr@ucmail.uc.edu**

Project Description

Early life experiences, such as stress, can have a profound impact on later quality of life. For example, child abuse alters an individual's response to stress as adults and increases the risk of suicide. Permanent alteration of gene expression regulating the stress response is believed to account for this phenomenon. This research opportunity will use an experimentally tractable model to better understand the molecular mechanisms of the effects of early stress on later life. Tadpoles that experience stressful rearing conditions alter the time to and size at metamorphosis, which has dramatic effects on their lifetime fitness. The WISE student will subject tadpoles to different types of stress and examine the effects on phenotype and underlying gene expression. The student will gain appreciation for stress physiology and learn broadly useful techniques to measure gene expression, such as RNA extraction, cDNA synthesis, and real-time PCR.