

**Department of Biological Sciences  
MCMICKEN COLLEGE OF ARTS AND SCIENCES**

**SUMMER RESEARCH OPPORTUNITIES  
FOR UNDERGRADUATE WOMEN**

**APPLICATION DEADLINE: March 3, 2008**

*The Department of Biology is pleased to offer the following research project for the summer of 2008. 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 GENETIC ANALYSIS OF CHEMOSENSORY BEHAVIOR IN  
DROSOPHILA**

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**Project Description**

We investigate the genetic basis of olfactory and taste behavior to understand how animals respond to chemical stimuli in their environment and how behavior is shaped by groups of genes and how genetic variation in those genes contributes to variation in behavior. The ability of an animal to identify and discriminate among odors and tastes in the environment can be critical for finding food, avoiding toxins and predators, and for mating. Previous studies have shown that odors are detected by a diverse family of odorant and taste receptors. To understand the molecular basis of variation in behavior at the level of the primary odorant and taste receptors, we investigate how genetic variation in these receptors contributes to variation in olfactory perception using the fruit fly, *Drosophila melanogaster*. The student would participate in this project and learn to identify molecular variants in odorant receptors using molecular techniques such as DNA extraction, PCR, and DNA sequencing. In addition, the student would be involved in the design of behavioral experiments and measurement of behavioral responses of fruit flies to different odors and tastes.