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

**SUMMER RESEARCH OPPORTUNITIES**
**FOR UNDERGRADUATE WOMEN**

**APPLICATION DEADLINE: March 1, 2011**

*The Department of Biological Sciences is pleased to offer the following research project for the summer of 2011. 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: Green roofs for urban water quality

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### Project Description

**In the face of increasing urbanization throughout the world, urban stormwater runoff management is one of the major environmental issues of the current era. In Cincinnati and many other cities with combined sewer and stormwater drainage, excess water during storm events exceeds the capacity of water treatment plants, causing problems for rivers downstream. In addition, stormwater runoff often contains pollutants from fertilizers, roads, rooftops, and the atmosphere, which add to the environmental strain on the receiving waters. Green infrastructure (GI) is taking hold as an alternative/supplementary approach to managing stormwater in urban areas, in additional to more traditional grey infrastructure. Green roofs are one example of GI which can confer multiple benefits, including the retention/delaying of stormwater, and the filtering out of nutrients and other pollutants from precipitation. While it is known that green roofs can retain 60-70% of precipitation and release the water as evapotranspiration, there have been very few studies of nutrient and pollutant retention or release by green roofs. The goal of this summer project is to get at this issue by creating a nutrient (nitrogen and phosphorus) input and output budget for several local green roofs and traditional roofs. This will involve a combination of field work (monitoring precipitation, installing water samplers, taking water samples), lab work (analysis of nutrient concentrations) and computer work (budget calculations). An organized, reliable, self-motivated individual with analytical skills and ideally some experience with chemistry will be a good fit for this project.**