College of Engineering  
Summer Research Experience for Undergraduates Program  

Request for an Engineering Student for Summer 2011 Research

Faculty Name ________ Mi-Hyun Park_____________________________________

Phone _____             (413) 545-5390___________________________________________

Department  _Civil & Environmental Engineering_ Email: __mpark@ecs.umass.edu__

Brief description of Summer Research Project (please explain the interdisciplinary nature of this project).

This project will investigate the stormwater pollution and the performance of stormwater best management practices (BMPs) in different environmental settings. The task involves statistical analysis and geographic information system analysis (GIS) to characterize the quality of stormwater runoff in different areas, and to evaluate the performance of different type of BMPs and their relationship with the drainage areas and stormwater runoff characteristics. The results will be used to understand the effect of different geographical, meteorological, and environmental settings to stormwater quality; to develop effective stormwater management strategies specific for the site, and; to facilitate the development of technology-based numerical effluent criteria. This is interdisciplinary research among environmental engineering, natural resources conservation, and urban planning for sustainable watershed management.

Brief description of what the student will be doing:

The student will collect data from National Stormwater Quality Database and ASCE BMP database among others for the selected watersheds in New England and Southern California. The student will perform statistical analysis such as multivariate regression and GIS analysis to develop a model to describe the relationship among different environmental factors, stormwater quality, and BMP effluent concentrations. For further study, the student will examine how the implementation of BMP changes the surface water quality in the watersheds.

Is this a CASA-related project?  Yes ___ No __

Preferred background of student (major(s), class, GPA, pre-requisites, etc.):

The student majoring in Civil and Environmental Engineering with GPA>3.0 will be preferred. Preferred pre-requisite: Basic Statistics and Computing. The student with GIS skills is desirable but not required.

Did you mentor a student last summer in the College REU Program?  
Yes ___ No ___
If yes, please describe the outcomes for that student (i.e. Honor’s thesis, conference presentations, manuscripts, papers, etc. Describe accomplishments to date as well as plans for the spring semester if the work has continued):

The following is the outcomes from REU project in 2010:

- Continuing project as an independent study in fall 2010 and spring 2011
- Poster presentation at 8th Annual Massachusetts Water Resources Conference, Thursday April 7, 2011, Amherst, MA, submitted
- Journal papers on extract land use components from aerial photography and their relationship to stormwater pollution, in preparation

Please return this form to:

Lorraine Robidoux,
REU Program Coordinator
129 Marston Hall

By Friday, February 15, 2011