College of Engineering
Summer Research Experience for Undergraduates Program

Request for an Engineering Student for Summer 2012 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 spatial and temporal distribution of harmful algal blooms (HABs) in New England waters. The task involves remote sensing, geographic information system analysis (GIS) and statistical analysis using historical data. This study will develop a satellite algal model by assessing relationships between in situ measurements including chlorophyll a/algae biovolme and satellite reflectance measurements in order to estimate HABs. A time series monitoring using multiple satellite image data will be assessed to give a continuous record of water quality. The results will be used to evaluate the predictive ability of the satellite model and its use in the early detection of HABs.

Brief description of what the student will be doing:

The student will collect archived satellite images that coincide with in situ data in Lake Champlain. The student will learn and conduct remote sensing and GIS analysis and multi linear regression to develop an algal model.

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 or related areas with GPA>3.0 will be preferred. The student who has an experience with statistical analysis, ArcGIS, ENVI will be 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, April 7, 2011, Amherst, MA

Joint paper for peer-review journal, in preparation

The following is the outcomes from REU project in 2011:

- Poster presentation at 9th Annual Massachusetts Water Resources Conference, April 2012, Amherst, MA, will be submitted

Please return this form to: lrobidou@ecs.umass.edu by February 3, 2012