College of Engineering
Summer Research Experience for Undergraduates Program

Request for an Engineering Student for Summer 2013 Research

Faculty Name ______Caitlyn Butler_________________________________________

Phone _____5-5396________________________________________________________

Department ___CEE_______________Email: ___cbutler@ecs.umass.edu_______________

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

It is estimated that nearly 1 billion people lack access to adequately sanitation facilities globally. Untreated waste threatens water bodies used for drinking water as well as natural ecosystems. Microbial fuel cells (MFCs) have the potential to produce electricity directly from the human waste. This project includes the operation and evaluation of a lab-based pilot MFC that mirrors a pilot demonstration deployed, of the Green Latrine, an MFC that generates enough power to sustain a light in Ghana, Africa. Integrating principles of environmental reactor design, electrochemistry, and microbiology, the remediation of organic and nitrogen contaminants will be investigated and the microbial ecology of the biofilms associated with the electrode will be examined.

Brief description of what the student will be doing:

The student will be working closely with graduate students to monitor removal trends for waste contaminants and will perform PCR-based techniques to explore the microbial community of the electrode-associated biofilms. The student will also be responsible for the analysis of the data they collect.

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

Preferred background of student (major(s), class, GPA, pre-requisites, etc.):
Chemical, Civil or Environmental Engineering.
It would be beneficial if the student has completed an Introduction to Environmental Engineering and it would be a plus if the student has taken a microbiology class. Neither are required but both would be desirable.

Did you mentor a student last summer in the College REU Program?
Yes_____  No _X_

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):

Please return this form to: lrobidou@ecs.umass.edu by February 1, 2013