College of Engineering  
Summer Research Experience for Undergraduates Program  

Request for an Engineering Student for Summer 2013 Research  

Faculty Name ___Susan C. Roberts_____________________________________________

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Department _____ChE_____________Email: __sroberts@ecs.umass.edu______________

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

Measuring the Mechanical Properties of 3D Cell-Seeded Biomaterials: The Roberts laboratory in Chemical Engineering is interested in understanding how the environment surrounding a cell or cell cluster impacts the cell's function and behavior. Specifically, we are working to develop methods to understand how mammalian cells interact with 3D biomaterials and how these biomaterials can provide an optimal environment for cell growth and function. To assist in these efforts, an REU student would be given a project focused on measuring mechanical properties in 3D cell-seeded biomaterials. This research is highly interdisciplinary, involving the fields of engineering, polymer science, biology and medicine. We routinely work with (and in) the Crosby laboratory in Polymer Science & Engineering and therefore the REU student will experience the culture and techniques of labs from multiple disciplines.

Brief description of what the student will be doing: The student would work closely with a graduate mentor to learn the techniques necessary to culture mammalian cells, create 3D biomaterials, and analyze biomaterial integrity over time using a variety of polymer characterization techniques. Then, in collaboration with current efforts in the lab, the student would be able to relate these material properties to encapsulated cell function.

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

Preferred background of student (major(s), class, GPA, pre-requisites, etc.): Chemical engineering junior with high GPA and research experience.

Did you mentor a student last summer in the College REU Program?  
Yes__X___ 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): I have mentored students in the past and all have presented at conferences and some have published work in collaboration with graduate mentors. Two students completed their honors theses in my laboratory.

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