

**Department of Mechanical and Materials Engineering  
COLLEGE OF ENGINEERING AND APPLIED SCIENCE**

**SUMMER RESEARCH OPPORTUNITIES  
FOR UNDERGRADUATE WOMEN**

**APPLICATION DEADLINE: March 2, 2015**

*The Department of Mechanical and Materials Engineering is pleased to offer the following research project for the summer of 2015. 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.*

**EXPERIMENTAL STUDY OF BIO-PRINTING (3-D PRINTING OF LIVE CELLS)**

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**Project Description**

**Overview:** The primary goal of this research is to explore bio additive manufacturing experimentally on an in-house made bio-printer. The student will be studying the process parameters related to the 3D printing that influence the cell viability and proliferation. Integration of the syringe pump that dispenses the cells and stage control for the positional accuracy will be established through the use of instrument control software such as LabVIEW. The student will learn to operate with biological samples and will work *hands-on* with the in-house built 3D printer. The student will be encouraged to publish the findings of the research in a conference and/or journal publication.

**Specific objectives:**

- 1. Understanding the principles and operation of bio-printer.**
- 2. Process control through the integration of all the instruments in the 3D Printing system**
- 3. Bio-printing feasibility studies**

**Background requirements: Biomedical Engineering background is preferred.**