UNIVERSITY OF LOUISIANA AT LAFAYETTE

STEP Committee

Technology Fee Application

Maker Laboratory for Montgomery Hall
Title

Ryan Simon and Yu Wang
Name of Submitter
(Faculty or Staff Only)

Department of Chemistry
Organization

Title: Maker Laboratory for Montgomery Hall Date: 1/17/2017

Name (Contact Person): Ryan Simon
Address: P.O. Box 44370, Lafayette LA 70504
Phone Number: (337) 482-5081 Email: ryansimon@louisiana.edu
Department/College/Org: Chemistry

ABSTRACT (250 words or less):

The purpose of this proposal is to acquire the equipment necessary to create a maker laboratory for chemistry students as well as the general student body at the University of Louisiana at Lafayette. The equipment will consist of a LulzBot TAZ 6 3D Printer and a Protocycler filament extruder. The equipment will allow students to learn about polymer manufacturing, create novel molecular models, and recycle every day plastics into usable materials. The maker laboratory will be open to all students and will be housed in Room 120 of Montgomery Hall.

A. Purpose of Grant and Impact to Student Body as a Whole

The purpose of this proposal is to acquire one Lulzbot TAZ 6 3D Printer, 4 rolls of Gizmo Dorks 3mm ABS filament, and one Protocycler filament extruder for the creation of a maker laboratory in Montgomery Hall that will be available for the general student body. The equipment will be placed in Room 120B of Montgomery Hall and will be available to all students. The maker laboratory will be a useful educational tool that will teach students about polymers, industrial chemistry, prototyping and recycling.

The equipment will be placed in Room 120B of Montgomery Hall. This room was recently renovated thanks to SGA funds. Students from all majors currently use the room to study. It is equipped with new computers, a new printer, new projector, tables and whiteboard. The maker equipment would finish the overall vision of the room as a place to study, explore, and discuss the sciences.

Each semester, roughly over 500 students take the general and organic chemistry laboratories in Montgomery Hall. Roughly another 1600 students take traditional face to face classes in general and organic chemistry. When other classes that take place in the building are factored in, over 2000 students pass through Montgomery Hall each semester. The proposed maker lab would be available to sizable portion of our student population.

The goal of creating a maker lab for the students is to allow students to learn about polymer manufacturing, create novel molecular models, and recycle every day plastic materials into usable materials. Polymers, and polymer manufacturing, is a large supplier of jobs for our student population. Currently, polymer education in the chemistry department is spread out among many classes and not the focus of any one course. Starting in the fall of 2017, the first chemistry polymer course will be offered. A maker lab with a 3D printer and filament extruder would allow the students in the newly designed class to experience prototyping of polymer based structures and have hands on experience with polymer characteristics. The filament extruder would allow the students to create their own starting materials as well as recycle all plastic materials. Recycling materials that could be used include but not limited to 3D structures and supports, bottles, coffee lids and polymer beads. The equipment would be available to all students to use, not just those in the class or chemistry majors.

If the funds are approved, the equipment will be purchased and placed into room 120B of Montgomery Hall until renovations can be completed on 120A. The submitters will be responsible for all set up, training and routine maintenance of the equipment. The lab will be used by students, instructors, and professors for many years to come.

B. Projected Lifetime of Enhancement

The projected lifetime of the instruments requested is over ten years.

C. Person(s) Responsible for:

Implementation: Ryan Simon
Installation: Ryan Simon
Maintenance: Routine maintenance covered by the Department of Chemistry
Operation: Faculty of the Department of Chemistry, Chemistry Students and the General Population of the University of Louisiana at Lafayette
Training: Faculty of the Department of Chemistry

Budget Proposal

1.	**Equipment**	**$ 3649.79**

The list price of one Lulzbot TAZ 6 3D Printer is 2500.00(Amazon.com). The list price for each Gizmo Dorks 3mm ABS filament 1kg spool is 24.95(Amazon.com), for a total price of 99.80. The total from Amazon.com is 2599.80. The list price for a Protocycler is 1049.99(redetect.com). The total cost of all equipment is 3649.79

2.	**Software**	**$ 0**

Software is included with the equipment

3.	**Supplies**	**$ 0**

Future supplies beyond the initial plastic order will be supplied by the Department of Chemistry and the American Chemical Society Student Chapter.

4.	**Maintenance**	**$ 0**

Routine maintenance will be covered by the Department of Chemistry

5.	**Personnel**	**$ 0**

No additional personnel required.

6.	**Other**	**$ 0**

None

TOTAL:	**$ 3649.79**

Other Relevant Information

None

Previous STEP projects

Ryan Simon has received funding for the Organic Chemistry Laboratory in January of 2016 and Chemistry Laboratory and Demonstration Equipment Grant Proposal in July of 2016 with STEP.