

UNIVERSITY OF LOUISIANA AT LAFAYETTE

STEP Committee

Technology Fee Application

Compound Microscopes for Teaching
Laboratories in the Department of Biology

Title

**Sherry Krayesky-Self, William Schmidt &
Paul Leberg**

Name of Submitter
(Faculty or Staff Only)

Department of Biology

Organization

Title: Compound Microscopes for Teaching Laboratories in the Department of Biology Date: 7-14-17
Name (Contact Person): Sherry Krayesky-Self
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Department/College/Org: Department of Biology, College of Science

ABSTRACT (250 words or less):

Microscopes are associated with biologist as wrenches are associated with mechanics. There is no tool or piece of technology that could replace the microscope in a biology lab. Microscopes are precision instruments that must be maintained and replaced regularly. Furthermore, there are regular advances in the quality of the images produced by newer microscopes. The Department of Biology employs professionals that clean and repair our microscopes every three years. However, our compound microscopes have reached a point where half of them cannot be repaired effectively. Our students need to see the structures we are describing, and should not have to share microscopes or work with broken equipment. This grant is requesting new compound microscopes for most of the teaching laboratories in the Department of Biology.

a. Purpose of grant and impact on student body as a whole:

Due to an antiquated and partially inoperable compound microscope collection, we are requesting 120 Olympic cx23 compound microscopes, half (60) with 100x objectives. The objectives on a microscope determine the magnification. 100X objectives are required to visualize important cellular structures in advanced biology courses. These microscopes will be distributed to seven different laboratories, two rooms in Wharton hall [VLW] (406 and 411) and five rooms in Billeaud hall [BLD] (113, 115, 123, 124 and 239). Six of the laboratories will be equipped with 15 new compound microscopes and will keep 15 old, but functional microscopes. Room 115 BLD (the freshman biology lab) will be equipped with 30 new compound microscopes. The freshman labs that are taught in rooms 113 and 115 BLD, service on average 26 sections, 19 for biology 112 and 7 for biology 111. Each section of these courses seats 26 students. These classes are taught fall and spring semesters, and in the summer. This means in the freshman labs alone at least 1,352 students will use these instruments two or three times in an academic year. The compound microscopes will be used over several years. Therefore, the microscopes will have an effect on thousands of students as a whole. In room 123 BLD laboratories for Histology, Plant anatomy and Parasitology are taught. These lab courses have seats for 28 to 30 students in each section, approximately 150 students a year using the microscopes once a week. Anatomy is taught in room 124 BLD. There are 11 – 15 sections a semester, including summer. The microscopes in this room will be used 3 to 4 times a semester by 936 students in a year. Room 239 BLD houses advance courses like Invertebrate Biology, Entomology and Oceanography. There are fewer students in these labs, however; the microscopes are used extensively twice a week all semester long. In rooms 406 and 411 of VLW Microbiology, Marine Botany and other advanced 300 – 600 level classes are taught. Again, fewer students take these classes during a single semester, but the microscopes are used exhaustively during each laboratory exercise.

b. Projected life time of enhancement:

Microscopes remain effective for 10 to 15 years, especially if they are cleaned and repaired every three years. Ninety Olympus dissecting microscopes were purchased with STEP funds in 2006. They are still working well today. Compound microscopes are more delicate than dissecting microscopes, but it is reasonable to assume any microscope will last at least 7- 9 years. Olympus microscopes are built to endure the challenges of students who are learning how to use these precision instruments, and unlike other brands Olympus replacement parts are easy to obtain. Olympus is a student friendly company and has been in business for years.

- c. Person responsible for, implementation, installation, maintenance, operation and training:

Dr. Kraysky-Self has obtained a quote from Hunt Optics and Imaging. This company is an authorized dealer of Olympic microscopes and services their products after the sale. Compound microscopes are tools that biology instructors and professor know how to use. The instructors and professors will be teaching students to use these tools as well. There is no implementation or installation required and the department has regularly scheduled maintenance every three years.

- d. Justification:

The following classes are taught in one or more of the laboratories we plan to equip with new microscopes: Freshman Lab for majors semester 1 and 2, Non-majors lab, Anatomy, Physiology at several levels (200, 300 and 400), Histology, Marine Botany, Plant physiology, Plant anatomy, Oceanography, Invertebrate biology, Microbiology, and Herpetology. Each of these labs holds 10 to 30 students. These courses are taught every semester or every academic year. The ability to see cells and tissue in an organism is mandatory when learning biology. Effective equipment will improve the success of all students in biology laboratory courses.

Previously funded STEP grant are:

2016: STEP Grant: *Specialized research equipment is required for undergraduate research activity in marine biology (phycology/marine botany)*: \$34,675.00

2006: STEP Grant: *Stereomicroscopes (Dissecting microscopes) for upper and lower division student laboratories in the Biology Department*: \$181,253.40

2006: STEP Grant: *Computers required for Biology Study Room-Computer Lab*: \$8,744.00

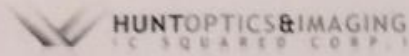
2005: STEP Grant: *Technological Enhancement of the Biology Freshman/Sophomore Laboratories*: \$80,899.00 (complete remodeling of laboratory room 115 in Billeaud hall)

Budget Proposal

1.	Equipment	\$ 126,973.27 [see attached quote]
2.	Software	\$ 0.00
3.	Supplies	\$ 0.00
4.	Maintenance	\$ 0.00
5.	Personnel	\$ 0.00
6.	Other	\$ 0.00

TOTAL: **\$126,973.27**

Copy of quote from Hunt Optics and Imaging



**** Optics * Imaging * Confocals ****

490 Lowries Run Road
Pittsburgh, PA 15237

Phone 800-433-1749

Fax: 877-768-1984

Quote No: 2017-ABD-919 - 1

1/10/2017

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*Email all Purchase Orders to
Orders@BBMicro.com*

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Olympus CX23

Catalog No.	Product Description	Qty	Price	Extension
1 CX23LFS1	CX23LEDRFS1; CX23,BI,4/10/40/100XOB,EYEP,RTSTG,LED	60	\$1,349.46	\$80,967.60
2 CX23LFS2	CX23LEDRFS2; CX23,BI,4/10/40XOB,EYEP,RTSTG,LED	60	\$1,114.00	\$66,840.00
3 UYCP-11	UYCP-11;US STYLE 3-PRONG POWER CORD	120	\$15.00	\$1,800.00
4 B-0681	POINTER;EYEPIECE POINTER WITH SHARPENED POINTS FOR CH2,CH30	120	\$3.00	\$360.00
5 shipping & Installation		1	\$3,250.00	\$3,250.00
			Subtotal:	\$153,217.60
			Discount:	\$26,244.33
			TOTAL:	\$126,973.27