UNIVERSITY OF LOUISIANA AT LAFAYETTE

STEP Committee

Technology Fee Application

High Impact Media in Freshman Biology
Title

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Name of Submitter
(Faculty or Staff Only)

Department of Biology
Organization

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ABSTRACT (250 words or less):

High Impact Practices (HIPs) are course activities designed by faculty to deepen learning (https://www.aacu.org/leap/hips). HIPs include student-centered, collaborative projects such as first-year experiences and course-based undergraduate research. Our large freshman biology lecture and lab courses for majors (BIOL 110/111/112/113) enroll about 2000 UL Lafayette students per year, about 20% of the entering freshman class. These courses incorporate a variety of HIPs such as team projects that extend the biology topics to the real world. Producing durable media such as videos is a powerful way for students to document their experience and externalize their understanding. Some media that have been produced by freshmen thus far explain the genetics of Acadian Usher Syndrome (deafblindness), the plants and ecology of the Cajun Prairie, and the biology of our class mascots Indian Grass and Poison Ivy. To date, students have only had their phone cameras and basic editing freeware to produce these media, which limits their quality and therefore their audience and impact. This proposal to STEP requests a professional digital camcorder and editing station to allow students to produce high-quality learning artifacts. The equipment will also be used to document BIOL113's *Campus Habitats* research project studying the ecology of Cypress Lake, Hamilton Pollinator Garden and other campus sites, and the two Biology sections of UNIV100 (The Darwins and the Biology of Cajun Food).

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

   The evidence is unequivocal: learning is deeper and longer lasting, and students are more likely to persist in challenging courses when they have ownership, accountability to a team and a bigger purpose than just their own grade. Course activities designed by faculty to offer these rich learning experiences are called High Impact Practices (HIPs) (https://www.aacu.org/leap/hips). HIPs include student-centered, collaborative projects such as first-year experiences like UNIV100 and course-based undergraduate research like the BIOL113 *Campus Habitats* project.

   The purpose of this grant is to provide freshmen in large-enrollment biology lecture and lab courses recording and editing tools needed to document their high impact experiences in high-quality media formats. This proposal requests funding for:

   - entry-level professional digital camcorder: Canon EOS REBEL T7i digital camera with 135 mm lens with case ($1000) and accessories: extra battery pack ($53), 5 tB external hard drive ($150), tripod ($50), RODE microphone and deadcat (for outdoor recording) ($150), 64 GB SD cards (x 3, $100)
   - editing station: Desktop computer with sufficient storage and processing speed for data intensive applications ($1230 from IT/PC Depot) and Adobe Premiere Pro 3-year license, university rate for one device ($900)

Freshman biology lecture/lab for majors (BIOL 110/112 and 111/113) enroll up to 1800 UL Lafayette students annually—about 20% of the entering freshman class. Here and nationally, the rates of first-time success in science courses is lower than for other freshman courses. It is well documented that success if more likely when students feel that they belong in the academic community and can see connections between their textbook learning and the real world. This has led the Office of First-Year Experience to offer discipline-focused UNIV100 sections (Darwins and The Biology of Cajun Food) and a Living, Learning Community for biology. Nationally, biology faculty have collaborated to produce influential recommendations for HIPs such as team-based learning and course-based research (visionandchange.org).

It is often assumed that it is not practical to offer HIPs in large enrollment lecture and lab courses. However, I have offered the following opportunities for students in freshman biology over the past six semesters at UL Lafayette, and the option for students to document their learning by producing digital media about them:

- Work days at the UL Ecology Center for PureNative seed produced for Cajun Prairie restoration and at Billeaud Hall
- Bird Mortality study surveying dead birds around Wharton and Billeaud Halls
- Greaux Something garden with Biology Society
- Exam review tours of plant diversity on campus
- Growing Acadian Brown Cotton from seed
- Visiting Wiggs' DNA sculpture near campus
- Volunteering or participating in local 5K/10K and symposia to support gene therapy research on Acadian Usher (deafblindness) Syndrome
- Team visits to research posters outside research labs and interviewing authors

The production of media to document these experiences is cognitively challenging: decisions about the narrator's script and what clips to include and exclude require the highest levels of critical thinking in Bloom's Taxonomy, synthesizing, evaluation and creation. Some media produced thus far can be seen at https://ourbio.org/ourprojects/ and the UL Lafayette Biology Department's Facebook page. These are optional ways to earn assignment points (not bonus), along with online homework, quizzes and clickers. In every case, only those students who had their own cameras and access to editing tools could take advantage of these assignments. Most of their cameras have been smart phones, and editing tools have been limited to open source apps or software. This leads to a wide range in product quality due to limitations of resolution, transfer and storage. Any compromise to quality reduces the likelihood of sharing and therefore limits impact.

The videography and editing equipment also will be used in BIOL113 labs, the second required lab course for biology majors. This is a multiple section course: 6-8 sections of 26 students per section are taught every semester, for a total of about 360 students per year. In an effort to introduce students to research early, Dr. Griffard and the teaching assistant team have successfully piloted a course-based undergraduate research experience (CURE) in all sections of BIOL113. The *Campus Habitats* project is a longitudinal ecological study of sites on the UL Lafayette main campus, including Cypress Lake and the Hamilton pollinator garden. Student teams in Spring 2018 collected data to answer research questions like *Do different weather variables affect the number of turtles basking in Cypress Lake?* and *What is the phenology of 5 plant species in the pollinator habitat?* Some research questions required photography and videography. The 113 lab has a wildlife camera and time-lapse

camera for these projects, but no still/video camera or editing suite to manage and edit these digital data. Having an editing suite would allow the incorporation of this nature footage into presentations.

The UNIV100 biology sections (Krayesky-Self's Darwins and Griffard's Biology of Cajun Food), which enroll about 50 students this fall, can use this equipment to document their field trips to LUMCON and Vermilion Parish, respectively, and cooking activities in Biology of Cajun Food.

2. Projected lifetime of enhancement-As long as equipment is in good condition and up to date (5-10 years). Editing software subscription requested for three years, unless longer term is possible.

3. Person(s) responsible for
    a. Implementation: Phyllis Griffard in consultation with Moving Image Arts faculty Conni Castille and Virgile Beddock
    b. Installation: camera-Phyllis Griffard and student assistant; computer and software-IT Services
    c. Maintenance: camera- Phyllis Griffard and student assistant; computer and software-IT Services
    d. Operation-Biology students and faculty, with permission of and after orientation by Phyllis Griffard, Sherry Krayesky-Self and student assistant
    e. Training (with qualifications)-Adobe Premiere Pro user support, other UL Lafayette users

Budget Proposal

1.	**Equipment**	**$2633**
2.	**Software**	**$900**
3.	**Supplies**	**$100**
4.	**Maintenance**	**$0**
5.	**Personnel**	**$0**
6.	**Other**	**$0**
TOTAL:		**$3633**