

## **Project Year**

2007

## **Project Team**

Kristina Obom, Faculty, Advanced Academic Programs, Krieger School of Arts & Sciences; Patrick Cummings, Faculty, Advanced Academic Programs, Krieger School of Arts & Sciences; Rebecca Pearlman, Lecturer, Biology Department, Krieger School of Arts & Sciences; Carolyn Norris, Senior Lecturer, Biology Department, Krieger School of Arts & Sciences; Robert Horner, Senior Lecturer, Biology Department, Krieger School of Arts & Sciences; Grace Maldarelli, Student, Krieger School of Arts and Sciences; Erica Hartmann, Student, Krieger School of Arts and Sciences

## **Project Title**

Virtual Lab Demonstrations for Biology

## **Audience**

Students taking General Biology Laboratory I & II, Biochemistry Laboratory, and Developmental Biology Laboratory offered by the Biology Department, and several lab offerings in the Advanced Biotechnology Studies Program within the Krieger School of Arts & Sciences.

## **Pedagogical Issue**

Biology laboratory classes are designed to teach concepts through experiential learning. Students who have never performed a technique must be guided through the process; hence visual demonstration of laboratory procedures is a key element in teaching pedagogy. Preparation for the laboratory can increase the success rate of the experiment and active learning outcomes. While students can read about a procedure before class, there is no resource available to view the procedure before class.

## **Solution**

The purpose of this project is to capture various laboratory techniques and skills on videotape with narration so students may review in preparation for laboratory sessions.

## **Technologies Used**

Digital Audio, Digital Video, HTML/Web Design, Courseware (WebCT development)

## **Project Abstract**

Biology laboratory classes are designed to teach concepts through experiential learning. Students who have never performed a technique must be guided through the process; hence visual demonstration of laboratory procedures is a key element in teaching pedagogy. Currently, students observe demonstration of lab techniques in the teaching lab where viewing is inadequate because of space constraints and there is no opportunity for review. The success of laboratory learning is directly related to how well the experiment is performed; therefore preparation for the laboratory can increase the success rate of the experiment and active learning outcomes. While students can read about a procedure before class, there is no resource available to view the procedure before class. The purpose

of this project is to capture various laboratory techniques and skills on videotape with narration so students may review in preparation for laboratory sessions. The videotaped procedures will be incorporated into General Biology Laboratory I & II, Biochemistry Laboratory, and the Developmental Biology Laboratory offered by the Biology Department, and several lab offerings in the Advanced Biotechnology Studies Program within the Krieger School of Arts & Sciences. In addition, all the videotaped procedures will be available to the JHU community and beyond through the Biology Department website. JHU undergraduates who are engaged in research will find the videos beneficial in preparation for lab experiences and rotations. The technology in this project will be videotaping; narrating and editing laboratory techniques that will be available to faculty to use in their courses. The laboratory technology includes basic techniques as well as advanced techniques, which can supplement didactic learning in both laboratory and classroom based courses. By the conclusion of the project we will capture 15 techniques that can enhance the current classroom curriculum.