Project Year
2010

Project Team
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Project Title
Video and Animations for Organic Chemistry Labs

Audience
Students in the Organic Chemistry Labs, over 400 students each academic year

Pedagogical Issue
Students in the organic chemistry laboratory need to be able to develop good lab technique in order to carry out the experiments properly. Furthermore, they should gain an understanding of the purpose behind each technique and what is happening at the molecular level while they are performing the technique. When students have a better understanding of what is happening at the molecular level, they are better able to carry out their experiments in the laboratory. Currently students prepare to conduct their experiments by reading the textbook which contains schematic diagrams, and viewing still photographs of the laboratory setups. Videos are superior to demonstrations by teaching assistants because they allow the students to watch as many times as necessary to feel prepared and they allow close up views that are not possible during a demonstration.

Solution
In order to help students in the organic chemistry laboratory carry out and understand the how to perform certain laboratory techniques, and the rationale behind the steps of the technique, a series of videos and animated clips will be developed. The videos will demonstrate the laboratory techniques and will be shown in lecture and be available on the course Blackboard site for students to review before performing an experiment. The videos are superior to demonstrations by the teaching assistants because they allow students to view the materials as frequently as necessary to feel comfortable, and close views of the experiment are available. The animated clips will show how various molecules are moving during these techniques to increase student's understanding of what they are accomplishing in the lab.

Technologies Used
Digital Video, Digital Audio, Flash Animation, Adobe After Effects

Project Abstract

In order to help students in the organic chemistry laboratory carry out and understand the how to perform certain laboratory techniques, and the rationale behind the steps of the technique, a series of videos and animated clips will be developed. The videos will demonstrate the laboratory techniques and will be shown in lecture and be available on the course Blackboard site for students to review before performing an experiment. The videos are superior to demonstrations by the teaching assistants because they allow students to view the materials as frequently as necessary to feel comfortable, and close views of the experiment are available. The animated clips will show how various molecules are moving during these techniques to increase student's understanding of what they are accomplishing in the lab. The effectiveness of these videos and animated clips will be evaluated by comparing course evaluation data asking students how well they understood what they were supposed to do in lab and how well they understood why the y were supposed to do it. The answers to these questions, as well as the percentage of students correctly answering questions related to these issues on the final exam will be compared between the current group of students and the group of students that are taught with the video and animated clips