

Project Year

2012-2013

Project Title

Visual Communication of Safe Laboratory Behaviors

Project Team

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Audience

The products of this project will be used in the course 540.490, *Chemical and Laboratory Safety*, a course for sophomore Chemical & Biomolecular Engineering students. It is anticipated that these videos will be used for 500.401, *Research Laboratory Safety*, and for laboratory safety Blackboard modules to be prepared for KSAS.

Pedagogical Issue

Most courses covering laboratory safety do so in a dry manner often employing a “preachy” talking-head reading PowerPoint slides. The impact of such presentations is limited since a lecture/PowerPoint format cannot show live action or “real-world” performance of safety equipment and practices. Even “safety storytelling” by researchers who have experienced incidents is difficult to manage in a lecture environment, given the coordination with guest speakers who have limited availability. While multimedia such as video can provide an immediate, effective presentation, available video resources are general and not directed toward an educated (but short-attention-span capacity) audience such as undergraduates.

Solution

We propose to improve classroom impact of certain laboratory safety topics by incorporating live digital video illustrations of correct application of laboratory safety techniques, as well as the consequences of incorrect behavior, into classroom presentations and online course materials. Examples will include a short film illustrating how improper use of a chemical fume hood results in the researcher inhaling possibly-hazardous chemicals, and a “Discovery-Channel-Style” set of interviews with researchers who have experienced real-world laboratory incidents and near-misses.

Technologies Used

Digital video recorders

Final Cut Pro

Faculty Statement

In collaboration with a skilled undergraduate, we will make two or more videos addressing “real-world” laboratory safety topics to increase the impact of current lectures. The proposed materials will make safety more accessible by showing why safe work practices exist and illustrating the consequences of inattention to safety (through carefully-scripted live action and/or through personal stories).

The resulting materials will have an extended impact on the Homewood research community, both undergraduate and graduate. While I am proposing this production for sophomores in 540.490 *Chemical and Laboratory Safety*, upper-level undergraduates and graduate students will also benefit, as the materials will also be of use in courses aimed at those populations. I envision the upper-division class 500.401 *Research Laboratory Safety*, becoming required for all entering graduate students. Realizing this vision requires producing the highest quality materials to convince the academic departments to introduce the requirement.

I intend to distribute the products as widely as possible by incorporating them into individual training modules intended for all Homewood science & engineering students (and PIs) to be provided via Blackboard; I will also arrange for distribution on the new Homewood Lab Safety webpages. This electronic availability and the use of the materials in class will continue beyond the end of the fall 2012 semester. Depending upon the suitability of the final product, the videos may also be made available to the wider academic community via YouTube, and if the project is successful, I intend to extend the video series to other topics.