

### **Special General Seminar # 1: Lab Safety**

Speaker: Dr. Andrea Burrows, GK-12 and RET Grant Coordinator, University of Cincinnati

Date: June 20, 2011

Time: 9:00 – 10:00 AM

Venue: University of Cincinnati, 662 Baldwin Hall

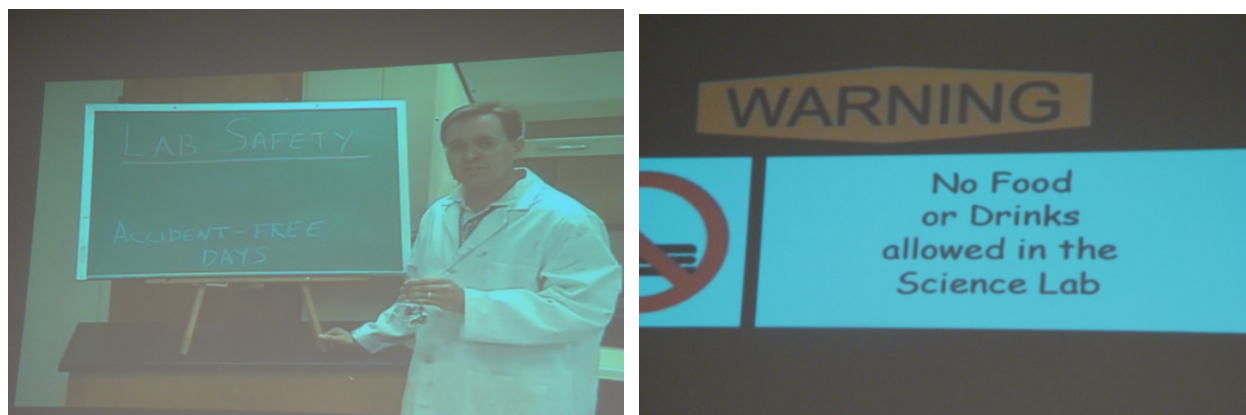
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The contents of this seminar were developed by Ms. Ellen R. Elsbernd from Office of Environmental Health & Safety at University of Cincinnati. She is the Chief OSHA Comp Officer at University of Cincinnati. The seminar was delivered by Dr. Andrea Burrows, Grant Coordinators for the NSF Graduate K-12 Fellows Grant STEP (Science and Technology Enhancement Project) and NSF RET Site, College of Engineering and Applied Science, University of Cincinnati. Dr. Burrows received her B.S. in Science Education/Biology from the University of Central Florida (UCF), M.S. in Science Education from Florida State University (FSU), and Ed.D. in Curriculum and Instruction from the University of Cincinnati (UC). Since 2007, Dr. Burrows has held the NSF GK-12 and RET grant coordinator position at UC. In August 2011, she will join as Assistant Professor of Secondary Science Education at the University of Wyoming. In addition to teaching courses at UC, Dr. Burrows has taught at Northern Kentucky University (NKU) since 2006. Prior to these university experiences, she worked as a middle and high school science teacher for 12 years in Florida and Virginia. Her research explores partnerships between teachers and scientists.

This lab safety training was the opening workshop for the RET summer 2011 program. The objectives for this work shop were teachers will be able to describe, explain, list, and predict the lab safety issues and procedures. The opening activity was viewing a video, “Ultimate Lab Safety,” which had a somewhat humorous approach to this serious topic. The video can be found at <http://www.youtube.com/watch?v=cr7roogzM8c>. During this video, many safety violations occurred. The video then went through and showed replays of some of the violations. Screen shots of the video, “Ultimate Lab Safety,” are presented in **Figure 39** below.



**Figure 39. Screen Shots from the video “Ultimate Lab Safety”**

After the video, the RET participants split into groups for the next activity. While in groups, the members were given three activities. They were to make a list of all violations which occurred in the video and split them into two lists. The first list included the safety violations which were clearly shown in the video and the second list was generated from violations that the show did not explicitly tell the viewers. The third activity for the groups was to generate a list of possible safety issues which may arise in the labs in which the group members will be working in throughout the summer. After completing this activity in approximately 20 minutes, the groups returned to the meeting room described the violations found on the white boards and compared the lists between the groups. Below is a table with a summary of the lists created:

Given Violations	Hidden Violations	Potential Lab Issues
Always wear safety gloves when handling chemicals	Unlabeled container	Wear lab coats
Never mix chemicals unless instructed to do so	Chemicals outside of fume hood	Wear proper safety clothing
No open toed shoes on lab days	Clean up all broken glass	Tie back long hair
Place backpacks under the tables	Missing MSDS forms	No jewelry
Do not place items on the edge of a workbench or table	Blood spill = Biohazard clean up	Careful of items on floor
Always wear safety goggles. Prescription glasses are not acceptable.	No fire extinguisher/blanket	Potential fire hazard
Always turn off Bunsen burner when not in use	No working in lab alone	Be careful walking through tight lab spaces
No food or drinks in lab	Do not wear jewelry	Always be aware of exit path(s) from lab
	Do not multitask while mixing chemicals	



**Dr. Andrea Burrows and Participants During the Lab Safety Training Seminar**

After completing the discussion of safety concerns related to the video and predicted safety concerns in our labs, Dr. Burrows then gave pertinent emergency phone numbers including for emergencies call 911, for campus public safety call 513-556-1111, and for campus dispatch call 513-556-6111. She also gave the teachers the web site [http://www.flinnsci.com/search\\_msdgs.asp](http://www.flinnsci.com/search_msdgs.asp) which can be used to find the MSDS for any substance. She then went through the University of Cincinnati Environmental Health and Safety website at [ehs.uc.edu](http://ehs.uc.edu). This site has detailed information on hazard

identification, reducing risks, emergency preparedness, and then a follow up quiz. The following were some of the key points included in this web presentation:

- Avoid preparing, storing, or consuming food or drink in your laboratory and storage areas where there is a potential that you will ingest the hazardous chemicals, biological agents, or radioactive materials with which you are working
- Frequently wash your hands to remove contaminants, including each time you remove your gloves and every time before you leave your work area
- Take frequent micro breaks whenever you perform work that causes static pressure to your limbs or back
- Use a buddy system and avoid working alone in your laboratory
- Safety glasses at a minimum, a face shield and goggles when there is a high splash potential
- Avoid the traps that can place you in danger “nothing is going to happen,” “we’ve always done it this way,” “I was under a deadline”

The participants then completed the follow up quiz to the safety training and each group was given homework for the afternoon lab sessions. The participants were to ask their Graduate Student Mentors what hazards might they be exposed to in the labs and how would they be most at risk for being exposed to these safety hazards. The key point to this workshop was that each individual is responsible for his/her own safety and be aware of your surroundings.