

September 2011

Laboratory Safety

Poster of the Month

Downloadable Poster: With Lab Safety, Teamwork is Good Chemistry



This month's poster highlights the importance of teamwork in making campus

laboratories safer. Long term safety performance happens when people at all levels of the department work together and share a commitment to life and health. Download the poster today and display it in well-traveled areas of your laboratory.

[Download Poster](#)

Links & Resources

[UCLA's UC Center for Laboratory Safety Portal](#)

[UCLA: Lab Safety Orientation Fact Sheet for PIs and Supervisors](#)

[UC Davis: Safety Program Guidelines for Principal Investigators](#)

[UC Davis: Safety Management Program Guidelines for Supervisors](#)

[UC Davis: Safety Management for Department Safety Coordinators](#)



UC | Safety Spotlight

A UC System-Wide Publication of the Environment, Health & Safety Leadership Council

the optimum

Formula for Safety Success in the laboratory

Combine...



Result:
a Safe,
Productive
Laboratory

Materials and Methods

If laboratory safety were compared to a research project, the "materials" would consist of resources that should exist in all campus labs—an updated chemical hygiene plan, standard operating procedures and equipment operation manuals, protective clothing, fume hoods, biosafety cabinets and eye-wash stations—all of the knowledge and devices that support safe decision-making. The presence of these safety tools reflects the University's commitment to laboratory safety.



Perfect Equilibrium

Balancing these resources are the "methods" that make them useful in day-to-day laboratory life. Leadership, collaborative process, good communication and a personal dedication to safety.



The Essential Element

The essential element in this balance is thorough, up-to-date staff training, consistently applied. Nearly all laboratory incidents are due to mistakes in using equipment, failing to follow safety procedures or inadequate emergency response actions. These incident causes can usually be traced to lack of knowledge about laboratory hazards and how to mitigate them. Complete, current knowledge is essential in an environment where high staff turnover and inexperienced workers coexist with hazardous materials, fragile glassware, highly specialized equipment, and biological agents, radioisotopes, high heat, extreme cold and a host of other hazards.

Links & Resources

[UC Material Safety Data Sheet Database](#)

[TOMES Chemical Hazard Information: Toxicology, Occupational Medicine and More](#)

[Brochure: Chemical Laboratory Safety and Security: from National Academy of Science](#)

[Article: Incidents and Accidents, from sciencebase.com](#)

[Video: To be \(Safe\) or Not to Be from UCSD](#)

[Video: Fire Safety in the Lab from UCLA](#)

Achievements



Mark Freiberg, EH&S Director at UC Berkeley, received the 2011 President's Award in recognition of his department's excellent performance.

The President's Award is based on a combination of factors including consistent injury reduction over a period of years and a record of clean OSHA inspection results. In the photo above, Mark Freiberg receives the award from UC Chief Risk Officer Grace Crickette during the UC 2011 Risk Summit held in Los Angeles in June 2011.

WAIT! Before you get started, do you have the proper training for the job you're about to do?



"Train like you fight. Fight like you train." This time-honored adage is an operational mainstay for firefighters, the military and others who face life-threatening hazards in the course of their work.



The laboratory setting may seem benign compared to these high-risk professions, but in reality the risks can be very high. Even the most basic academic laboratory contains significant hazards, with some labs adding danger from lasers, temperature extremes, radioisotopes and biological agents to the list.



Too often, laboratory workers assume that their expertise in one area, such as physics or chemistry, qualifies them to perform tasks such as installing and repairing instrumentation or extending gas lines around the laboratory. Both of these examples are tasks that require the assistance of professionals and oversight by the campus EH&S department.



"Understanding the importance of proper training is essential for staff at every level," says Debbie Decker, UC Davis Chemical Safety Officer. "As a laboratory worker, you must be able to assess the hazards of your work and protect yourself from those hazards. Specific training in the laboratory on those hazards is crucial to your safety and the safety of those around you. Don't let a moment's carelessness cause suffering for you, your co-workers or others who might enter the lab."



Debbie Decker,
Chemical Safety
Officer, UC Davis



The following are only some of the tasks and projects that require specific training or the assistance of a professional. Consult your laboratory's chemical hygiene plan and your campus EH&S office to learn about additional conditions required on your campus.

- ◆ Electrical work of any kind
- ◆ Installing, changing or extending gas lines
- ◆ Animal handling
- ◆ Handling pyrophoric materials
- ◆ Storage and disposal of chemicals
- ◆ Working with lasers
- ◆ Using an ultracentrifuge
- ◆ Working with radioisotopes
- ◆ Working with biological agents
- ◆ Changing the lab's floor plan or furnishings
- ◆ Working with engineered nanomaterials or other novel materials for which the hazards are not entirely known

Get Your Work-Specific Training!

RECOGNIZE
the hazards

LEARN
how to avoid them

KNOW
how to react
in an emergency



Karin Wasler,
EH&S Training and
Outreach Manager,
UCLA



Karin Wasler works with UCLA laboratory professionals to embed principles of health and safety into everyday practice.

"A well-managed training program is a cornerstone in achieving safety in the laboratory. It's essential that Principal Investigators and supervisors incorporate training requirements into any new project or change in laboratory infrastructure.

Proper training can save lives and protect vital research, and a well-trained, well-informed staff is much more likely to avoid the mishaps that can interrupt lab activities. The team works more efficiently, down-time is reduced and the chance of compliance issues is greatly diminished.

Effective training both contributes to and reflects the lab's culture of safety and the department leader's concern for people. When veteran staff are consistently wearing their lab coats and carefully following safety guidelines, each new group of grad students will follow their lead. The same thing goes for training. When PIs and supervisors respect the need for training and complete their own courses on schedule, they send a clear message throughout the lab: Our lives and health are worth the investment of a few hours of training."

KEEP TALKING...

EH&S Experts: Here to Help You

You want to update your laboratory's Chemical Hygiene Plan. You'd like to move a piece of equipment but there's an air vent in the way. You can't remember when your research team should perform its next evacuation drill.



EH&S professionals are on board to help you with these issues. They can provide a reassuring reality check, offer creative alternatives and help you expand your knowledge of safety and sustainability. EH&S experts can make safety presentations to your group and provide one-on-one coaching. They can also arrange for assistance from other campus services to ensure that your team is following campus policy. Building a strong relationship with EH&S is a good investment in your lab's future.

Are You Bringing Your BAGGAGE to Safety Training?



It's important to approach safety training with an open mind. Bringing along "baggage"—predetermined ideas about the usefulness of the training or resistance to the requirement—is a dangerous attitude. You never know what you may learn or what might turn out to be useful to help you work safely. Viewing safety training as a waste of time can contribute to complacency about the hazards in your workplace. Complacency can lead to incidents, lost time, lost work, loss of life and limb.

Every individual on campus has the power—and the responsibility—to help prevent loss of life, injury and damage to vital university resources. But even with the best intentions, it's hard to stay on track with safety objectives if you're in an informational vacuum.

Departments and research teams that talk openly and often about safety are statistically far less likely to experience injuries and loss of productivity. Regular meetings and other open, positive communication provide a forum for:

- ◆ Leaders to model their concern for safety and compliance
- ◆ Staff questions and suggestions that can lead to improvements in practice or infrastructure
- ◆ Increasing trust among leaders and staff, so that employees are more willing to come forward if they have an issue
- ◆ Encouraging confidence and workplace satisfaction
- ◆ Educating workers on how to assess hazards and mitigate risks



The laboratory's Principal Investigator, supervisor or senior lab workers are responsible for conducting regularly scheduled laboratory meetings with an opportunity to review near misses or unexpected occurrences and address hazards and safety issues.

- ◆ Review of updates to policies and regulatory requirements
- ◆ Review of ongoing or planned work to identify personal or environmental safety needs
- ◆ Discussion and review of the Chemical Hygiene Plan and standard operating procedures
- ◆ Updating and practicing the lab's emergency response procedures
- ◆ Inviting guest speakers who can lead discussions on real world near-misses and lessons learned

Most importantly, good communication reinforces a department-wide "culture of safety" that empowers individuals to contribute to maintaining a safe workplace.

1 Inadvertently violating fire codes by installing new equipment in the lab without checking ahead of time with EH&S and Fire Prevention Services.

2 Ordering new chemicals without understanding the hazards, handling and storage requirements.

3 Assigning lab staff to perform tasks or work with materials for which they have not had proper training.

4 Pouring chemical hazardous waste down the laboratory drain because the employee is not familiar with proper disposal procedures.

5 Not completing training documentation, resulting in work delays because no one can tell who is qualified to perform a necessary task.

TOP
safety pitfalls that good training can prevent **ten**

6 Employee missing critical Occupational Health and medical surveillance deadlines because injury notification processes were not reviewed with staff.

7 Overlooking basic orientation training for newcomers to the lab. Not knowing the fundamentals, new staff members make easily preventable mistakes.

8 Not taking the time to carefully assess the hazards of a new process before beginning the work.

9 Not paying attention to unusual occurrences in processes in the lab that could lead to a larger, more devastating incident.

10 Jeopardizing health by failing to report workplace injuries as required.

Careless Chris

Careless Chris Tries Multi-Tasking in the Laboratory ...an Imaginary Scenario

Careless Chris felt confident, poised for success. He knew he had an awesome education and the right attitude about the work. He got along well with the senior post-doc and felt he was making a good impression on the professor. He had completed the required safety courses, even though he thought the presentations were patronizing for someone of his academic caliber. There was only one snag in his perfect scenario: his arch-rival in the lab, Melinda.

[Click Here to Continue](#)

Feedback, Please

Send an email to safetyspotlight@ucdavis.edu to submit your comments on the September 2011 issue or to suggest content ideas for future issues. We look forward to hearing from you!

COMING SOON!

October 2011: Crime Prevention and Personal Security



Soon, the autumn days will get shorter and activity on campus will increase dramatically. It's a good time to think about your personal security. Read our October issue to learn what you can do to avoid becoming a victim.

connect

Know where to turn on your UC campus for the information you need to keep yourself, your workplace and your environment safe and secure. Click on the campus links below to connect to local program, educational and informational resources.

[UC Berkeley](#)

[UC Riverside](#)

[UCOP](#)

[UC Davis](#)

[UC San Diego](#)

[UC ANR](#)

[UC Irvine](#)

[UCSF](#)

[UCLA](#)

[UC Santa Barbara](#)

[UC Merced](#)

[UC Santa Cruz](#)

UC Irvine Tailors Training to the Needs of TAs and Grad Students

Grad students enter the laboratory with superior academic skills, but not always with work-specific training for the realities of the lab environment.

The EH&S team at UC Irvine responded to the challenge with TANGO, an innovative training course that addresses the specific needs of new laboratory staff. TANGO stands for Teaching Assistants and New Graduate student Orientation to Safety.

The program gives new lab recruits an accelerated process for fulfilling the UC Learning Center checklist of safety knowledge, including Laboratory Core procedures.

Hands-on break-out sessions familiarize participants with safe handling of gas cylinders, fire extinguishers, fume hoods and biosafety cabinets and spill preparedness and response.

"We're very encouraged by the results of the TANGO training approach," says Rebecca Lally, Chemical Hygiene Officer at UCI. "We realize that our safety students are well-educated, sophisticated people with a busy schedule. A lively, fast-moving program anchored in work-specific lab requirements is a refreshing change from more traditional training modalities. The feedback we've had so far through our surveys has been overwhelmingly favorable."

Visit www.ehs.uci.edu to learn more about UC Irvine's EH&S programs and services.



UC Riverside's Audit Program Streamlines Risk Assessment

In an effort to simplify and expedite the audit process, UC Riverside's original inspection checklist was streamlined to assess injury and illness prevention, regulatory compliance and best practices in the laboratory.

EH&S experts have helped departments adapt the self-audit procedure for maximum effectiveness. One-on-one trainings were provided for department faculty and graduate students on how to conduct lab inspections and how to report unsafe conditions. An online audit form helps track alignment with checklist elements.

"The lab audit program was successfully piloted in the Chemistry department, with 97% of research labs audited to date," says Laboratory Audit Specialist Nicole Clark. "The program has now been introduced in several departments, including Biochemistry, Botany and Plant Science, and Cell Biology and Neuroscience. We've made great progress; since May 2011, 74 research labs have been audited."

Earthquake safety, chemical spill kits, safety placards, chemical hygiene plans and UCR waste tags comprise the top five major issues uncovered. Responses to recommended corrective actions being made are ongoing, and follow-up audits are conducted each week. Online laboratory safety audit training is now also available.

[Click here](#) to view UC Riverside's user-friendly, online laboratory orientation training course.

