

Laboratory Safety and Compliance for New Principal Investigators At UC Berkeley

*Prepared by the Office of Environment, Health & Safety – EH&S
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As a Principal Investigator, you set the tone for health and safety practices in your laboratory. This document provides specific guidance on safe and legally-compliant practices for laboratories that use hazardous materials or involve potentially hazardous activities.

The information in this document should be used to ensure that your laboratory is operating safely and is in compliance with applicable laws, regulations, and campus policies. Following this guidance will protect the health and safety of your students and research colleagues, safeguard your lab facility and research materials, and help you meet the compliance expectations of your granting agency. The Berkeley campus Office of Environment, Health & Safety (EH&S) and your Department Safety Coordinator (DSC) are available to help you successfully implement these programs. Since each department on campus has a DSC and an internal safety program structure, EH&S recommends you check in with your DSC before implementation of any of the following programs.

As one of your first actions, you should appoint a laboratory safety “Chemical Hygiene Officer” to assist you in setting up the programs below. Ideally, this person will be someone with prior laboratory experience.

Safety Programs

- Your department’s **Injury and Illness Prevention Program (IIPP)** contains information on the health and safety responsibilities of supervisors and employees, identifying and correcting workplace hazards, important contact information, and resources. All employees are required to have documented training on their department’s IIPP.

Action – Obtain a copy of your department’s IIPP from your DSC and ensure that you and all of your employees and researchers have received documented training on its contents.

- The **Building Emergency Plan (BEP)** contains building specific information on emergency procedures and emergency preparedness, important contact information, and additional resources. All employees are required to have documented training on their building’s BEP.

Action – Obtain a copy of your building’s BEP from your DSC and ensure that you and all of your employees and researchers have received documented training on its contents.

- By law, a **Chemical Hygiene Plan** is required for each laboratory working with hazardous chemicals. The Berkeley campus has a template available in a small flipchart format available from your DSC or EH&S (ehs@berkeley.edu; 642-3073) – one flipchart per suite is adequate. Fill out the flipchart with information specific to your laboratory operations and provide appropriate training on its contents to employees (including faculty, staff, and student employees) in your laboratory. This training must be documented in the Training Documentation section. <http://www.ehs.berkeley.edu/healthsafety/chp.html>

Action – Obtain a hard copy of the Chemical Hygiene Plan flipchart, fill-in the pertinent sections, and train all affected employees on its contents.

- **Chemical Inventory** – If your laboratory contains hazardous materials, a Chemical Inventory account needs to be established as soon as possible. Contact EH&S for procedures (ehs@berkeley.edu; 642-3073) or see <http://www.ehs.berkeley.edu/cheminv.html>. Once the Chemical Inventory is submitted, a color door sign must be printed and posted at the entrances to your laboratory. The Chemical Inventory must be updated annually and whenever significant changes occur. Please remember to include any compressed gases in your inventory records.

Action – Assign a designated contact who will work with EH&S and submit a Chemical Inventory using the online Chemical Inventory system.

- **Hazardous Material Management** – If your laboratory operations will generate unwanted hazardous materials, you will need to set-up a waste recharge account with EH&S so that the material can be picked up for proper disposal. Inform employees and students that hazardous materials and hazardous waste (except as expressly authorized by regulations or campus licenses or permit) cannot be disposed of in any of the following methods: 1) into the sewer system, 2) into regular trash, 3) evaporated in the fume hoods, or 4) by any other unsafe or environmentally damaging routes. Please emphasize the importance of proper hazardous material/waste management.
<http://ehs.berkeley.edu/hazmat/chemwaste.html>
<http://ehs.berkeley.edu/envprot/wastewater.html>

Campus guidelines for what materials can be legally disposed of into sink drains and the sewer system are found at:

<http://www.ehs.berkeley.edu/pubs/guidelines/draindisppls.html>.

Action – Contact EH&S to set-up a waste recharge account and inform laboratory personnel of proper disposal procedures, and the campus drain disposal guidelines.

- **Hazardous Operations** – Campus industrial safety programs provide guidance on issues such as energy isolation (lock-out tag-out), confined space entry, forklift and crane operation, and other topics. For additional information on these programs go to: <http://www.ehs.berkeley.edu/healthsafety/indshophealth.html>

Action – If your research involves any industrial activities, see the link above and contact EH&S for additional guidance.

- **Training is legally mandated** for all new laboratory employees. The campus training entitled “Laboratory Safety for New Graduate Students and Employees” is taught at the beginning of each semester and periodically thereafter. It provides legally required training on laboratory safety, hazardous materials management and disposal, and emergency preparedness.

Action – Enroll yourself and others in your lab into the “Laboratory Safety for New Graduate Students and Employees” training. Go to <http://blu.berkeley.edu>, login and then click on UCB Learning Center.

- **Ergonomics** - If your laboratory operations require researchers to perform repetitive tasks, use small hand held tools or work in prolonged awkward postures, your lab’s researchers may benefit from an ergonomic evaluation and training. Find out more about ergonomics in research labs at <http://www.uhs.berkeley.edu/facstaff/ergonomics/lab/intro.html>

Action – If your laboratory operations pose ergonomic risks, contact Ergonomics@Work at 643-2540 to schedule an ergonomics consultation or training workshop.

Special Approvals

Several potentially hazardous research activities require training and special approvals from appropriate campus oversight committees. Call EH&S at 642-3073 to obtain more information or to initiate the approval process for the following:

- **Biological Materials** – Use of non-exempt recombinant DNA molecules, hazardous etiologic agents, human blood or transgenic plants and animals must be approved by the Committee for Laboratory and Environmental Biosafety (CLEB) prior to initiation of the research. Prospective users must obtain a Biological Use

Authorization (BUA) and complete biosafety training prior to final CLEB approval. <http://www.ehs.berkeley.edu/healthsafety/biosafety/bua.html>

- **Controlled Substances** – Use and purchase of controlled substances (e.g., narcotics) for use in research requires approval and registration. <http://ehs.berkeley.edu/healthsafety/controlsubs.html>
- **Human Subjects** – Research involving live human subjects requires review and approval by the Committee for Protection of Human Subjects (CPHS) prior to recruitment of subjects. <http://cphs.berkeley.edu/>
- **Lasers** – All Class 3B and 4 lasers must be registered with the Non-Ionizing Radiation Safety Program. EH&S administers this program for the Non-Ionizing Radiation Safety Committee (NIRSC). The campus Laser Safety Officer (LSO) is responsible for coordinating the Non-Ionizing Radiation Safety program. <http://www.ehs.berkeley.edu/healthsafety/lasersafety.html>
- **Radioactive Materials** – Use of radiation and radioactive material must be pre-authorized in writing. Prospective users must submit to EH&S an application for a Radiation Use Authorization (RUA), and receive approval from the campus Radiation Safety Committee. <http://www.ehs.berkeley.edu/radsafety/rua.html>
- **Research Animals** – Research and teaching involving live vertebrate animals requires review and approval by the Animal Care and Use Committee (ACUC). <http://www.acuc.berkeley.edu/>
- **Superconducting Magnets** – EH&S tracks and inspects the use of superconducting magnets on campus in order to ensure safe operation and to provide important safety information. Contact EH&S if you plan on operating a superconducting magnet. <http://www.ehs.berkeley.edu/healthsafety/nonionizing.html>
- **Toxic Gases** – The campus Toxic Gas Program specifies minimum requirements for safe storage, use, and handling of toxic gases. All uses of toxic gases must be pre-approved by EH&S. Toxic gases cause significant acute health effects at low concentrations, have a National Fire Protection Association (NFPA) health rating of three or four, have low occupational exposure limits, and/or are pyrophoric. <http://www.ehs.berkeley.edu/healthsafety/toxicgas.html>
- **Shipping Hazardous Materials** – Anyone shipping hazardous materials must be certified to do so by EH&S. Hazardous materials include infectious substances, hazardous chemicals, radioactive materials, dry ice and, under certain conditions, biological materials and genetically modified organisms or micro-organisms. <http://www.ehs.berkeley.edu/hazmat/hazshipping.html>

Training

Please ensure that everyone working in your laboratory is appropriately trained to identify and mitigate potential hazards.

1. Determine what training is needed by those working under your supervision, and ensure that they receive it. The Chemical Hygiene Plan and EH&S' "Laboratory Safety for New Graduate Students and Employees" training are the bare minimum in most laboratories.
2. Ensure that work requiring training is performed only by persons who have received the proper training. A list of activities requiring training is available online at: <http://rac.berkeley.edu/training.html>.
3. Document all training and know where your records are retained.

Principal Investigator's Responsibilities

As a Principal Investigator you have an important responsibility for the safety of everyone working in your laboratory.

- Ensure that environmental, health and safety obligations are carried out by everyone working in your laboratory.
- Analyze work procedures to identify hazards; ensure measures are implemented to eliminate or control those hazards.
- Ensure workplace hazards and environmental- and safety-related policies and procedures are communicated to employees, students and visitors.
- Ensure safe operating procedures are in place and are routinely followed.
- Ensure individuals have the proper safety equipment and personal protective equipment to perform their work safely.
- Encourage prompt reporting of health and safety concerns without fear of reprisal.
- Ensure that self-assessment inspections are performed at least annually, that records are retained, and that deficiencies identified in any inspection are addressed. EH&S coordinates a campuswide laboratory self-assessment program each fall.

Additional Resources

Office of Environment, Health & Safety
643-3073; <http://ehs.berkeley.edu>

University Health Services
642-2000; <http://uhs.berkeley.edu>

Office of Research Administration and Compliance
642-1020; <http://rac.berkeley.edu>