

# Lab Safety Guidelines (Spring 2019)

Although a chemistry or biochemistry laboratory is equipped with chemicals and equipment that can result in injuries, there is no reason that working in a laboratory inherently is less safe than working in other environments, such as a kitchen, where one is exposed to caustic materials (Drano!), sharp objects (knives!), and hot items (gas burners!). Just as you can work safely in a kitchen if you pay careful attention to what you are doing, you can work safely in the laboratory if you pay careful attention to how you dress for lab, how you prepare for lab, how you work while in the lab, and how you clean up at the end of lab. Although all items in this document are important, those in **bold** merit your particular attention.

## Dressing for Lab

Spills can and do happen in lab, so careful attention to how you dress for lab is important.

- The chemical reagents used in lab are hard on both the natural and the synthetic fabrics used to make clothing. Some reagents bleach out colors and others break down fibers leaving holes or weakened threads; for this reason, you should wear clothes that you will not mind discarding if damaged by a spill or by exposure to the laboratory environment.
- How you dress from the waist down is particularly important as this is where you are most vulnerable to spills; for this reason, you must:
  - **wear shoes with completely closed toes**; sandals and other shoes that leave your feet exposed are not acceptable; sneakers or boots are preferred
  - wear pants or skirts that end at or below your knees; long pants are preferred; avoid long dresses or other clothing that restricts your movement
  - shirts and blouses must extend below your waist
- If you have long hair, tie it back or place it up so that it does not get in your way as you work in lab.
- The metal in jewelry can react with some chemicals. If you choose to wear jewelry to lab then you should:
  - wear long necklaces inside your shirt, dress, or blouse so that they do not get in your way as you work in lab
  - avoid wearing loose fitting bracelets as they may become tangled with lab equipment

## Preparing for Lab

Safety in the lab begins before you enter the room and begin work. In addition to any pre-lab assignments, pay careful attention to the following items that will better prepare you for a safe experience in lab.

- **Read through the lab handout at least once** to familiarize yourself with the experiment's procedure, and make a list of questions regarding any parts of the procedure you find confusing.
- Make careful note in your lab notebook of any warnings regarding specific hazards and the proper disposal of hazardous waste.

## Working in Lab

Despite our best efforts, accidents happen: beakers tip over; test tubes break, solutions splash, and reactions run more vigorously than expected. Paying attention to the following will decrease the likelihood of an accident and, more important, minimize your chance of injury if an accident does happen:

- Your eyes are precious and easily damaged by caustic chemicals; thus, **you must wear approved safety glasses whenever you are in lab** regardless of whether or not you are engaged in an

experiment. Be sure you **know the location of the eye wash fountains and that you know how to use them.**

- To avoid the accidental ingestion of toxic chemicals, **food, drinks, chewing gum, and tobacco are not allowed in lab.** If you bring these items to lab, be sure to store them in the study area.
- **Never use mouth suction** to fill a pipet or to siphon a reagent from one bottle to another bottle.
- Because many chemicals are flammable, **open flames are not allowed in lab unless approved by the instructor.** Be sure you **know the location of the fire extinguishers and the fire blanket and that you know how to use them.**
- If you get a chemical on your skin, rinse the exposed area using copious amounts of water. Be sure you **know the location of the lab's overhead shower and know how to use it.** Gloves are available in lab, which you may choose to use if you are particularly sensitive to chemicals.
- Particularly foul-smelling chemicals and volatile reagents are stored in one of the lab's fume hoods; **pay particular attention to directions that require you to complete one or more steps in a fume hood** and do not remove materials from the fume hood unless the procedure indicates that it is safe to do so.
- Be sure you **know the location of all exits from the laboratory** and the location of the closest red emergency phone, which provides a direct link to campus security.
- **If you are injured while working in lab, immediately report the injury to your instructor.**

To minimize the chance of an accident, pay attention to the following:

- Keep your lab bench clean, organized, and uncluttered.
- Use labels to identify the contents of beakers, test tubes, and flasks.
- When you are finished using a piece of equipment, return it to your lab drawer or its storage bin.
- **Do not engage in horseplay, pranks, or other similar acts, including unauthorized experiments and altering the quantities of reagents used in an experiment.**
- **You may not work in lab unless another person is in lab.**
- **If an accident happens, immediately inform the instructor** who will assist you in cleaning up.

## Cleaning Up After Lab

When you are finished with your work, be sure to complete the following important tasks that protect you, your classmates, and the environment:

- **Dispose of all chemical wastes as directed.** Chemical wastes generally are collected in waste bottle located in one of the lab's hoods; be sure to place wastes in their proper container as mixing waste streams can result in an unwanted chemical reaction. Do not dispose of chemicals in a sink unless the procedure specifically indicates that this is the proper method of disposal.
- **Do not return unused chemicals to their original container;** instead, treat them as chemical waste and dispose of them as described above (or share with others who are in need of the reagent).
- **Place glass waste and sharps (needles, etc.) in the proper waste container.**
- **If you are unsure of how to dispose of a reagent properly, ask your instructor.**
- Clean your lab bench using a sponge and water.

## Acknowledging the Importance of Lab Safety

After reading these safety guidelines, sign and date the form acknowledging that you read and understand the guidelines, that you had an opportunity to ask clarifying questions, and that you agree to abide by these guidelines.