

General Science Laboratory Safety Guidelines

(Applicable to all Science laboratories)

General:

- A. Be familiar with and follow the Safety Guidelines in this document.
- B. Come to the laboratory prepared to perform laboratory experiments or activities. This includes carefully reviewing assigned readings or instructions before lab.
- C. Arrive on time and listen carefully to instructions. Arriving late may exclude your participation in lab.
- D. Lab spaces are shared by multiple programs; there may be hazards present that you are not aware.
- E. Use of personal items such as laptops and cell phones is not recommended. If you do use such items in the lab take care to reduce their contamination.
- F. Ask questions.

Dress code:

- A. Closed-toe shoes must be worn in all science laboratories.
- B. Minimize exposed skin. At a minimum, you must cover from shoulders to knees. Long pants and long sleeves are recommended and may be required for some labs.
- C. Pull back and secure long hair. Loose-fitting clothing/jewelry should be avoided.
- D. Use appropriate personal protective equipment, such as goggles, gloves, and lab coats.
- E. Lab coats and goggles are available to buy or rent in the Science Support Center.

Food and drinks:

- A. Keep food or drink outside of the laboratory or inside a backpack.
- B. Do not eat, drink, or put anything in your mouth while in the lab spaces.
- C. Keep hands, writing instruments, and laboratory materials away from face and mouth.

Laboratory space guidelines:

- A. Students are not permitted in the laboratory without the supervision or approval of an instructor.
- B. Laboratory prep rooms and chemical storage areas are restricted to faculty and staff.
- C. Familiarize yourself in advance with the location and proper use of safety equipment such as fire alarms, emergency eyewashes, safety showers, and phones.
- D. Maintain a neat laboratory work area.
- E. Gloves may only be used outside laboratory areas during transport of laboratory equipment or chemicals. Do not touch door knobs and cabinet handles while wearing gloves.
- F. Use provided storage cubbies to keep personal items. No lab equipment or chemicals should be stored in the cubbies.
- G. Doors must not be propped open and windows to laboratory spaces must remain closed at all times.
- H. Do not come to lab impaired or under the influence of alcohol or drugs. Come to lab alert, focused, and prepared to do the work.
- I. When working on research projects outside of the scheduled lab times, it is recommended that you always work using the buddy system.
- J. Due to the particular dangers in the laboratory spaces, minor children are not allowed in the lab.
- K. Pets and emotional support animals are not allowed in laboratory spaces.
- L. Service Animals are allowed into the laboratory spaces. Contact the Science Operations Manager for more information.

Injuries and other medical issues:

- A. Immediately notify your instructor for assistance if you are injured, or if any type of accident, chemical spill, or breakage occurs.
- B. If a bodily fluid is present in lab due to injury or accident contact your instructor for cleanup.
- C. Students who have specific medical issues or concerns, and students who are pregnant or nursing are advised to consult with their physician or health care provider about potential risks associated with participation in a science laboratory. You are invited to contact the faculty or staff privately if you would like more information on specific lab activities or require additional personal protective equipment.

Guidelines for the use of equipment, supplies and chemicals:

- A. Do not place laboratory chemicals, equipment, supplies, or instruments anywhere outside of the laboratory.
- B. Read and follow all safety signs on equipment.
- C. Avoid direct contact with hazardous chemicals.
- D. Use all equipment and hazardous chemicals only in accordance with their intended purpose.
- E. Never handle equipment, supplies, or chemicals until you have specific information on their use and safety considerations.
- F. Use care when dealing with laboratory burners, hot plates and steam generators. Turn such equipment off when not in use. Always handle such equipment as if it were hot, even when you do not see a flame or it appears to be off.
- G. Never leave open flames or hot plates unattended. Keep flammable chemicals (i.e., ethanol) away from open flames or heat sources.
- H. Keep laboratory equipment and breakable items away from edges of tables, benches, or countertops.
- I. Be alert for sharp or broken objects which may cause injury.
- J. Chemical fume hoods should be used when working with chemicals that generate fumes, dusts, or gases or any time protection from splashes, explosions, or fires is required. Follow all directions on the proper use of fume hoods.
- K. Assume all unknown materials are hazardous, including liquids that look like water. Do not touch unknown materials and notify instructor.
- L. Participating in laboratory activities may involve handling potentially hazardous chemicals. Safety Data Sheets (SDS), which describe hazards associated with chemicals, are available from your SIT as well as online through chemical manufacturers such as Sigma Aldrich or Fisher.
- M. Label all chemicals and biologicals with contents, name, program, and date, or as directed by faculty or staff.

Understanding Chemical Safety Labels

- A. Chemical bottles in the lab will also be labeled with safety information and will be in one of two forms.
 - a. Globally Harmonized System (GHS) for Hazard Communication – *current labeling system*
 - i. This system uses signal words, hazard statements, and pictograms. A key to the pictograms is located in each lab space, usually by the chemical fume hoods.
 - b. Hazardous Materials Identification System (HMIS) – *older labeling system*
 - i. This system used numbers to describe the Health, Flammability, Reactivity or Physical Hazard, and Personal Protection. The scale is 0-4 where 4 is the most hazardous.

Waste Disposal and Cleanup:

- A. Notify your instructor immediately in the event of a chemical spill. Do not clean up any chemical spill that you have not been trained for.
- B. In case of severe chemical spill you may need to evacuate the lab or building.
- C. Dispose of needles, pins, cover slips, and other sharp objects in an approved sharps container.
- D. Dispose of broken glass in the broken glass container and notify the instructor.
- E. Never pour any chemical down the sink or in the trash without explicit permission from your instructor.
- F. Discard any excess reagents as instructed. Do not return any excess reagent to the stock bottle.
- G. Dispose of all hazardous materials in the proper waste container or as indicated by your instructor.
- H. Before leaving the laboratory:
 - a. Clean up after yourself in all science laboratory areas.
 - b. Clean and return all materials to their proper location.
 - c. Wash and remove labels from all glassware and other equipment.
 - d. Thoroughly wipe down your laboratory space before and after each exercise.
 - e. Do not leave anything in the sinks.
 - f. Ask your faculty or SIT for a community cleanup job.
 - g. Wash your hands with soap and water before you leave the laboratory.

Emergency Procedures

- A. When an emergency occurs, you should alert anyone working in the area, assess the severity of the situation, and call for help (911) if the emergency is beyond your capabilities.
- B. Know the location of the nearest exit. Pathways to exits must be clear.
- C. In case of chemical exposure or foreign objects in the eyes, flush in eyewash for at least 15 minutes. If irritation persists, continue flushing and seek medical attention. Other lab occupants should be ready to assist.
- D. In case of chemical exposure to the body, contaminated clothing should be removed and the affected area should be rinsed for 15 minutes using a sink, drench hose, or safety shower. If irritation persists, continue rinsing and seek medical attention. Other lab occupants should be ready to assist as needed.
 - a. A change of clothes is available in the Science Support Center.
- E. In case of a fire
 - a. Do not use a fire extinguisher unless you have received training.
 - b. Exit the building and walk to the gathering point (Lab 1: B Lot; Lab 2: Longhouse Lot)
 - c. Fire alarm pulls are located near building exits.
 - d. If a person is on fire, they should stop, drop, and roll.
 - e. If the fire involves the laboratory gas, use the emergency gas shut off if safe to do so.
- F. In case of earthquake
 - a. Drop and cover in the nearest safe place.
 - b. When shaking stops exit the building to the gathering point.
- G. In case of power outage
 - a. Turn off all gas nozzles and water faucets and turn off and unplug all equipment you are actively using.
 - b. Exit the building and walk to the gathering point.