Lab Safety Guidelines

Gather information about the materials you are using - Understand the hazards associated with the material (chemical, biological, or radioactive), how it should be used, stored, and disposed of. This information can be obtained in the following ways:

- Manufacturer label on the chemical container.
- Standard operating procedure (SOP) for the process that will involve the chemical, radiological, or biological agent.
- Material safety data sheet (MSDS) with information about chemicals and pathogenic organisms from the EH&S website.
- Be familiar with emergency and safety signage.
- Howard Hughes Medical Institute. This site contains info about chemical use.
- Biosafety in Microbiological and Biomedical Laboratories
- Training – Classroom or online

Label, Store, and Segregate Materials – Identification and safe storage of chemical, biological and radioactive materials used in a laboratory is critical for a safe work place.

- Ensure that all containers are properly labeled (including the purchase date)
- Inspect containers often to ensure they are in good condition.
- Store chemicals with other compatible chemicals, not alphabetically.
- Store highly reactive and corrosive liquids in spill trays.
- Store liquid chemicals below eye level.
- Ensure that containers are closed when not in use.
- Store flammable liquids in safety cans where quantities exceed 4 liters. Store flammable liquids in approved flammable safety cabinets where the quantities in a single laboratory exceed 40 liters.
- Store flammable liquids in explosion-proof refrigerators or freezers.
- Secure gas cylinders away from heat sources.
- Do not leave potentially hazardous chemical processes unattended.
Identify and Follow Safe Work Practices – The following safe work practices must be followed when working in laboratories. Additional safe work practices will be required based on the hazard being used.

- Never pour laboratory waste down the drain! Request chemical, biological, or radioactive waste pick-ups online at
- Transport chemicals or biologicals on campus using appropriate carriers
- Do not eat, drink, smoke, chew gum, or apply cosmetics in the laboratory.
- Do not store food items or cosmetics in the laboratory.
- Always wash hands and other exposed skin after chemical use or before exiting the lab.
- Remove lab coat before exiting the lab and dispose of contaminated items properly to avoid spreading contamination.
- Sandals are not allowed in the laboratory.
- Avoid working alone in the laboratory.
- Confine long hair and loose clothing when working with chemicals.
- Do not smell or taste chemicals.
- Do not mouth pipette or siphon by mouth.
- Keep lab clean and uncluttered.
- Ensure that there is proper bonding and grounding when transferring or dispensing a flammable liquid from a large container or drum.
- Always add acid to water (never the reverse) to avoid a violent reaction and splattering.

Use Laboratory Equipment Properly

- Know the location of safety equipment in the lab and avoid blocking, including the emergency shower, eye wash, fire extinguisher, first aid kit, fire alarm, and emergency phone numbers.
- Know how to use laboratory equipment and do not defeat safety devices.
- Use open flames carefully in the laboratory and do not use open flames in fume hoods or Biosafety cabinets.
- Proper protective equipment must be worn in any lab including eye protection, lab coat, gloves, and closed-toe, closed heel shoes.
- Conduct processes involving the release of toxic vapors, fumes, or dust within a fume hood or other containment device.
- Carry out all procedures that have the potential for aerosolization of hazardous biological materials in a Biosafety cabinet.
- Verify adequate airflow at the face of fume hoods before using.
- Use extreme care when using fume hoods and Biosafety cabinets posted with a “Caution” sign. Do not use chemicals in fume hoods posted with a “Danger” sign.
- Review emergency procedures and ensure that necessary supplies and equipment for spill response are available.