

## Section 9 --Training

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To assure that all users of the Cole Science Center Laboratories are adequately informed about risks related to work in the laboratory and what to do if an accident occurs, all lab users including faculty, staff and students will be required to attend training programs.

This Manual and associated references are available to all faculty, staff and students. Upon completion of training, participants will sign an acknowledgment form indicating that they have been trained, have received the Hampshire College Lab Safety Manual, and are aware of policies in the Manual. Signed forms will be kept in the NS Administration offices.

### 9.1 FACULTY AND STAFF TRAINING

Faculty and staff (and student workers) using the laboratories must attend the Laboratory Safety and Fire Safety training, provided annually at an NS School Meeting. The following topics are reviewed:

- The Hampshire College Lab Safety Manual.
- The contents of the OSHA Occupational Exposures to Hazardous Chemicals in Laboratories Standard.
- Different types of chemicals, how they are stored and handled, and the labeling system used on chemical containers (naming and DOT hazards), including stockroom organization.
- Material Safety Data Sheets (MSDS) and the information they contain.
- Different routes of exposure (e.g., dermal contact, ingestion, inhalation) and ways to prevent exposure.
- Personal protective equipment (e.g., goggles and lab coats) and proper glove selection
- Various types of hoods (fume, biological, etc.) and how to safely use them.
- The storage, use and disposal of hazardous chemicals.
- Common lab and fire hazards and how to prevent accidents and fires in the lab.
- Emergency training, including:
  - What to do in the event of a chemical spill - use of drench showers and eye washes, and the location of spill/accident kits.
  - What to do in the event of a fire - Available equipment and how and when to use fire extinguishers and blankets.
  - Where to gather outside during a building evacuation.

### 9.2 STUDENT TRAINING

Faculty and staff are responsible for assuring that their students are using safe laboratory practices while working in their laboratory classes or conducting projects or work for them. To assist in student awareness, training in lab safety and fire safety is provided by the faculty for laboratory classes early in each semester.

In addition, each student will be given a copy of “Summary of the Safety Manual” (Appendix 9-A). The handout can be referred to for commonly asked questions about laboratory procedures. A copy of the Lab Safety Manual is available for students to refer to in the stockroom, and in each lab.

Students will be asked to sign a form to acknowledge that they have been trained in Hampshire College’s lab safety policies, for each and every NS lab class they are enrolled in. Student training forms must be submitted to the Lab Manager soon after the add/drop period ends for the semester.

Laboratory based Division III students and paid laboratory workers complete on-line laboratory training specific to Cole Science Center requirements. Safety requirements are also discussed at a meeting of laboratory based Division III students each fall.

## Appendix 9-A

### Cole Science Center Summary of Laboratory Safety Manual Rules and Procedures

This reference sheet summarizes some of your responsibilities while working in the labs. *Before working in the laboratory areas*, students, staff, and faculty should read the Laboratory Safety Manual, and sign the acknowledgment form stating that you have read and understand the requirements of this Safety Plan, and will follow the protocol presented in it.

#### General Requirements

- Shoes (closed-toe only) and appropriate clothing must be worn. Sandals or bare feet are not allowed. If this guideline is not being followed, you will be asked to leave the lab to acquire appropriate clothing.
- No eating, drinking, or preparing food in the laboratory. Smoking is not allowed anywhere in Cole Science Center. Food found in the labs will be removed from the lab.
- Gloves and other personal protective equipment must be removed before leaving the lab, and should not be worn in classrooms, hallways, offices or copy rooms.
- Be sensible and work carefully. Conduct your activities in a safe and responsible manner. Pay attention to what is happening around you.
- When in doubt, ask for help. Do and use only those things for which you have been trained.
- Use the buddy system; conduct all lab work with someone else present.
- Know where safety equipment is located and the procedures for using it (e.g., fire extinguishers, drench showers and first aid kits).
- Observe all signs.

**Prior to working with the following, read the Laboratory Safety Manual, Sections 1 and 2, and the appropriate sections as identified below. Consult your instructor regarding your plans, personal safety and disposal procedures:**

- Hazardous materials - (Sections 3 and 4)
- Biological Materials - including potential biohazards, human or animal body fluids, microbiological pathogens, infectious materials, DNA/RNA, or laboratory animals. (Section 5)

- Radioactivity – May not be used in CSC. (Section 8.1)
- Compressed Gases and Electrical Equipment - (Sections 2.6-2.7 and 4.2.2)

**All laboratory users are responsible for the following:**

- Plan your lab work; walk through each step of your experiment before actually using materials.
- Review the Material Safety Data Sheet (MSDS) for what you will be using; know its potential hazards (e.g., chemical, biological, radioactive). Binders of MSDS's are located at the north end of the 2nd floor of Cole Science Center. (Section 2.3)
- Use personal protective equipment (PPE) appropriate for the task. Wear the personal protective equipment (safety glasses, gloves and lab coats) recommended in the MSDS or by the instructor when working with any materials that could splash, break (e.g., glass), explode, or are hazardous on contact. Promptly replace PPE and clothing suspected of being contaminated with clean materials. Remove all personal protective equipment before leaving the lab area. (Section 2.4.2)
- Safety glasses are required to be worn by all laboratory users when performing, observing, or supervising operations where there is a possibility of injury to the eyes and/or face. Wearing contact lenses is highly discouraged when working with or near chemicals, particularly solvents. (Section 2.4.1)
- Work in a hood when working with hazardous, volatile or odorous materials, when heating materials or when conducting reactions that release gases. (see Section 2.5)
- Prevent reactions and splattering by slowly adding more concentrated solutions to less concentrated solutions (e.g., add acids to water) while stirring gently.
- Do not leave reactions or projects unattended; put things away before leaving. Activities and projects not involving hazardous materials can be left out in clearly designated and labeled areas, provided they do not interfere with fire safety issues, or impact space needed for classes or general work areas. Reserve these areas with the Lab Manager prior to use.
- Clean up promptly, properly disposing of all waste materials. Do not put soil or plant material down the drain. Hazardous wastes and biohazards may not be disposed of in the general trash or down drains. (Section 3.3 for disposal of hazardous materials; Section 5.2 for biohazard materials)
- Avoid inhaling fumes of any kind. Work in a fume hood if fumes or gases may be generated. (Section 2.5)
- Close all chemical containers firmly, label and put them away after use. Labels should include your name, the date, the contents and any associated hazard warnings. Select a storage area with your instructor or the Lab Manager.

- Dispose of chemical wastes into the appropriate waste containers. Ask for assistance! Separate solids and liquids. Aqueous, organic, acid and basic wastes must be disposed of separately. Write additions (all chemicals) on the waste container label.
- Notify your instructor or the Lab Manager of any potential hazards in the lab.

<b>Accidents and Emergencies</b>
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**The following basic steps apply to ALL emergency situations:**

- 1. Worry about personal safety first.** The first priority in an emergency response is the protection of life and health.
2. Make sure everyone in the immediate vicinity is aware of the problem and safe from being hurt. Call for assistance and notify others. Move everyone away from the site of the accident.
3. If someone is injured or there is an accident, call ext. 5555. The Lab Manager must be notified of all spills and accidents. This notification is important, to assure that people are properly treated and to assure that spills are properly cleaned up.
4. Pull the box alarm to evacuate the building if the emergency cannot be contained or if there is any doubt as to the severity of the situation. Contain the emergency only if it can be done without causing harm to yourself or others.
5. Evacuate the building using the stairs; stairwells from the CSC are located at the north and south ends of the building. Do not use the elevators. Close any doors behind you. After leaving the building, assemble on the front lawn directly to the east of the CSC (towards the front drive and bus stop), at a safe distance from the building. Do not re-enter the building under any condition until the Campus Police Officer gives the all clear sign.

<b>EMERGENCY TELEPHONE NUMBERS</b>	
<b>EMERGENCY and EMT dispatch</b>	Extension 5555
<b>Campus Police</b>	Extension 5424
<b>Environmental Health &amp; Safety</b>	Extension 6620
<b>Lab Manager</b>	Extension 5386

**Clothing Fires**

If a person's hair or clothing catches on fire, have the victim:

- **STOP** - do not run; this will only enhance the fire.
- **DROP** - to the floor and cover the face with the hands.
- **ROLL** - to put out the flames. Fire blankets can also be used to put out flames.
- **Call ext. 5555** to report the fire and begin the emergency response process.

<b>Emergency Equipment Locations</b>		
Eyewash	Showers	First Aid Kits
North and South ends of 2 <sup>nd</sup> & 3 <sup>rd</sup> floors	North and South ends of 2 <sup>nd</sup> & 3 <sup>rd</sup> floors	North and South ends of 2 <sup>nd</sup> & 3 <sup>rd</sup> floors
Basement B-2	Basement	
1 <sup>st</sup> floor Environ. Sci/Prep Room	1 <sup>st</sup> floor Environ. Sci/Prep Room	

### **Chemical spills**

1. Small non-hazardous spills (e.g., water or soil) should be cleaned up promptly.
2. Spills of corrosive materials (e.g., acids and bases) must be neutralized before clean-up. Ask for assistance. Untrained staff/faculty/students should not assist in clean-up efforts.
3. Other chemical spills or large spills should be referred to the lab manager or EH&S for cleanup.

### **Spills to the body**

1. Immediately lead the affected person to an Emergency Shower, located at the south and north ends of the 2<sup>nd</sup> and 3<sup>rd</sup> floors, and in the basement.
2. Turn on by pulling the shower handle down.
3. Have them stay under the shower for 15 minutes or until medical assistance arrives.

### **Materials in the eyes**

1. Immediately lead the person to the eyewashes, located next to the showers.
2. Place their face and eyes in the stream of the eyewash.
3. If necessary, aid the victim in holding their eyes open. Do not rub the eyes.
4. Flush the eyes for a minimum of 15 minutes or until medical assistance arrives.

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This handout is a summary of the Hampshire College Cole Science Center Laboratory Safety Manual which:

- (1) provides guidance for safe work practices and procedures to minimize potential exposure to chemical, radioactive and biological hazards; and
- (2) defines the roles and responsibilities of laboratory users.

Complete copies of the Laboratory Safety Manual, presenting explanations and guidelines as to how the CSC should operate on a daily basis, are available at: the north end of the second floor of Cole Science Center with the MSDS's and other reference materials, in the Natural Science Office on the 3rd floor, or from the Lab Manager.