

Section 1 - Introduction

Hampshire College is committed to providing a healthy and safe environment for its students, staff, faculty, and visitors. This Safety Manual for the Cole Science Center (CSC) has been developed by faculty and staff members from the School of Natural Science (NS) and Hampshire College's Environmental Health and Safety Office (EH&S).

In order to implement this Safety Manual, all faculty and staff are asked to read this Manual and sign a form acknowledging that they are aware of the policies for work in Cole Science Center, and stating they will follow those policies. *It is the responsibility of faculty to provide supervision for students working in CSC.*

Training is provided to employees (faculty, staff, and student workers) as well as to students using the laboratories. The School of Natural Science and the Environmental Health and Safety Office coordinate training sessions for employees.

1.1 OVERVIEW

This Manual provides guidance for safe work practices and procedures to minimize potential exposure to chemical, biological and radioactive hazards.

Before working in laboratory areas, students, staff, and faculty should identify or review the following:

- Laboratory policies applicable to the work.
- Potential hazards of the materials you will be working with, at a minimum, reading the product's Material Safety Data Sheet (MSDS).
- Appropriate safeguards, the necessary personal protective equipment, and proper handling, cleanup, and disposal procedures for working with your materials.
- Proper practices for the use, transport, and disposal of the materials.
- Appropriate actions to take in case of accidents and emergencies, including spill cleanup procedures.
- The location and proper use of emergency equipment such as fire extinguishers, blankets, fire alarms, emergency showers and eyewashes, and evacuation routes.

Responsibility for maintaining a safe work environment and safe practices within Cole Science Center falls first to the faculty for areas where they or their students conduct work. Responsibility for the faculty and staff falls to the Dean of Natural Science.

This Manual is available to faculty and staff on-line and copies are provided upon request. Review copies for students are available in the Natural Sciences Office, Monitor Desk (with Material Safety Data Sheets), and Lab Manager's Office.

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1.2 ELEMENTS OF THE MANUAL

The Safety Manual is divided into 10 sections as outlined below.

Section 1 – Introduction – The College policy on safety in the laboratory and a description of responsibilities.

Section 2 - Emergency Planning and Procedures: What to do in the event of personal injury, accidents, spills, and fires.

Section 3 – Safety Equipment: Location use and maintenance information for lab safety equipment.

Section 4 - Lab Use - Procedures and Policies: Laboratory protocols and policies, including general safety rules, and information on the use of MSDSs, personal protective equipment, and various types of hoods.

Section 5 - Work with Hazardous Materials: A description of the most common types of hazardous materials used in the lab (depending on the course), and requirements for preparing for, working with, and cleaning up after using hazardous materials.

Section 6 - Chemical Management: Describes procedures for the purchase, storing, handling, and disposal of chemicals, including gases.

Section 7 - Biological and Controlled Substance Safety: Requirements for working with human, animal and other biohazards, and Controlled Substances and the storage, treatment, and disposal of those materials.

Section 8 – Radiation and Safety: Requirements for use of lasers including registration, training, and operating procedures.

Section 9 – Training: A description of the training programs for faculty, staff, and students.

Section 10 – Record Keeping: Describes location and procedures to access records required under OSHA regulations.

1.3 OBJECTIVES AND REGULATORY BASIS OF THE MANUAL

The objectives of this Safety Manual are to define procedures that:

- create a safe, healthy environment within Cole Science Center, for everyone who uses the CSC laboratories, either as an employee, a student, or a visitor
- comply with Federal Occupational Safety and Health Administration (OSHA) regulations requiring a Chemical Hygiene Plan (CHP) and environmental regulations

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This Safety Manual is based on federal requirements and recommendations from the National Research Council (1995) for a Chemical Hygiene Plan. In January, 1990, OSHA issued a safety and health standard entitled, *Occupation Exposure to Hazardous Chemicals in Laboratories* (29 CFR¹ 1910. 1450). This Standard directed laboratories to study their work areas and create a Chemical Hygiene Plan. All laboratories as defined in that standard are required to have a Chemical Hygiene Plan implemented for their lab facility, and to have that Plan available on-site for review. This Safety Manual serves as that Plan for the Cole Science Center at Hampshire College.

1.4 ROLES AND RESPONSIBILITIES

Implementation of this Manual is the responsibility of Natural Science (NS) faculty and the members of the CSC Safety Committee. The CSC Safety Committee, Hampshire College's Chemical Hygiene Officer, and the Dean of the School of Natural Science are responsible for:

- developing policies and procedures necessary to achieve the safety objectives presented in this Manual
- acting as liaisons with the members of NS for the implementation of those policies and procedures
- annually reviewing the status of and compliance with this Manual
- reviewing filed reports of all accidents in CSC and taking corrective actions as necessary
- developing educational training programs to make the CSC community aware of the safety policies and practices
- approving protocols for laboratory operations for which a protocol is required by this Manual or requested by the Committee
- enforcement of the policies and procedures of this manual

The Committee has the authority to request, and approve or deny, protocols for laboratory operations. The Committee approves any modifications to this Manual. The meetings of the Safety Committee are also to exchange information, and prepare for upcoming events such as training. Any member of the CSC Safety Committee can request a meeting and/or raise any pertinent issues that relate to the Safety Manual.

1.4.1 Safety Committee Membership and Procedures

The Cole Science Center Safety Committee includes: the Chemical Hygiene Officer (CHO), the Dean of the School of Natural Science, the Lab Manager, a member of the Environmental Health and Safety (EH&S) office, and representatives from the school. School representatives are appointed by the Dean of Natural Sciences. Current membership is available from the office of the Dean of Natural Sciences.

¹ Code of Federal Regulations (CFR)
http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10106

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A quorum is defined as 50% or more members. Voting is by simple majority. Members involved in an issue under discussion are excluded from the discussion and any required vote on that issue.

1.4.2 Members of the School of Natural Science

Faculty and instructors are responsible for:

- following the policies and procedures of this Safety Manual in their laboratories.
- recognizing and controlling hazards in the laboratory.
- selecting laboratory practices that minimize the risk of injury or chemical exposure.
- providing safety information and training to staff, students and visitors under their supervision.
- minimizing the generation of hazardous waste (see Section 6.5).
- arranging for immediate response to injuries, spills or other emergencies in areas under their supervision.
- reporting unsafe conditions that cannot be immediately remedied to the Lab Manager.
- reporting all personal injury, accidents, and spills to the Lab Manager.
- insuring proper safety procedures are followed and hazards identified in advance of all research protocols implemented by themselves, or their students. This will include written notification of research projects and associated hazards (if any) to the Lab Manager with at least 24 hour notice prior to implementation of said research project(s).
- providing protocols or other health and safety information requested by the Safety Committee, Dean of Natural Science, or the Lab Manager.
- securing chemicals in their area from unauthorized access.
- maintaining the CSC chemical inventory.

1.4.3 Laboratory Manager

In accordance with the Safety Manual, the Lab Manager assists faculty and students in the safe and proper operation of the science labs. The Lab Manager, or her/his representative, is responsible for the following:

- maintaining appropriate permits for regulated materials
- ordering of supplies and equipment
- maintenance and service of equipment (coordinated with the Lab Technician)
- maintenance and inventory of chemicals stored, including compliance with regulations and compilation of MSDS information
- regular inspection and maintenance of: labs (monthly), fume hoods, laminar flow hoods and biological safety cabinets (yearly), emergency showers (semiannually) and eyewashes (weekly).
- maintaining the CSC chemical inventory for stockroom chemicals and securing those chemicals from unauthorized access.
- Conducting weekly inspections of all hazardous waste satellite accumulation areas and forward inspection sheets to EH&S.

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An inspection of the laboratories is conducted monthly by the Lab Manager to identify areas in which the CSC is not in compliance with the Safety Manual. The Lab Manager records the findings of this audit in a logbook, and reports to the Safety Committee and the Dean of Natural Science. Corrective action is also recorded in the logbook and reported to the Committee and the Dean of Natural Science.

1.4.4 Students

STUDENTS SHOULD NEVER WORK ALONE IN THE LABS.

All students are responsible for: (1) working in a safe and responsible manner in the laboratory; (2) performing all work in accordance with the procedures established by the supervising faculty or instructor; (3) wearing required protective equipment (e.g., goggles); (4) following established emergency procedures in the event of an accident or chemical spill; (5) complying with the "Evening/Weekend Policy" (Appendix 1-A), including never working alone in the laboratory; and (6) reporting all accidents, chemical spills, and unsafe conditions to the supervising faculty or instructor, and the Lab Manager.

1.4.5 Environmental Health and Safety (EH&S)

EH&S provides support to the School of Natural Science in a number of areas. This support is designed to increase the general level of safety and compliance with applicable standards within Cole Science. The specific areas of support include the following:

- serve as the Chemical Hygiene Officer
- coordinate emergency response
- inspect the building monthly to include:
 - fire extinguishers and other safety equipment
 - corridors and exits
 - general housekeeping
 - other fire and safety violations
- assist with the proper removal of hazardous waste
- maintain the hazardous waste accumulation area including weekly inspections
- maintain all hazardous waste inspection records
- assist with the yearly test of the fire alarm system
- participate on the CSC Safety Committee
- provide or assist in safety and environmental training programs

1.4.6 Other Committees

In addition to the Cole Science Safety Committee are Hampshire's Institutional Animal Care and Use Committee (IACUC), the Institutional Review Board (Human Subjects Committee) and the Environmental Health and Safety Steering Committee – all of which are campus-wide committees.

1.5 ENFORCEMENT

The CSC Safety Committee is charged with enforcement of the policies and procedures of the Safety Manual. The Committee has the authority to shut down any operation which does not comply with those policies and procedures or which is deemed a hazard to life, health, or the environment.

If the infraction is judged to be an immediate threat to life, health, or the environment, by any member of the Committee, the faculty member or student will be required to immediately cease the activity. The Committee member taking this action will notify the Chair as soon as practical.

For less serious infractions, the faculty member or student will be given a written description including the action needed and a deadline for completion. In cases when corrective action is not completed by the deadline or if repeated notices are issued for the same infraction, the faculty will be required to cease the operation. The Committee representative may remove any chemical or equipment to a secure location if necessary.

Appeal of any enforcement action must first be made to the Chair of the Safety Committee. The Committee will review the appeal within 5 days. Further appeal of the Safety Committee decision must be made to the Dean of Faculty. During any appeal, the operation must remain inactive.

APPENDIX 1-A

**Cole Science Center
Evening/Weekend Policy**

Cole Science Center is open to students seven days a week except for holidays and college break. Students have access to the building during the following hours:

Monday through Thursday.....8:30a.m. to midnight

Friday.....8:30a.m. to 8p.m.

Saturday.....10:00a.m. to 5:00p.m.

Sunday.....12:00p.m. to 10:00p.m.

All students must check in with the CSC Monitor on the second floor for access after regular business hours. Students must leave their current college ID with the monitor, and will have it returned to them when they sign out.

Once the building is locked, NO STUDENTS are allowed to remain in the building.

Students working in the lab after 4:30pm Monday through Friday and on weekends must be accompanied by a professor or buddy, if they are conducting hazardous work. If it is unclear whether the work is hazardous, please see/email the lab manager during regular business hours for approval.

Students working in the basement must be accompanied by a professor or a buddy at all times regardless of the nature of the work they are conducting.

All students working independently (i.e. not in a class or lab) after 4:30p.m. must complete on-line Laboratory Safety Training. Please see the lab manager for details.

Anyone serving in a buddy capacity must be a Hampshire College student or enrolled in a Hampshire College course.

During breaks, students may access Cole Science Center when the building is open with permission from and direct supervision by their faculty or staff mentor.