



Departmental Laboratory Safety Plan (DLSP)

**A Department Specific Supplement to the Colby College
Laboratory Safety Plan (LSP)**

Biology and Environmental Studies

STUDENTS
IN THE CASE OF AN EMERGENCY:

- If you are in immediate danger such as a fire, or large chemical spill, pull the fire alarm, evacuate the area and building, and call Security at Extension 5911, or from a mobile phone at 859-5911, from a safe location. Locate the members of your lab personnel outside at a prearranged meeting space.
- Notify your instructor or supervisor if not in immediate danger. Phone numbers for people responsible for the room are listed on the door labels outside of each lab. DO NOT LEAVE THE AREA UNTIL HELP ARRIVES.
- Never attempt to handle an emergency or a spill by yourself. Always find a partner and notify Security at extension 5911 or 859-5911 from a mobile phone.
- DO NOT attempt to handle any emergency situations that make you feel uncomfortable. Please evacuate the area and call for immediate assistance (use information on door signs).
- THE COLBY EMERGENCY CAMPUS SIREN: If you hear the alarm siren atop the Mudd building sound, listen for and follow any verbal instructions given at the end of the tone. If you cannot clearly understand the instructions, go to the Colby College homepage (www.colby.edu) and follow the instructions given there.
- When the Health Center (HC) is open, all students with minor/moderate injuries should go to the HC for evaluations. The HC is open 8-8 Monday-Friday and 12-8 Saturday-Sunday.
- Off hours or for more serious injuries should go to the ER for evaluation either transported by Security or if need be City ambulance.

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1.0 PURPOSE

- 1.1r** The Departmental Laboratory Safety Plan (DLSP) has been drafted as a departmental specific supplement to the college-wide Laboratory Safety Plan (LSP). Its intent is to detail safety protocols and guidelines not specifically addressed in the LSP that are particular to the department(s) or program(s) indicated. The DLSP expands upon and (unless otherwise stated) is consistent with content of the LSP. The DLSP should only be used in conjunction with the LSP, which continues to serve as the primary reference for general chemical safety protocols.

2.0 SCOPE

- 2.1r** The requirements of the DLSP apply to all faculty, staff, students, and student employees that work in the laboratory facilities or conduct fieldwork in the Department of Biology and the Environmental Studies Program. Departments or programs not specifically covered by this document are responsible for drafting and maintaining their own DLSP.

3.0 REFERENCE DOCUMENTS

- 3.7a** Colby College Laboratory Safety Plan, Rev. B, May 2014

4.0 DEFINITIONS

5.0 RESPONSIBILITIES

6.0 LAB SAFETY REQUIREMENTS

The following includes basic guidelines for maintaining a safe working environment in all laboratories at Colby College.

6.1 General Lab Safety Requirements:

- 6.1.1r** Any students working unsupervised in a teaching or research laboratory must complete an approved online safety training module and sign a safety training acknowledgement. This includes research assistants (paid or unpaid), students pursuing independent study, and general or teaching assistants who work after hours doing preparatory work for labs. It is the responsibility of the PI/supervisor to determine if these criteria apply to their students. Faculty and staff may require and provide additional training specific to their laboratories. Within these requirements, faculty and staff may determine on an individual basis whether students may work alone in the laboratory.

- 6.1.2r** See 6.1.1r

6.6a Fieldwork Specific Safety Requirements:

- 6.6.1a** Students driving Colby vehicles or rental vehicles for either class or research must be Colby Certified Operators and must adhere to Colby's Fleet Safety Policy. Contact The Safety Office (859-5504) for instructions.

6.6.2a Students using trailers, whether for transporting boats or other equipment, must complete a safety training course. These courses are usually held annually in June. Contact the PI for more information. PIs may require annual attendance.

6.6.3a Students operating any of Colby's boats must complete both the online safety training course and attend on-campus training. Training is usually offered annually in June. Contact the PI for more information. PIs may require annual attendance.

7.0 REQUIREMENTS FOR CHEMICAL LABELING, TRANSPORT AND STORAGE

8.0 WASTE MANAGEMENT

8.2 Hazardous Waste:

8.2.3r Quantofix Peroxide 100 test strips are available upon request from the Chemical Hygiene Officer to determine the level of peroxide formation in stored chemicals. Peroxide containing chemicals require special handling. Please contact the CHO if the strip tests positive for peroxides.

8.2.5 Hazardous waste must be accumulated/stored in a Satellite Accumulation Area (SAA) for disposal to the Hazardous Waste Storage Room in Keyes Room 4 by the CHO.

8.2.5.1r Biology and ES SAAs are listed in Appendix I. Biology and ES SAAs are typically placed in areas where hazardous wastes are routinely generated. Occasional hazardous wastes generated in areas without a dedicated SAA may be placed in a nearby SAA after consultation with the SAA administrator of the Department Safety Coordinator. The SAAs are clearly labeled and are monitored weekly for proper use. Each SAA has reminder sheets for waste identification, proper use, and separation based on incompatibilities.

8.5 Solid Waste:

8.5.1r SAAs are individually equipped for the type of waste collected at that location. This may include suitable containers for liquid or dry chemicals, as well as laboratory materials (e.g., tips, tubes, gloves, paper) contaminated with hazardous chemicals. No chemicals should ever be placed in the general trash. The Department Safety Coordinator can advise upon and provide suitable containers for various types of waste collection.

9.0 HAZARD COMMUNICATION

9.1 Door Signs:

9.1.3r Lab Safety Summary Sign: Inside each laboratory is a yellow sign that displays the emergency phone extension and several tips to ensure a safe working

environment. Please be familiar with and follow these safety tips at all times. A copy of the sign used in Biology and Environmental Studies laboratories is provided in Appendix II.

9.2 MSDS/SDS:

9.2.2r Biology and Environmental Studies do not currently maintain hard copies of MSDSs/SDSs. Hard copies of selected MSDSs/SDSs are maintained by the chemistry department and are available in binders on the third floor of Keyes. Several searchable online resources are available to download MSDSs/SDSs. (Suggested sites are included in Appendix III.) In the event of an emergency, Colby Security has rapid access to online MSDSs/SDSs.

10.0 LABORATORY EMERGENCIES

10.2 Chemical Injury Response:

10.2.1 General treatment of contaminated personnel:

- _{4r} A list of all primary emergency eyewash and shower stations in Arey and Olin is provided in Appendix IV. In addition, secondary emergency eyewash stations are located adjacent to most laboratory sinks.

10.3 Physical Injury Response:

10.3.1r In the case of a minor injury, a first aid kit may be used to stabilize the wound; if necessary seek medical attention. First aid kits are located in a marked cabinet (typically under a sink) in all teaching laboratories. First aid kit contents are provided in Appendix V.

10.4 Spill Response Guidelines:

10.4.1r All personnel who work in a laboratory in which hazardous materials are used must be familiar with the location of the spill kit. Basic spill kits are located in a marked cabinet (typically under a sink) in all teaching laboratories. Spill kit contents and instructions for their use are provided in Appendix VI.

11.0 RECORDS

11.2a Copies of the Biology/Environmental Studies DLSP are located in the Biology Office in Arey and Olin 242.

12.0 TRAINING

12.4r Students working unsupervised in a laboratory must complete safety training in accordance with Sections 6.1.1r and 6.1.2r above. Classroom students working in a supervised environment may be required to complete abbreviated training based upon the Laboratory Safety Training Summary (Appendix VII). The Laboratory Safety Training Summary will be administered to introductory biology (BI163L) and introductory ecology (ES271L) students in the fall semester, and may also be used in upper-level laboratories. This training may also include safety policies and protocols specific to a particular course or laboratory. The training will be administered by

the course instructor or research mentor and designated departmental safety coordinator (where applicable) before any laboratory work begins.

13.0 ENFORCEMENT

14.0 ACKNOWLEDGEMENT

14.1r By signing the LSP the following Colby Personnel are certifying that they have reviewed these procedures and safety requirements, find the contents acceptable and agree to ensure implementation within Natural Science Departments.

Lynn Hannum
Biology Department Chairperson

Date

Scott Guay
Biology Department Safety Coordinator

Date

Philip Nyhus
Environmental Studies Director

Date

Abby Pearson
Environmental Studies Safety Coordinator

Date

Date

Date

Date

Date

Appendix I: Arey and Olin Satellite Accumulation Areas

Olin Science Building	221	Fume Hood	ES
Olin Science Building	227	Lachette	ES
Olin Science Building	228	Fume Hood	ES
Olin Science Building	229	Fume Hood	ES
Olin Science Building	314	Counter	Bio
Arey Science Building	301	Cabinet	Bio
Arey Science Building	307	Fume Hood	Bio

Appendix II: Arey and Olin Lab Safety Summary Sign

LAB SAFETY INFORMATION

IN CASE OF EMERGENCY, DIAL

5911

Campus phones are available in Arey 2nd and 3rd floor hallways and in Olin hallways near the elevator.

THE CHEMICAL HYGIENE PLAN MAY BE FOUND IN AREY 101. MSDS (MATERIAL SAFETY DATA SHEETS) ARE AVAILABLE:

- from the MSDSonline link on the MyColby homepage. Note, you must be logged in to view the link.
- Colby Security (emergency only)

Please observe these lab safety guidelines:

- No food, gum or drink in lab at any time.
- Wear shoes (no sandals, open toed shoes or bare feet).
- Wear eye protection whenever working with any hazardous chemicals.
- Use other protective clothing and equipment when necessary (gloves, aprons, etc.).
- Do not wear headphones in the lab.
- Know the locations of the nearest eyewash, shower, fire blanket and extinguisher, first aid kit, spill kit and gas shutoffs.
- Keep work areas neat. Store chemicals in their proper place. Sort by hazard. Do not use a bench top, the floor, or a hood for storage of chemicals.
- Understand the hazards specific to your laboratory. Be familiar with the chemicals that you use.
- Report any injury or spill to your immediate supervisor.

*For additional safety information contact your laboratory supervisor or the
Biology Safety Coordinator (Scott Guay, x5733, e-mail: slguay)*

Appendix III: Suggested MSDS/SDS Online Resources

For a comprehensive listing of free MSDS sites on the Internet:

ILPI: <http://www.ilpi.com/msds/index.html>

Recommended, easy to navigate MSDS archive sites:

MSDSXchange: <http://www.msdsxchange.com/english/index.cfm>

Vermont SIRI/Hazard.com: <http://hazard.com/msds/>

Colby is developing a database that will be available for campus-wide access:

MSDSonline: <https://msdsmanagement.msdsonline.com>

Appendix IV: Arey and Olin Primary Shower and Eyewash Stations

Primary drench showers multi-head eyewash stations are located in the following common areas:

	Eye washes	Shower
Arey Basement Hallway	X	X
Arey 1st Floor Hallway	X	X
Arey 2nd Floor Hallway	X (x2)	X (x2)
Arey 3rd Floor Hallway	X	X
Olin 2nd Floor Hallway	X (x2)	X (x2)
Olin 3rd Floor Hallway	X (x2)	X (x2)

In addition most laboratory sinks in Arey and Olin are equipped with swing-out or pull-out sprayer-type eyewashes.

Appendix V: Arey and Olin First Aid Kit Contents

Every teaching lab should have a first aid kit in a clearly marked plastic box. Each kit should include the following:

- Alcohol swabs (several)
- 3/4" wide adhesive bandages (several)
- Extra large adhesive bandages (1-2)
- Non-stick pads (1-2)
- 1" wide first-aid tape (1 small roll)
- First-aid cream
- Burn Cream
- First-aid facts sheet

Appendix VI: Arey and Olin Spill Kit Contents and Instructions

Chemical Spill Clean-up Kit

In the case of large volume spills or spills of extremely hazardous substances, evacuate the area and notify Colby Security at 5911 immediately

If you are not familiar with the spilled chemical, review the safety data sheet or meet with instructor before attempting the cleanup. Never perform a chemical cleanup when working alone.

Kit Contents:

- Universal Sorbent (loose)
- Universal Sorbent pads
- Gloves (nitrile)
- Dust Pan and Hand Broom
- 1 Gallon Zip-Lock Bags
- Waste Labels
- Spill Report Form

Spill Clean-Up Procedure:

- Notify the lab instructor of the spill, and review the safety data sheet as needed
- Don compatible gloves, goggles, and lab coat (PPE)
- Strong acids and bases should be neutralized using either citric acid (for bases) or calcium carbonate (for acid spills) if available.
- If liquid, cover the spill with sorbent pads or loose sorbent as needed (see directions on the container).
- Place or sweep the sorbent into the provided zip lock bag. Seal the bag and label using the provided "Hazardous Waste Spill Clean Up Debris" labels.
- Place the bag and used contaminated PPE into the plastic spill kit bin.
- Fill out the provided Spill Reporting Form and contact the Chemical Hygiene Officer for proper disposal.

****The safety data sheets for all chemicals used in the natural sciences can be reviewed at the link MSDSonline link on the MyColby homepage. Note, you must be logged in to view the link.**

Appendix VII: Laboratory Safety Training Summary and Acknowledgement

LABORATORY SAFETY TRAINING SUMMARY

Colby College Department of Biology
(Introduced Fall 2014)

PURPOSE

This document summarizes critical information regarding general laboratory safety in Colby College Biology Department teaching laboratories. It is not intended to replace more comprehensive information available in the campus wide Laboratory Safety Plan (LSP), or any individual Departmental Laboratory Safety Plan (DLSP) supplementing the LSP. Participation in certain teaching and research laboratories may require additional safety training and certification.

GENERAL INFORMATION

Emergency contact and chemical hazard information are posted outside the door of all biology laboratories. General safety regulations are posted in a prominent place inside the laboratories. Familiarize yourself with the location and content of such signage in every lab in which you work.

Your instructor will alert you to the hazards and safety requirements specific to your laboratory or activity. In general, please observe these safety guidelines when working in any biology laboratory:

- No food, gum or drink in lab at any time.
- Wear shoes (no sandals, open toed shoes or bare feet).
- Wear eye protection and other protective clothing (e.g., gloves, aprons) and equipment (e.g., fume hoods) whenever working with any hazardous chemicals or procedures.
- Do not wear headphones in the lab.
- Know the locations of the nearest eyewash, shower, fire blanket and extinguisher, first aid kit, spill kit and gas shutoffs.
- Keep work areas neat. Store chemicals in their proper place. Use equipment properly and heed any relevant safety warnings.
- Understand the hazards specific to your laboratory or activity. Ask questions if in doubt.

CHEMICAL HAZARDS

Labeling and Storage

All chemical containers, whether original or secondary, **MUST** be labeled as to their contents. **NEVER** leave a chemical container unlabeled, even if you are using it for only a short period of time!

Chemical hazards vary in both type and intensity. Major classes of chemical hazards include flammability, health, and reactivity (i.e., instability). Many chemical bottles will feature a diamond-shaped NFPA label detailing the degree of each of these hazards. Note the appearance of the NFPA label in the example below; the four colored quadrants represent these specific hazards, with the number (0-4) representing the degree of that hazard. A fourth quadrant is included to indicate any special hazards specific to that chemical.



Chemicals posing significant hazards in one or more of these areas are typically stored in a separate location designed to minimize risk. For examples, flammable chemicals and strong acids are kept in special cabinets clearly labeled for those purposes. Know the locations of such cabinets in your laboratory.

Disposal

Once used, hazardous chemicals are considered *hazardous waste*. They must be clearly labeled as such, and placed in an approved Satellite Accumulation Area (SAA) pending proper disposal. Your instructor will direct you to the nearest SAA when necessary.

Notify your instructor in the event of a chemical spill (hazardous or not). Teaching laboratories are equipped with basic chemical spill kits to facilitate proper clean-up and disposal of chemical spills.

More Information

Comprehensive information about any chemical can be found in that chemical's Material Safety Data Sheet (MSDS). An online search is the quickest way to locate an MSDS. However, a library of MSDS hard copies is available in the third floor hallway of the Keyes building (Chemistry Department).

OTHER HAZARDS

Sharps and Glassware

Biology laboratories often use sharps such as razor blades, scalpels, or needles. Glassware (including slides and coverslips) is used extensively, and is subject to breakage. These items must be stored and disposed of properly, typically in special bin or box designed for the purpose.

NEVER DISPOSE OF SHARPS OR GLASS (BROKEN OR NOT) IN THE TRASH!

Equipment

Laboratory equipment may require you to observe certain precautions, both for your own safety, and for that of the equipment. Read all warnings and operating instructions carefully, and consult your instructor if something is not clear.

Use care when moving heavy or bulky equipment. Use both hands and, if necessary, a suitably sturdy cart.

Open Flames

Exercise particular caution around open flames (such as Bunsen burners). Maintain a wide area around the flame that is clear of chemical, lab equipment, papers, books, and body parts (including long hair).

NEVER LEAVE A FLAME UNATTENDED, EVEN FOR A MOMENT!

Biohazards

Use protective clothing (such as gloves) when handling potentially pathogenic organisms or biohazardous substances. Wash your hands thoroughly when you are finished working.

Dispose of such materials (including gloves and other potentially contaminated items) in receptacles designed for the purpose. These are typically special bags

EMERGENCY RESPONSE

Chemical Contact

Contact with a hazardous chemical requires the following immediate actions:

- If splashed: use the nearest eyewash (keep eye open) or shower (remove clothing) for at least 15 minutes.
- If inhaled: immediately remove the victim to fresh air using appropriate precautions.
- If burned: soak in an ice water bath for at least 15 minutes.

ALWAYS alert your instructor of any injuries, accidents, or near accidents (even the minor ones). Serious cases may require intervention by emergency personnel.

Fire

ONLY TRAINED FIREFIGHTERS ARE EXPECTED TO FIGHT FIRES! Unless you are confident that a small contained fire can be safely extinguished with a fire extinguisher, do not attempt to do so. Exit the building as quickly as possible, pulling the fire alarm as you leave.

In the event of a fire alarm, immediately stabilize any ongoing chemical reaction and exit the building as quickly as possible. Congregate with other building occupants at a safe distance from the building. Do not leave the area.

Getting Help

Dial 5911 from any campus phone to report an emergency directly to campus security (who will quickly summon the appropriate authorities).

In the event of a fire, pull the fire alarm to immediately dispatch the local fire department.

Campus-Wide or Civil Emergencies

If you hear the alarm siren atop the Mudd building sound, listen for and follow any verbal instructions given at the end of the tone. If you cannot clearly understand the instructions, go to the Colby College homepage (www.colby.edu) and follow the instructions given there.

ACKNOWLEDGEMENT

You may be required to sign the attached form acknowledging that you understand these safety guidelines and the consequences for not following them.

**COLBY COLLEGE
BIOLOGY/ ENVIRONMENTAL STUDIES SAFETY TRAINING
ACKNOWLEDGEMENT**

By signing this Safety Training Acknowledgement, I, _____
(Print Name)

confirm that:

- I have read and understand the Department Laboratory Safety Summary.
- I will follow all safety rules found in the Department Laboratory Safety Summary, including, but not limited to, proper protective equipment, chemical handling, emergency response, proper attire, hazardous waste handling, and no food or drink in labs. I understand that I am also obligated to follow any additional specific safety instructions provided by my instructor.
- I will report any safety hazard to my instructor immediately.
- I will report any chemical spill to my instructor immediately.
- I understand that failure to follow the practices contained in the Department Laboratory Safety Summary could result in a downward grade adjustment and/or disciplinary action up to and including dismissal from Colby.
- I understand that failure to follow the practices contained in the Department Laboratory Safety Summary could result in serious injury, or even death to a classmate or myself.

Signature: _____

Date: _____

