

UT Health Science Center: GS5300 - Instructional Lab Safety Program	
Version 2	Publication Date: 05/20/2024

Objective

This procedure describes the safety program intended to protect faculty, staff, students, visitors, and the environment from hazards associated with instructional laboratories or similar experiential learning facilities. Stakeholder roles and responsibilities as well as basic risk mitigation strategies are included.

Scope and Applicability

This procedure applies to University of Tennessee Health Science Center instructional laboratories or other experiential learning facilities at all campus locations where hazardous substances (biological, chemical, or radiological), hazardous procedures, or equipment are used.

Definitions

Hazardous Substance – any biological, chemical, or radiological substance capable of causing injury.

Instructional Laboratory – facility where teaching, practical exercises, or other experiential learning occurs, including wet laboratories, dry laboratories, academic shops, or maker spaces.

Laboratory Supervisor/Coordinator – the individual with primary oversight responsibility for instructional laboratories.

Teaching Assistant – the individual (typically a graduate student) that delivers a range of teaching and assessment activities in the instructional laboratory, including assisting and monitoring students as they conduct experiments or practical exercises.

Chemical Hygiene Plan – a written plan which defines procedures, equipment, personal protective equipment, and work practices that are capable of protecting employees from chemical hazards in that particular workplace.

Exposure Control Plan – a written bloodborne pathogens exposure prevention program. It details in writing your plan for reducing exposures to blood and explains what steps to take if an exposure occurs. The plan specifies all steps taken your facility to protect your workers.

Abbreviations

ACS: American Chemical Society

ASM: American Society for Microbiology

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EHS: UTK Environmental Health and Safety

EPA: Environmental Protection Agency

GSM: Graduate School of Medicine

OSHA: Occupational Safety and Health Administration

PPE: Personal protective equipment

SDS: Safety Data Sheets

TDEC: Tennessee Division of Environment and Conservation

UTIA: University of Tennessee Institute of Agriculture

UTK: University of Tennessee at Knoxville

Roles

Identify the individuals involved and describe their responsibilities in this procedure.

College Administration (Associate Dean for Academic Programs) should:

- Communicate the Instructional Laboratory Safety program to all departments within the college and promote its implementation.
- Ensure departments are equipped with the appropriate facilities and safety equipment to support instructional laboratories.
- Promote safety as a fundamental component of experiential learning.
- Assist with resolution of safety concerns related to instructional laboratories as necessary.
- Conduct periodic reviews of the instructional laboratory safety program and recommend improvements as appropriate.

Department Heads or Unit Leadership should:

- Communicate the Instructional Laboratory Safety Program to all laboratory supervisors or coordinators within the department and promote its implementation.
- Ensure that instructional laboratory staff (supervisors/coordinators and teaching assistants) are appropriately trained to manage the hazards in the laboratory as well as any emergencies that may result from their use.
- Ensure that departmental instructional laboratories and associated safety equipment and safety procedures are appropriate for the planned experiments or exercises.

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- Verify that course syllabi and/or other supplemental materials explicitly communicate hazards/risks and appropriate protective measures.
- Promote safety as a fundamental component of experiential learning.
- Assist with resolution of safety concerns related to instructional laboratories as necessary.
- Conduct periodic reviews of the instructional laboratory safety program and recommend improvements as appropriate.

Laboratory Supervisors/Coordinators should:

- Follow applicable regulations, policies, procedures, and guidelines (e.g., campus Safety Manual procedures, those established by the American Chemical Society (ACS), American Society for Microbiology (ASM), or other relevant safety organizations) for the handling, storage, and disposal of hazardous substances.
- Complete relevant safety training and ensure that all staff, including teaching assistants, have completed training.
- Adhere to and promote compliance with the UTHSC chemical hygiene plan (CHP). Supplement the UTHSC CHP with standard operating procedures, practices and guidelines for hazardous materials and equipment handled in instructional labs. This should include procedures for the preparation, use, and disposal of hazardous chemicals, particularly those that are carcinogenic, reproductive toxins, or acutely toxic.
- Ensure availability of safety data sheets (SDS) or other relevant hazard information. Communicate the location of safety documents to affected staff, teaching assistants and students.
- Submit an inventory of hazardous substances (e.g., chemical inventory) to Safety Affairs or upload to EHSA safety database. Update the inventory as necessary to ensure accuracy.
- Ensure that teaching assistant are appropriately trained to manage the hazards in the laboratory as well as any emergencies that may result from their use.
- Maintain instructional laboratory equipment and ensure that it is in good repair and functioning appropriately.
- Ensure hazardous wastes are appropriately segregated, labeled, and disposed.
- Determine the proper PPE to be worn for designated procedures. Methods for cleaning or replacing PPE should be established and communicated to instructional laboratory staff and students as applicable. (Note: PPE provisions and cost recoveries are at the discretion of departmental/college leadership.)
- Prepare a course syllabus and/or other supplemental materials to explicitly communicate the types of hazards used in the instructional laboratory, expected safety practices, and any special health considerations for students, particularly those that may require medical consultation. **Appendix A** is an example checklist that can be used for this purpose.
- Ensure laboratories or experiential learning settings are properly equipped and maintained to meet the safety requirements associated with tasks performed in that location. **Appendix B** is an example checklist identifying materials, equipment and signage that may be appropriate in laboratories or learning environments.

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- When appropriate, emphasize new/unique risks and instruct teaching assistants on any special precautions that need to be taken.
- Instruct teaching assistants and students on emergencies that may arise in the instructional laboratory as well as respective emergency response procedures (e.g., location and use of emergency eyewash stations, evacuation routes, etc.).
- Immediately notify Safety Affairs of any laboratory spills, accidents, exposures, or containment failures involving hazardous substances.
- Promote safety as a fundamental component of experiential learning and ensure students are not working alone in teaching labs.
- Assist with resolution of safety concerns related to instructional laboratories as necessary.
- Conduct periodic reviews of the instructional laboratory safety program and recommend improvements as appropriate.

Teaching Assistants should:

- Follow safety procedures and instructions provided by the laboratory supervisor/coordinator.
- Complete relevant training as indicated by the laboratory supervisor/coordinator, department, or Safety Affairs
- Communicate and enforce safety requirements, including PPE use, in the instructional laboratory.
- When appropriate, emphasize new/unique risks and instruct students on any special precautions that need to be taken.
- Instruct students on emergencies that may arise in the instructional laboratory as well as respective emergency response procedures.
- Immediately notify the laboratory supervisor/coordinator of any laboratory spills, accidents, exposures, or containment failures involving hazardous substances. If the laboratory supervisor is unavailable, report to departmental leadership and/or Safety Affairs.
- Promote safety as a fundamental component of experiential learning and ensure students are not working alone in teaching labs.

Safety Affairs will:

- Establish and maintain a program for instructional laboratory safety.
- Partner with laboratory supervisors/coordinators to ensure that safety and relevant compliance objectives are met.
- Perform risk assessments and provide technical advice to instructional laboratory leadership as requested.
- Review or help develop guidance documents, technical bulletins, training slides or other instructional materials used to communicate the risks of working with hazards, prudent

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laboratory practices, health evaluation recommendations, and/or other risk mitigation strategies.

- Recommend or review PPE to be used in the instructional laboratory.
- Review or help develop emergency plans for handling accidental spills, exposures, or environmental releases.
- Investigate instructional laboratory incidents and make corrective action recommendations.
- Collect inventories of hazardous substances used in the instructional laboratory as necessary.
- Perform periodic laboratory safety reviews to verify facilities and prudent management of hazardous substances as indicated by relevant regulations, policies, procedures, and guidelines.
- Report any significant problems or teaching-related accidents or illnesses to the relevant safety committees and departmental/college leadership as appropriate.

Penalties/Disciplinary Action for Non-Compliance

Failure to adhere to regulatory requirements, campus procedures and guidelines may result in regulatory fines or penalties, disciplinary action or civil liability.

Responsible Official & Additional Contacts

Subject Matter	Office Name	Telephone Number	Email/Web Address
Policy Clarification and Interpretation	Safety Affairs	901-448-6114	safety@uthsc.edu
Policy Training	Safety Affairs	901-448-6114	safety@uthsc.edu

Related Policies/Guidance Documents

Regulations and Consensus Standards

29 CFR 1910.1030 OSHA Bloodborne Pathogens Standard

40 CFR, Part 725 (EPA)

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Centers for Disease Control and Prevention/National Institutes of Health Biosafety in Microbiological and Biomedical Laboratories, 6th ed. (2020)

TDEC Rule 0400-11-01-.04(2)(k)(4) (Regulated Medical Wastes)

UT Policies

UT System Safety Policy SA0100 – Safety and Environmental Health Program

UT System Safety Policy SA0300 – Ionizing Radiation Safety

UT System Safety Policy SA0450 – Biological & Select Agents

UT System Safety Policy SA0500 – Laser Safety

UTHSC Programs, Procedures, Plans, and Guides

UTHSC Chemical Hygiene Plan – RS001

UTHSC Exposure Control Plan – GS5200

UTHSC Biosafety Manual

UTHSC Hazard Communication Program – HM5100

UTHSC Hazardous Waste Management Plan

UTHSC Emergency Eyewash and Showers – GS5115

UTHSC Formaldehyde Exposure - HM5205

Disclaimer

The information provided in these guidelines is designed for educational use only and is not a substitute for specific training or experience.

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Appendices

Appendix A: Instructional Laboratory Safety Information Verification

Appendix B: Instructional Lab Set Up Checklist

Appendix A: Instructional Laboratory Safety Information Verification

Course Name			
Course Code(s)			
Dates Reviewed			
Departmental Reviewer			
EHS Reviewer (optional)			

Yes/No/NA	Comments	Requirement
Lab Attire		
		Explicit statements must be made about appropriate and inappropriate lab attire.
		No open-toed shoes are permitted in any labs.
		Ensure appropriate apparel (e.g., no shorts, no skin showing)
		Consider if certain tops (e.g., tank tops, exposed shoulders) should not be permitted.
		Explicitly state the consequences for arriving at lab in inappropriate attire.
Personal Protective Equipment		
		State PPE requirements for the lab (e.g., disposable nitrile gloves, chemical apron, eyewear protection, etc.).
		State when specialized PPE is required and how the information will be provided to the students (e.g., TAs will instruct students during the experiment about specialized PPE).
		The consequences for violating PPE requirements must be explicitly stated.
Behavior		
		No food or drink policy
		Explicitly state that disruptive or destructive behavior will not be tolerated

Yes/No/NA	Comments	Requirement
		Electronics policy if necessary. Such a policy should include when personal electronics are allowed and not allowed, administrative controls (e.g., only wearing one glove) and how to decontaminate electronics. The same should be stated for lab-provided electronics.
Emergencies		
		Students must be informed of emergency procedures, locations of emergency equipment (e.g., eyewash, safety shower, etc.), and how to use appropriately.
Incident Reporting		
		Explicitly state that a student must immediately inform a TA or instructor of any emergency, including spills, injuries, or exposures.
Health Considerations		
		Any health issues that may enhance the risk to the individual should be stated (e.g., pregnancy, organ impairments, immunological disorders, allergies, medications, etc.). Consultation with a medical professional should be advised as applicable.
Waste Disposal		
		A universal statement about appropriate disposal of hazardous reagents should be included.
		Specific waste disposal instructions must be included in each experimental procedure.
Other comments		

Appendix B: Instructional Lab Set Up Checklist

Course Name	
Course Code(s)	
Building/Room Number(s)	
Departmental Reviewer	
Safety Affairs Reviewer (optional)	

Item	Completed		
	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
1. Lab hazard placard posted to identify hazards and emergency contact information (available from Campus Safety by emailing safety@uthsc.edu)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
2. Emergency Contacts and Injury Reporting signs posted.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
3. Safety Data Sheets (SDS) are available for hazardous chemical handled in lab.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
4. Students and lab personnel appropriate Personal Protective Equipment (PPE) for use in the lab. (i.e., gloves, safety glasses and/or goggles, lab coats or disposable gowns, UV protective face shield, N95 respirator, etc.)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
5. Emergency eyewash stations are activated weekly and documented on log to ensure proper operations and cleanliness.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
6. All staff and students have received orientation to the location of the nearest emergency eyewash station, safety shower, fire extinguisher, fire alarm pull station and the area of refuge where personnel will congregate in the event of a fire alarm or other emergency in the building.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
7. Sharps containers available for disposal of needles or other sharps (e.g., razor blades).	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
8. Suitable disinfectant available for decontaminating surfaces and equipment.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A