

**Laboratory Safety Procedures  
Associated with Laboratory Safety Policy 313**

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## I. Introduction

University Policy No. 313 outlines the requirements and responsibilities for maintaining a safe laboratory environment. These laboratory safety procedures provide more detailed information about safety training, personal protective equipment and safety practices for the use and maintenance of hazardous materials and equipment.

The Rice faculty, staff, students, visitors and the Environmental Health and Safety (EH&S) department work in partnership with to promote safe and healthful laboratory environments in support of the university's teaching and research missions. As part of this partnership members of the Rice community have certain responsibilities to ensure their safety and that of others as well as complying with federal, state and local regulations.

## II. Training

General and specialized in person training is required before individuals can work or perform research in Rice University laboratories. Substituting training from other organizations or institutes is not acceptable since operational guidelines, emergency procedures, waste management protocols and other aspects of safety may be unique to Rice.

### In Person Training

EH&S provides a number of in person training sessions. Use the following table as a guideline to determine the types of training you are required to complete:

Description of Activities	Training Requirements	Frequency
Conducting experiments in a laboratory where chemicals, biological agents, and/or physical hazards are present. Physical hazards include radiological, lasers or intense pulsed light, industrial machinery, and nanomaterials.	General Laboratory Safety	Annually

<p>Conducting experiments in any laboratory where the following is being used:</p> <ul style="list-style-type: none"> <li>• human blood or body fluid,</li> <li>• unfixed human or animal tissue or organ</li> <li>• Potentially infectious material (unscreened cell lines, tissue cultures)</li> </ul>	<p>Biosafety Training Bloodborne Pathogens</p>	<p>Annually</p>
<p>Conducting experiments with potentially viable biological materials, including:</p> <ul style="list-style-type: none"> <li>• microorganisms (Biosafety Level 2)</li> <li>• cells or cell lines</li> <li>• tissue cultures</li> <li>• viruses</li> </ul> <p>Any active users listed on an approved IBC protocol for work that is not exempt by NIH guidelines as provided in Section III-F.</p>	<p>Biosafety Training</p>	<p>Annually</p>
<p>Conducting experiments in any laboratory where radiological hazards exist. Radiological hazards can include radioactive material (RAM), source materials, or x-ray generating machines. If your research does not use any radiological hazards but is located in a RAM use area you should attend training.</p>	<p>Radiation Safety</p>	<p>Annually</p>
<p>Conducting experiments in any laboratory where class 3B or 4 lasers are used.</p>	<p>Laser Safety</p>	<p>Annually</p>

Schedules and registration information for EH&S in person safety training can be found at the “EH&S” site in OwlSpace. Instructions for signing up for safety training can be found at [EH&S Safety Training Sign Up](#).

Laboratory Specific Training

Principal Investigators (PIs) or a designated laboratory representative must provide and document laboratory specific training to all laboratory personnel before they can start work or perform research in the PI's laboratory. Annual refresher training is also required of each member of the lab group. This training must include instruction and use of personal protective equipment required for the work area, hazards present in the laboratory, and emergency procedures. EH&S will provide a laboratory specific training outline and can support the development of the training program.

### CITI Training

The Responsible Conduct of Research training includes safety related modules that are part of the Collaborative Institutional Training Initiative (CITI). PIs shall ensure that all graduate students and postdoctoral scholars take this training as well as undergraduate students funded by NSF awards. Trainees, fellows, participants and scholars supported by NIH career development awards, research education T-series grants and NRSA awards must complete the academic course UNIV 594 in addition to the CITI training.

### Communication about Safety Matters

Supervisors, both faculty and staff, shall establish, implement, and maintain a system for communicating with employees and students about health and safety matters. Information must be presented in a manner readily understood by the affected employees and students.

All training sessions must be documented and include the date of the session, the topic and attendees.

Rice University *Office of Research Compliance* (ORC) monitors certain research activities in order to comply with federal regulations and university policies. Compliance information can be found at the [Research Compliance Website](#).

The applicable government regulations and guidelines pertaining to these requirements are as follows:

General laboratory training guidelines: OSHA 29 CFR, HAZCOM

Biological hazards: Center for Disease Control, BMBL

Laser use: ANSI Z136

Radioactive use: Texas Department of State Health Services-Radiation Control Program 25 TAC 289

Waste: Texas Commission on Environmental Quality

### **III. Personal Protective Equipment**

All faculty, students, staff and visitors must adhere to a safety-oriented dress code and use personal protective equipment (PPE) when working in hazardous situations or around

hazardous materials. Both the dress code and appropriate PPE will depend on the type of hazards present and the nature of the work.

Faculty, students, staff and visitors are expected to escalate their use of PPE with an increase in the potential for an accident or increase in hazards. The PI or designated laboratory representative must provide appropriate PPE so that the faculty, students, staff and visitors can be adequately protected for any situation they might reasonably encounter while conducting their work or research. Appropriate facility design, safety equipment and institutional precautions must be taken to ensure a safe working environment.

The Rice standard personal protective equipment guidelines can be found at the [EH&S Standard Personal Protective Equipment website](#).

The applicable government regulations pertaining to these requirements are as follows:

General laboratory PPE guidelines: OSHA 29 CFR 1910.132

Biological hazards: CDC-BMBL

Laser use: ANSI Z136

Radioactive use: Texas Department of State Health Services-Radiation Control Program 25 TAC 289

#### **IV. Incidents and Accident Procedures**

In the event of an accident in which an injury was sustained the Rice University Police Department should be notified immediately at 713-348-6000 to dispatch the appropriate medical attention. The Environmental Health and Safety Department and the Risk Management Office should also be notified.

If a Rice employee sustains an injury, an [Employer's First Report of Injury or Illness form](#) as well as an [Accident/Injury Report](#) should be completed and submitted. If the injured person is not a Rice employee, only an [Accident/Injury Report](#) needs to be completed.

If there is an accident or near miss in which an injury was not sustained, EH&S should be contacted at 713-348-4444 and an Accident/Injury Report should be completed.

Contact the [Risk Management Office](#) for more information.

#### **V. Emergency Response and Preparedness**

The Environmental Health and Safety department shall provide guidelines for emergency response plans. Every department shall have individual emergency response plans. The plan shall include evacuation and assembly procedures, posted evacuation maps, reporting and communication practices, training, and drills. Exits shall remain free of obstructions and materials that could render the exit hazardous.

## VI. Shutdown Procedure

In the event of a fire alarm or power loss, all laboratory personnel must stop all laboratory work, shut off all ignition sources such as Bunsen burners, close the sash on all fume hoods and biosafety cabinets, remove all personal protective equipment and evacuate the building.

## VII. Documentation, Record Keeping and Compliance

Required documentation and records shall be kept to demonstrate compliance with statutes, regulations and standards. Examples of records that need to be maintained include:

- Records of training that must include who was trained, who provided the training, what did the training cover, and what date the training took place
- Records of workplace inspection and hazard correction which must include who conducted the inspection, the inspection date, any unsafe conditions or practices found, and the corrective measures taken
- Records of disciplinary action for failure to comply with health and safety policies and practices

## VIII. Specific Resource Materials

- A. [Bloodborne Pathogen Program](#)
- B. [Safety Plan \(Occupational Safety and Chemical Hygiene Plan\) Template](#)
- C. [Chemical Segregation Guidelines](#)
- D. [Chemical Spills](#)
- E. [EH&S Inspection Checklist](#)
- F. [Facility Design](#)
- G. [Hazardous Chemicals](#)
- H. [Laboratory Door Sign Generator](#)
- I. [Laboratory Specific Radiation Training Checklist](#)
- J. Laboratory Specific Training Checklist
- K. [Laboratory Safety Training Matrix](#)
- L. [Laser Safety Manual](#)
- M. [Microbiological Waste Management](#)
- N. [Minors in Labs](#)
- O. [Radiation Safety Manual](#)
- P. [Recombinant DNA](#)
- Q. [Select Agents and Toxins](#)
- R. [Standard Personal Protective Equipment](#)