Rice University Policy No. 313

LABORATORY SAFETY POLICY

I. Policy Statement

Rice University has a commitment to provide and maintain a safe laboratory environment for faculty, students, staff and visiting scholars. To this end, the University has created a laboratory safety policy, the goal of which is to minimize the risk of injury or illness to laboratory researchers and workers. To accomplish this goal, the University will endeavor to provide the facilities, equipment, training and support necessary to maintain safe laboratories.

This policy pertains to laboratory safety, where “laboratory” is considered a discrete space where research, scholarly or educational activities take place using materials or equipment that can potentially pose a health or safety hazard (e.g., hazardous chemicals; lasers; compressed gases; liquid cryogens; high powered electronic or mechanical tools).

II. Roles and Responsibilities

Faculty, students, staff and visiting scholars. Faculty, students, staff and visiting scholars have various responsibilities to assure their own safety and for the safety of others. They also must comply with federal, state, local and University regulations.

Deans. Deans shall work with departments and the central administration to provide appropriate facilities, infrastructure and resources to support the safe conduct of research within their school/division. Deans shall participate in the laboratory safety problem resolution process to ensure problems are resolved.

Department Chairs. Department chairs shall facilitate building a culture of laboratory safety in their department and shall provide individuals under their management with the authority and support to implement environmental health and safety programs. Department chairs shall ensure that Principal Investigators (PIs) within their department fulfill their administrative safety obligations.

Department chairs shall collaborate with the Environmental Health & Safety (EH&S) department to facilitate timely resolutions to unsafe conditions when such conditions are reported. They shall also work with the deans and contribute resources and support necessary to resolve safety issues when PIs are unable to comply with safety requirements.

Environmental Health & Safety (EH&S). Rice EH&S shall assist the deans, department chairs and PIs with the implementation of this policy.

EH&S is responsible for reviewing federal, state and local laws and regulations pertaining to laboratory safety and for recommending appropriate policy and procedural changes.
EH&S shall establish and monitor safety practices, training programs and review mechanisms that support safe laboratory practices. EH&S will support the PIs in the preparation of training materials, safety plans and monitoring as requested. To this end, EH&S shall provide guidance and technical assistance to deans, department chairs and PIs in identifying, evaluating and correcting health and safety hazards.

On an ongoing basis EH&S shall develop programs for the safe use of hazardous radiological, biological and chemical substances and radiation producing devices. EH&S shall also oversee and manage hazardous waste disposal services.

Principal Investigator (PI). The PI is a faculty member or research scientist overseeing a research laboratory and has the primary responsibility for maintaining a safe laboratory environment. The PI shall ensure that faculty, students, staff and visiting scholars receive the appropriate training, instruction and mentorship necessary to work safely in his/her laboratory. In addition, the PI shall ensure that equipment and supplies are in place so that research can be conducted safely. Moreover, the PI is responsible for taking the actions necessary for his/her laboratory to comply with Rice Policy as well as with all federal, state and local regulations.

The PI, with assistance from EH&S, shall ensure that the training programs available to people under his/her supervision address the hazards posed by the specific materials and equipment in his/her laboratory.

Provost or his/her designee. The Provost, or his/her designee, shall review recommendations related to Rice’s laboratory safety policy and set laboratory safety policy priorities. He/she will also collaborate with deans, department chairs and PIs to resolve key outstanding safety matters as required.

Safety Committee(s). Rice will maintain safety committees to review and monitor the use of recombinant DNA (rDNA), bio-hazardous agents, select agents, controlled substances, and other hazardous materials proposed for use in PI laboratories or shared laboratory spaces. The safety committee(s) will work with EH&S to review and refine procedures associated with this policy; ensure checklists and templates are useful and appropriate; interactions with faculty are constructive and enhance compliance with this policy; and safety issues arising through new facility construction and building remodeling as well as through changing federal, state and local safety guidelines and requirements are addressed.

Stakeholders for Shared Equipment. In situations where a laboratory or equipment are shared and not the direct responsibility of a single PI, the stakeholders will jointly appoint, with the assistance of EH&S, an individual responsible for safety (to formulate training plans, conduct self-inspections, provide personal protective equipment, etc.) The responsible person may be technical staff responsible for user training, a PI for the host laboratory, or a representative of the organization overseeing the shared equipment (such as a department chair or the chair of the Shared Equipment Authority.) If the stakeholders cannot agree on the individual, the relevant dean(s), department chair(s) and Vice Provost for Research will confer and select the responsible individual.
Faculty, Students, Staff and Visiting Scholars. Faculty, students, staff and visiting scholars are responsible for successfully completing required training and adhering to safe practices while working or doing research in laboratories. They must use the required work practices, personal protective equipment and engineering controls. Additionally, they are responsible for properly using university-supplied materials and equipment and for exercising good judgment in safely carrying out their work by following established procedures.

Faculty, students, staff and visiting scholars are responsible for promptly notifying and reporting potentially unsafe conditions and environmental health hazards, as well as injuries and illnesses in the laboratory, to the PI or to the PI’s designated laboratory representative.

**III. Safety Plan (e.g. Occupational Safety and Health Chemical Hygiene Plan)**

Every PI must develop a laboratory-specific safety plan consistent with the guidelines issued by the Occupational Safety and Health Administration and EH&S for his/her laboratory. A current plan outlining individuals responsible for training, ordering and laboratory management must be available and accessible to laboratory personnel at all times. (Safety Plan templates and examples prepared by other PIs are available from EH&S.)

**IV. Ensuring a Safe Work Environment**

The PI or a designated laboratory representative must conduct laboratory self-inspections using an EH&S checklist at least once a year. The purpose of these inspections is to identify, evaluate and remedy potential hazards and unsafe laboratory practices. These self-inspections are also required whenever new substances, processes, procedures or equipment are introduced into the laboratory that might present new health and safety hazards. These inspections must be documented and records must be available for review upon request.

In addition, EH&S shall conduct independent inspections of all laboratory space at least once a year to identify, evaluate and remedy potential hazards and unsafe laboratory practices. The PI, in coordination with EH&S, will remedy any deficiencies identified during the inspection in a timely manner.

Rice University encourages employees and students to report health and safety hazards to their supervisors, managers, or EH&S. Employees and students shall not be disciplined, retaliated against or discriminated against for reporting in good faith health and safety hazards to Rice or to appropriate governmental agencies. Additionally, it is considered a serious infraction of this safety policy to intentionally cover up a safety matter that may lead to serious injury.
V. Safety Problem Resolution Process

The Director of EH&S has the authority to curtail or shut down any University activity considered to constitute an immediate or serious danger to health or safety. In the event of such curtailment or shutdown, the PI, department chair, dean and provost (or designate) shall be immediately notified. If reasonable, effective and prompt action is not taken to remedy the condition satisfactorily, the curtailment or shutdown shall continue until the PI, department chair, dean and provost (or designee) meet and agree on a plan of action to remedy the situation.

EH&S will provide the provost (or designee), deans and department chairs a summary of significant outstanding safety issues semi-annually. Department chairs will work with PIs to address issues that are identified as significant. Unresolved significant issues will be systematically escalated up the administrative chain of command.

Safety problems that are not adequately resolved may result in the shut down of the laboratory or restrictions on the spending of research funds or submitting grant proposals.

VI. Training

All individuals working or performing research in laboratories are required to participate in annual safety training.

All undergraduate students who will be taking courses that include a laboratory component will receive safety training from their instructor or EH&S staff.

All students, laboratory staff and visiting scholars working in a research laboratory must take general laboratory safety training offered by EH&S.

Depending on the nature of the research and the hazards present in the laboratory, additional laboratory-specific training must be taken. Successful completion of training must be documented before individuals start working or performing research in the laboratory and again any time new hazards or procedures are introduced.

The PI or a designated laboratory representative will be responsible for providing laboratory-specific training. This training must include special handling and documentation procedures for each type of hazard present, specific operating procedures for laboratory equipment and experiments, personal protective equipment required for the work area and emergency procedures.

EH&S will coordinate with instructors to prepare training programs for teaching laboratories.
VII. Personal Protective Equipment

All faculty, students, staff and visiting scholars must adhere to a laboratory dress code and use personal protective equipment (PPE) when working in potentially hazardous situations or around potentially hazardous materials and/or equipment.

VIII. Minors in Laboratories

Tours that include laboratory facilities must be coordinated in advance with EH&S. Minors under the age of 14 are not permitted access to any research laboratory where hazards are present.

Regardless of their status (student, volunteer, visitor or paid), minors ages 15-18 are restricted from working or conducting research with the following materials:

- BSL-2 agents
- Human, nonhuman primate, or other mammalian cells and tissues
- Select agents and toxins
- Animal research with ABSL-2 agents
- Explosives
- Chemical hazards (acute hazards)

Minors are not permitted to enter radiation areas unless the radiation safety officer (RSO) provides prior approval. In addition, minors are not permitted to handle any radiation source material, and must be issued a radiation badge for the duration of the work.

Minors are not permitted to enter laser laboratories using class 3B or 4 lasers unless the laser safety officer (LSO) has approved them to do so.

The U.S. Department of Labor and the National Institutes of Health (NIH) oversee the regulations that control activities of minors in laboratories.

IX. Research Involving Recombinant DNA (rDNA) Molecules

Research conducted by faculty, students, staff and visiting scholars involving rDNA molecules shall only be conducted with the prior approval and under the cognizance of the Institutional Biosafety Committee (IBC). The research must be conducted in accordance with the Guidelines for Research Involving Recombinant DNA Molecules, published by the National Institutes of Health.

X. Research Involving Select Agents

Any application for proposed sponsored research involving any select agents and toxins (such as Shiga toxin and tetrodotoxin) must be submitted to, and approved in writing by, the department chair, dean and EH&S director before that application is submitted to a potential sponsor. The PI
is responsible for applying for the use of any such materials and for complying with the Rules of the U.S. Department of Health and Human Service.

XI. Research Involving Hazardous and Toxic Materials

The purchase, use, handling and disposal of all hazardous and toxic materials must comply with all provisions and rules of the Texas Commission on Environmental Quality, the Environmental Protection Agency, the Occupational Safety and Health Administration and the City of Houston Fire Department rules and guidelines. Rules and guidelines cover, but are not limited to, the handling, ordering, allowable quantity, container size, container labeling, exposure to, recordkeeping and disposal of the material.

XII. Research Involving Controlled Substances

Controlled substances are any drugs or chemical substances whose possession and use are regulated under the United States Controlled Substances Act. Management and possession criteria differ depending on the controlled substances "schedule". All controlled substances must be purchased in accordance with the Rice Purchasing Policy and possession and management of the substance(s) must be as outlined under the Texas Controlled Substance Guidelines and the Drug Enforcement Administration office of Division Control. Researchers using these materials must possess a license for the scheduled material, adhere to required safeguards for storing and using such materials securely and maintain records on their use and disposal.

XIII. Precursor Chemicals and Equipment

The Texas Department of Public Safety (DPS) and the Texas Higher Education Coordinating Board (THECB) have a memorandum of understanding (MOU) establishing the responsibilities of the DPS, the THECB and institutions of higher education for the purchase, use, possession and disposal of precursor chemicals and equipment; precursor chemicals include those used in the manufacturing of illegal drugs. The purpose of the memorandum is to implement and maintain a program for reporting information concerning controlled substances, controlled substance analogues, chemical precursors and chemical laboratory apparatus used in education or research activities of institutions of higher education. The PI is responsible for ensuring that these materials are used only for their intended research purposes and adhering to required safeguards for storing and using such materials securely, as well as for reporting any misuse, theft or loss of chemicals, equipment or glassware to EH&S.

XIV. Lasers, X-Rays and Radioactive Materials

The procedures for the purchase, use and disposal of lasers, X-rays and radioactive materials are outlined in the Texas Department of State Health Services’ Radiation Control Program guidelines. All use of these materials and equipment must comply with current rules, regulations, licensing and registration requirements. Prior approval to purchase or use these materials and devices must be obtained from EH&S. Everyone working with these materials must be properly trained on the use of the material/equipment, as well as on the use of personal protective equipment and the disposal of materials.
XV. Procedures

Additional laboratory safety information can be found in the Laboratory Safety Procedures section of the EH&S website. The Vice Provost for Research may update these materials as necessary.

XVI. Additional Resources


29 CFR 1910.1450, Toxic and Hazardous Substances, Occupational Exposure to Hazardous Chemicals in the Laboratory

The Texas Health and Safety Code, Section 481.0621 (b)

Memorandum of Understanding between the Texas Department of Public Safety and the Texas Higher Education Coordinating Board

XVII. Responsible Officer: Vice Provost for Research

XVIII. Related Policies

Rice University Policy 301, Management and Administration of Sponsored Projects

Rice University Policy 314, Care and Humane Treatment of Animals Used in Research, Testing, and Education

Rice University Policy 326, Human Health and Safety in the Performance of Research

Rice University Policy 805, Safety Policy

David W. Leebron, President

Policy No. 313
May 13, 2014

Supersedes: Policy 313
Dated: January 25, 2014