



Principal Investigator Research Safety Responsibilities

The Department of Environmental Safety, Sustainability and Risk (ESSR) is here to help principal investigators manage health and safety in their research groups. Here is a short checklist highlighting some of your major responsibilities at UMD as a PI.

Responsibilities of the Principal Investigator

- Adhere to the University of Maryland's [Expectations for Conducting Safe Research](#).
- Read the University of Maryland's [Research Safety Standard](#) and implement requirements into laboratory practices.
- Provide and maintain a safe work environment for all research personnel within your laboratory.
 - Flush eye wash stations weekly and document testing [blank test cards are available for free at [ChemStores](#).]
 - Submit work orders to Facilities Management ([Online](#), Phone: 5-2222) when building facilities (e.g., fume hoods, eye wash stations, electrical outlets) appear to be broken or not working appropriately.
 - Arrangements for annual certifications for fume hoods are managed by ESSR on a rotating schedule.
 - Arrangements for annual certifications and service of biosafety cabinets must be made by the laboratory. See ESSR website on [Biosafety Cabinets](#) for more information.
- Conduct thorough risk assessments and establish written Standard Operating Procedures for all research processes that incorporate hazardous materials, equipment, or conditions. See the ESSR [Laboratory Safety page](#) for more information.
- Incorporate personal protective equipment and other safety controls into SOPs. PIs are required to purchase and provide appropriate safety equipment and PPE for all researchers within their laboratory.
- Establish and enforce laboratory safety rules and procedures. Common topics include:
 - Working alone
 - Laboratory security
 - Appropriate lab attire
 - Housekeeping responsibilities
 - Activities that require prior PI approval (e.g., scaling-up experiment, purchasing, substituting chemicals)
 - Emergency preparedness. See our [Laboratory Safety page](#) for more information.
- Notify ESSR prior to:
 - Use of chemicals in a process that may present a hazardous condition due to inadequate ventilation.
 - Treatment or disposal of hazardous waste, other than standard submission through the ESSR waste system.
 - Making any building modification to plumbing, electrical, ventilation, or structural systems.
 - Any purchase, possession, or use of explosive materials.
- Ensure that all laboratory personnel complete all appropriate training. See Training section below.
- Contact 301-405-3333 or 911 for all emergencies. Use Emergency Response Guide procedures to respond to incidents. Report any safety related incidents to ESSR using the online [Incident Reporting & Investigation forms](#).
 - Work related injuries must have [First Report of Injury](#) forms (including employee, supervisor, and any witnesses) submitted within 24 hours of the event.
- Ensure information on the [SciShield platform](#), yellow laboratory hazard warning signs, and posted Emergency Response Guide flip charts is current and accurate.
 - To update the signage information use SciShield. Instructions can be found on our [Laboratory Warning Signs](#) page.
 - If you do not have a laboratory profile on SciShield, email labsafety@umd.edu.
 - If you do not have an Emergency Response Guide flip chart, visit [ChemStores](#) for a free copy.
- Register research, as necessary, with appropriate institutional body. Includes, but is not limited to:
 - Research involving human material (including cell lines), infectious, and/or recombinant material must be registered through the Institutional Biosafety Committee. Contact biosafety@umd.edu for more information.

- Research involving radioactive materials or radiation producing devices must be registered with the Radiation Safety Committee. Contact radiationsafety@umd.edu for more information.
- Research involving animals must be registered through the Institutional Animal Care and Use Committee (IACUC). Contact iacuc@umd.edu for more information.
- Research involving human subjects must be registered through the Institutional Review Board. Contact irb@umd.edu for more information.
- Research involving use of SCUBA equipment must be registered with the Dive Control Board. Contact divesafety@umd.edu for more information.

SciShield

The University of Maryland has purchased the [SciShield platform](#) to centrally manage safety inspections, training, and Institutional Biosafety Committee protocol submissions. All University of Maryland laboratories, machine shops, and makerspaces are required to register in SciShield. Registrations in SciShield are tied to the principal investigator. Details can be found on our [SciShield Information](#) page.

- Set up profile by following the prompt when logging into the system. This includes identifying laboratory hazards, personnel, and their associated job activities.
 - Email biosafety@umd.edu to enable the biological research registration module, as necessary.
 - Email labsafety@umd.edu to add users that do not have UMD login credentials (i.e., visiting researchers).
 - Establish a group compliance liaison who is delegated the permissions to manage SciShield information.
- Update the lab profile at least once per semester, or as laboratory hazards and personnel change.
- Contact labsafety@umd.edu when adding/removing spaces is necessary.

Training

Safety training is conducted at multiple levels. Institutional level awareness training is provided through ESSR and other institutional bodies (e.g., IACUC, IRB). Laboratory-specific training is developed by principal investigators to address specific hazards and controls that are used in research processes.

- Ensure that laboratory personnel complete institutional safety training requirements as identified on SciShield Dashboard.
- Develop and implement a [laboratory-specific training program](#) on processes and procedures specific to the research occurring in your lab.
- Maintain documentation of laboratory-specific training records.

Inspections

ESSR provides many types of inspections (e.g., fire safety inspection, lab safety inspection, biosafety inspection, radiation safety inspection, machine shop inspection) that may impact research spaces. Inspection reports will be sent via email through SciShield.

- Acknowledge the receipt of inspection within one week using the link emailed by the inspector.
- Correct any findings and communicate corrective actions to the inspector within the timeframe indicated on the inspection report (usually 30 days). Contact inspector if you have any questions or concerns.

Chemical Safety

- Abide by all elements of the [University of Maryland Chemical Hygiene Plan](#), including requirements for developing laboratory specific information.
- Provide access, physical or digital, to Safety Data Sheets for all chemicals within laboratory spaces.
- Segregate chemicals by physical hazard class and store in appropriate cabinets and locations. See Safety Data Sheets for more information on hazards and storage recommendations. Contact labsafety@umd.edu for additional guidance.
- Maintain a current chemical inventory.
- Maintain a chemical spill kit for responding to minor spills. Kits suitable for most minor chemicals can be purchased at [ChemStores](#). For chemical spill-related emergencies contact 301-405-3333 or 911.
- Contact envaffairs@umd.edu to make arrangements when [shipping hazardous materials](#) off-campus.

Hazardous Waste

The Environmental Affairs Unit facilitates compliance with federal and state regulations related to hazardous waste. See our [Environmental Affairs page](#) for more information.

- Submit all hazardous waste through the [Regulated Waste pick-up system](#).
 - Green tags required for hazardous waste collection can be purchased at [ChemStores](#).
- Ensure that satellite accumulation areas are designated near the point of waste generation and are appropriately labeled. Satellite Area Accumulation signs and hazardous waste guidelines are available for free at [ChemStores](#).
- Dispose of chemicals known to degrade over time (e.g., picric acid, peroxide formers) as hazardous waste prior to expiration date.
- Ensure that all waste is appropriately labeled.
 - Unlabeled/unknown waste is a violation of state regulations, and has a fee of \$125 per container for ESSR to characterize and properly dispose. The lab and/or the department is responsible for this fee.

Biosafety

It is the mission of the Biosafety Group to ensure the protection of laboratory workers, the environment, and the community from exposure to biohazardous materials. See [our Biosafety page](#) for more information.

- Notify biosafety@umd.edu prior to use of infectious agents, recombinant or synthetic nucleic acids, or unfixed human or non-human primate materials.
- Ensure and abide by Institutional Biosafety Committee approved protocols.
- Maintain a current Biosafety Manual if research is BSL-2 or higher. Contact biosafety@umd.edu for a template.
- Establish a research-specific exposure/spill response plan and ensure availability of emergency response kits.

Radiation Safety

It is the mission of the Radiation Safety Group to facilitate the safe and responsible use of radioactive material and radiation producing machines on campus such that occupational and public exposures to ionizing radiation, and releases to the environment are maintained As Low As Reasonably Achievable (ALARA) and in compliance with the University's Radioactive Material Licenses with the State of Maryland. See [Radiation Safety page](#) for more information.

- Contact radiationsafety@umd.edu prior to working with radioactive materials or radiation producing devices.

Laser Safety

The University of Maryland Laser Safety Program applies to the use of all Class 3B and Class 4 lasers on campus.

- Register your class 3B or 4 lasers by filling out the [Laser Registry Form](#) and sending to lasersafety@umd.edu
- Notify the lasersafety@umd.edu prior to relocation, ownership transfer, or disposal of any class 3B or 4 lasers.

Field Safety

The dynamic nature of field settings requires that field researchers appropriately plan for potential hazards and emergencies. See our [Field Research Safety page](#) for more information and templates.

- Identify and communicate field hazards to research personnel.
- Develop site-specific procedures for responding to emergencies.
- Conduct and document research-specific training for field activities.
- Ensure field researchers have first aid kits and a means of emergency communication.

Other Laboratory Safety

- Follow [ESSR guidance](#) for preparing laboratory spaces for housekeeping. Post the [SAFE TO CLEAN](#) checklist when ready.
- When lab personnel leave, ensure that samples and unwanted materials are managed in the appropriate waste streams.
- When moving or permanently vacating a laboratory space, use the [Vacating Laboratory Notification Form](#) as soon as plans are made to leave a laboratory space. Use our [Checklist for Vacating Laboratories](#) to guide your preparations.

ESSR's Office of Research Safety can provide consultations, arrange specialty training, present on safety topics at meetings, review protocols and procedures, and provide table-top scenario response exercises to help your lab integrate safety into your lab's culture.

For more information see our website at essr.umd.edu or email us directly at labsafety@umd.edu.