NDSU UNIVERSITY POLICE AND SAFETY OFFICE

SAFETY OFFICE GUIDE FOR PRINCIPAL INVESTIGATORS

Revised June 2026

Abstract

This guide is an introduction to the health and safety responsibilities of principal investigators (PIs) at North Dakota State University. It outlines various programs related to health and safety on campus and should be used as a reference for new and existing PIs at NDSU.

Contents

Introduction

Overview

This guide is an introduction to the health and safety responsibilities of principal investigators (PIs) at North Dakota State University. It outlines various programs related to health and safety on campus and should be used as a reference for new and existing PIs at NDSU.

University Police and Safety Office

The University Police and Safety Office (UPSO) provides professional services and resources to help the campus be a safe and secure environment while being prepared to respond to the emergency service needs of the community.

The Environmental Health & Safety unit assists with maintaining compliance with the federal, state, and local regulations associated with environmental, biological, chemical and radiological issues. Working in conjunction with faculty, staff and students it promotes a safe working environment in laboratory spaces as well as other areas on campus. The staff assists with the proper collection and management of hazardous materials, accomplishing this through a cooperative effort with the University community.

UPSO Contact Information

The University Police and Safety Office is available at 701-231-7759 or via email at ndsu.police.safety@ndsu.edu. More information is available on the UPSO webpage.

Safety Roles and Responsibilities

Everyone is responsible for safety and must be involved in developing a safety culture in the laboratory. The Principal Investigator (PI) of a laboratory holds the primary and ultimate responsibility for the safe operation of their lab.

Principal Investigator Responsibilities

The principal investigator is defined as the individual responsible for developing and managing a research laboratory or field research activity. As a PI you are responsible for the safety of laboratory personnel, and the responsibilities outlined in this guide. Laboratory personnel includes any faculty, staff, students, and non-affiliated NDSU persons (paid or unpaid) conducting research on your behalf. The PI must become familiar with all policies, procedures, regulations, and laws that apply to the research conducted by members of their laboratory.

PI responsibilities will be discussed in depth in this guide, and include but are not limited to:

- Provide safety training in lab-specific hazards and standard operating procedures (SOPs).
- Require safe lab practices, including using engineering controls, administrative controls, and personal protective equipment.
- Be responsible for all hazardous materials/substances in your possession.
- Maintain an accurate chemical inventory approved by the Safety Office and safety data sheets (SDS) for all hazardous materials. SDS must be available for lab users and emergency responders.
- Inform the Safety Office of any chemical spills or exposures involving hazardous materials.
- Correct safety and compliance deficiencies.

Safety Office Responsibilities

The NDSU Safety Office is responsible for the oversight of laboratory safety on campus and maintaining adherence to the Chemical Hygiene Plan (CHP). The Safety Office provides training, consultation, and guidance regarding laboratory safety. The Safety Office also provides resources for all researchers to stay safe and compliant with local, state, and federal regulations and NDSU policies.

Safety Office responsibilities include:

- Conduct safety inspections and monitor compliance.
- Annual lab inspections (at a minimum) for compliance with CHP.
- Monthly inspections (at a minimum) of all hazardous waste areas.
- Conduct laboratory safety training.
- Perform regular inspections and testing of safety equipment:
    - Safety showers, eyewash stations, fire extinguishers, & fume hoods
- Emergency response.
    - Spill Response Team is available 24/7. Call: 701-231-7759 or 911

The Safety Office maintains laboratory safety resources to help principal investigators maintain compliance with NDSU policy and applicable local, state, and federal regulations. The Safety Office encourages PIs to consult with them on matters of safety and laboratory best practices.

Lab Safety Resource	Description
Chemical Hygiene Plan:	Guidelines and policies for safe lab practices designed to protect researchers from chemical hazards at NDSU.
NDSU Biosafety Manual:	Guidelines for safe lab practices designed to protect researchers from biological hazards at NDSU.
Bloodborne Pathogen Exposure Control Plan:	Guidelines to eliminate or minimize occupational exposure to bloodborne pathogens in accordance with the OSHA standard on bloodborne pathogens.
Radiation Safety Handbook:	Provides guidance concerning the safe use of radioactive materials and radiation producing devices.

General Laboratory Safety

Personal Protective Equipment

It is the responsibility of the laboratory supervisor or the Principal Investigator to conduct a hazard evaluation to determine the selection and use of appropriate personal protective equipment (PPE) in the laboratory. PI responsibilities include:

- Assess the laboratory for hazards, select and provide appropriate PPE for lab personnel.
- Train employees in proper use, limitations, and maintenance of PPE.
- Ensure PPE is available and worn in the laboratory.
- In general, the minimum PPE required in a laboratory includes: lab coat, gloves, safety glasses/splash goggles, long pants and closed toe shoes.

Emergency Response

To be prepared for emergencies, PIs should review emergency procedures in the NDSU Chemical Hygiene Plan and Emergency Action Guide and ensure laboratory personnel are trained in emergency response procedures.

Prepare your lab for emergencies:

- Post Emergency Information Posters on laboratory doors, and ensure information on posters is updated annually and as hazards or personnel change.
- Post the NDSU Emergency Action Guide in your laboratory.
- Ensure lab standard operating procedures (SOPs) include emergency response guidelines.
- Maintain a current chemical inventory and SDS binder.
- Train all personnel in emergency response procedures.

Access to Safety Equipment

PIs are responsible for evaluating laboratory spaces based on intended use, hazards, and storage conditions to determine whether appropriate emergency equipment is available and accessible. This includes emergency eyewashes, safety showers, fume hoods, fire extinguishers, spill response materials, and emergency communication systems. The Safety Office can assist with interpreting requirements as needed.

Ensure all laboratory personnel know the location and operating procedures for laboratory safety equipment (e.g., emergency safety showers, eyewash stations, fire extinguishers, etc.). Emergency equipment should be easily accessible and inspected regularly. Emergency equipment includes access to an internal alarm or emergency communication device (e.g., a hard-wired lab phone).

Laboratory personnel must be trained in emergency response procedures. Emergency eyewash stations should be tested weekly by laboratory personnel or the PI.

Laboratory personnel are responsible for preparing fume hoods when notified of upcoming inspection, certification, maintenance, or repair activities. Preparation includes removing chemicals, glassware, and equipment; stopping active experiments or processes; wiping down interior surfaces and the sash; and ensuring the area around the hood is clear. Facilities Management may not perform repairs if the hood or surrounding area has not been properly prepared.

Laboratory Startup, Closeout and Design/Remodel

Please contact the Safety Office as early as possible if you intend to move into a new lab space, vacate a lab space, or plan to design or remodel a lab space.

- Laboratory Check-In Form (Contact the Safety Office)
- Laboratory Closeout Form

Prior to leaving NDSU, relocating, or vacating a laboratory, PIs must ensure that chemicals, hazardous waste, samples, biological materials, radioactive materials, and other hazardous materials are properly removed, transferred, or disposed of. Materials left behind may become the responsibility of the supervisor or department, including any cleanup or disposal costs.

Laboratory Hazard Signage

Laboratories, shops, or any other space where hazardous materials are used or stored, must have an updated Emergency Information Poster posted on the exterior of each entrance into the space. Emergency Information Posters must be updated annually and whenever hazard or personnel contact information for the lab changes. The Chimera chemical inventory system can also be used to generate Emergency Information Posters.

Additional laboratory hazard warnings must be posted for particularly dangerous chemical (e.g., hydrofluoric acid), physical, radiological, biological, laser, and nanomaterial hazards in the laboratory. PIs are responsible for updating hazard signage as needed.

Hazard signage templates are available on the Safety Office webpage.

Standard Operating Procedures

Standard Operating Procedures (SOPs) are written documents that provide explicit instructions on how to perform a laboratory process or experiment safely and effectively. PIs must ensure that:

- Labs have SOPs on file for all activities in the lab involving hazardous materials, equipment, or operations.
- SOPs are based on a documented assessment of the hazards and risks associated with the activity. Risk assessments should be reviewed periodically and whenever new hazards, procedures, materials, equipment, or conditions are introduced.
- SOPs for recurring hazardous tasks unique to a particular lab should be written by the PI or Instructional Supervisor.
- Any edits/revisions to an SOP must be reviewed and approved by the PI.
- Students and staff are apprised of all SOPs and instructed in their contents.
- Training in specific practices is provided and SOPs are available in the laboratory and adhered to.

An SOP Template is available on the Chemical Safety webpage.

Unattended Laboratory Operations

Before conducting unattended operations, the PI or laboratory supervisor must ensure that the process has been evaluated, appropriate safeguards are in place, and emergency contact information is available. Unattended operations should not be conducted for processes involving particularly hazardous substances, highly reactive or unstable materials, significant heat or pressure generation, hazardous vapors, or any process where failure could result in significant injury, fire, or environmental release. The PI must ensure that an Unattended Laboratory Operations Form is completed and posted in case of emergency.

Working Alone in the Laboratory

Working alone should be avoided whenever possible and is not permitted if procedures involve significant hazards. When working alone is unavoidable, a written hazard assessment evaluating the work environment including any necessary laboratory tasks must be completed by the PI or laboratory supervisor prior to anyone working alone in a laboratory.

Laboratory Access, Security and Entry Requirements

PIs are responsible for controlling access to laboratory spaces and ensuring that visitors, Facilities Management staff, IT staff, contractors, and other support personnel are made aware of relevant hazards before entering or performing work in the laboratory. Laboratory personnel should coordinate work that may affect active experiments, hazardous materials, utilities, ventilation, or safety equipment. Support personnel should not handle or move chemicals, samples, or experimental equipment unless coordinated with the PI or laboratory personnel.

Laboratories containing hazardous materials must be secured when unattended. Laboratory doors must not be propped, taped, blocked, or otherwise held open in a way that compromises laboratory security or containment of hazards.

Minors in Laboratories

Minors may only be present in laboratories as part of approved University programs, educational activities, tours, or other authorized circumstances. Minors must be supervised at all times, comply with laboratory safety requirements, and may require parental or guardian consent.

Principal Investigators are responsible for evaluating laboratory hazards, determining appropriate activities, and ensuring adequate training, supervision, and personal protective equipment are provided. Minors should not participate in work involving particularly hazardous substances, highly reactive chemicals, compressed gases, cryogenic materials, radiation-producing equipment, biological agents, or other high-risk operations unless specifically approved and directly supervised.

Training

It is the PI's responsibility to ensure laboratory personnel have completed all required laboratory safety trainings. PIs must also maintain training records for all lab personnel.

Baseline Safety and Supervisor Safety Training

Baseline Safety Training is required for every employee on an annual basis and can be completed online or in-person.

Supervisor Safety Training is required annually for any employee in a supervisory role and can be completed online or in-person.

Laboratory Safety Training Courses

The Safety Office provides a number of laboratory safety training courses online (see course offerings in the table below). Laboratory training must cover hazards of the work space and be completed by all who are working in the space. Training obligations are determined based on hazards and assigned by the department chair or head.

PI/Supervisors must complete the same trainings assigned to those working in their lab in addition to Principal Investigator/Supervisor Training.

Course Name	Description
Laboratory Safety Training	This course contains information about general laboratory safety issues and how to recognize hazards, assess risk, minimize risk, and prepare for emergencies in the lab.
Biosafety and Bloodborne Pathogen Training	This course contains basic information on biohazards and biosafety awareness for laboratories working with infectious substances. This training is intended to provide guidance and procedures designed to prevent or minimize occupational exposure to bloodborne pathogens. Additional training requirements must also be met for employees conducting research requiring approval of the Institutional Biosafety Committee (IBC).
Radiation Safety Training	This course contains basic radiation safety information. Additional training requirements must be met if an employee will be actively working with radioactive materials or radiation-producing equipment. Laser work may require separate laser safety training and hands-on training provided by the PI.
Nanomaterial Safety Training	This course contains basic information on nanoscale materials and the unique safety issues associated with working with and around nanomaterials.
Autoclave Safety Awareness Training	This course contains basic information on the safe operation of autoclaves, associated hazards, injury prevention, and emergency response procedures.
Hydrofluoric Acid Safety Training	This course contains basic information on hydrofluoric acid and how to recognize hazards, assess risk, minimize risk, and prepare for emergencies in labs working with hydrofluoric acid.
Methylene Chloride Safety Training	This course contains information on the hazards of methylene chloride, exposure prevention, required controls, personal protective equipment, and emergency response procedures.
Lab Safety Training for Principal Investigators	This course is designed to familiarize the Principal Investigator or Laboratory Supervisor with additional requirements and responsibilities associated with their role.
Waste Handling Training	This course contains information on proper waste handling and disposal of many types of regulated wastes on campus.
Respiratory Protection Training	This course provides basic information on respiratory hazards and how to properly select, use, maintain, and care for respirators used in the workplace.

Waste Handling Training

Initial Waste Handling In-Person Training is a requirement for employees who generate hazardous waste and the people who supervise them. This initial course is required once. Thereafter, Waste Handling Refresher Online Training is required each semester (spring, summer, fall). More information and available Waste Handling Training sessions can be found on the Safety Office Training Webpage.

Laboratory Specific Training

Researchers who work with hazardous materials or processes in the laboratory must be provided with Laboratory Specific Training. It is the PI's responsibility to provide and document lab specific training. Lab Specific Training must include:

- A review of the hazards specific to the laboratory.
- Carcinogenic and other adverse health effects associated with exposure to hazards in the lab.
- Work practices and use of proper equipment and facilities to limit exposures and protect fellow employees.
- Locations for safety information (e.g., SDSs, SOPs, Chemical Hygiene Plan, etc.) and emergency equipment (eyewash, safety shower, fire extinguisher, etc.)
- Personal protective equipment use and storage locations.
- Emergency response procedures.
- Safety training documentation.

Defensive Driving Course

Fleet Services requires those who operate fleet vehicles, on at least a monthly basis, to take the National Safety Council Defensive Driving Course (DDC) as soon as practical after accepting employment, and every four years thereafter. The University Police and Safety Office (UPSO) encourages those who operate State Fleet vehicles less than monthly to attend the DDC class.

More information is available on the Defensive Driving webpage.

Biological Safety

The University Police and Safety Office provides biosafety services and guidance to all NDSU Departments and researchers. Additional information is available on the Biological Safety webpage.

NDSU Biosafety Manual

The NDSU Biosafety Manual is available for investigators and provides the necessary information to protect themselves, the community, and the environment from the potential hazards associated with biohazardous agents and materials used in research.

Laboratories conducting any biohazardous research must be registered with and approved by the NDSU Safety Office prior to the initiation of work.

Annual Biosafety Laboratory Registration

PIs with laboratories or teaching spaces that use biological materials must complete the annual Biosafety Laboratory Registration process. The registration helps the Safety Office maintain an accurate understanding of biological work occurring on campus, identify training and support needs, and route labs to the appropriate biosafety, IBC, waste, autoclave, or permit resources.

Biosafety Risk Assessment

Before beginning work with a biohazardous agent or material, the PI must ensure that a risk assessment has been completed. The risk assessment should consider both the agent hazards and the procedure hazards, including route of exposure, infectious dose, environmental stability, host range, aerosol generation, use of sharps, volumes/concentrations, animal or plant work, and whether the work involves greenhouse, field, or environmental release concerns.

Biohazardous Agents

The NDSU Biosafety Manual definition for a biohazardous agent includes:

1. Infectious agents including viruses, bacteria, rickettsia, fungi, protozoa, parasites, and prions.
2. Human blood, tissues, bodily fluids, and cell cultures (primary or immortalized).
3. Recombinant or synthetic DNA molecules, including organisms and viruses containing recombinant or synthetic DNA molecules or vectors.
4. Biologically active toxins.
5. Plants or animals (or tissues/parts of plants or animals) that contain items 1-4 above.
6. All wastes generated from items 1-5 above, if they do or are reasonably considered to contain the biohazardous agent.

All research and teaching projects conducted at NDSU by an NDSU representative or affiliated member that involves biohazardous agents (recombinant or synthetic DNA, any infectious agents, or human blood, bodily fluids, or tissue) must be submitted to the NDSU Institutional Biosafety Committee (IBC) for review and approval.

Laboratory-Specific Biosafety Manual

Laboratories operating at BSL-2 or above must maintain a laboratory-specific biosafety manual. The manual must be available to laboratory personnel, reviewed with personnel at least annually, updated as needed when work changes, and provided electronically to the Safety Office. The manual should describe the agents and materials used, hazards and routes of exposure, PPE, engineering controls, SOPs, decontamination/disinfection,

waste handling, spill/exposure response, and any protocol-specific IBC or permit conditions.

A lab-specific biosafety manual is also strongly recommended for BSL-1 laboratories or teaching spaces when written procedures are needed to document safe practices, waste handling, biological material storage, or training expectations.

For biological work, lab-specific training must address hazards, exposure routes, containment, disinfection, waste, sharps, decontamination, spill/exposure response, and applicable IBC or permit requirements.

Institutional Biosafety Committee (IBC)

The IBC reviews and oversees projects at NDSU that involve recombinant or synthetic nucleic acids, infectious agents, and human blood, bodily fluids and tissues. The IBC works together with the Safety Office to ensure compliance with the NIH Guidelines and other biosafety regulations. The IBC also recommends training for researchers working on protocols falling under their purview.

The PI is responsible for the submission of all protocols falling under the purview of the Institutional Biosafety Committee (IBC) for review at the appropriate times, and keeping the protocols updated. Please refer to the IBC policy and guidelines for a current description of what research and teaching activities fall under the IBC purview.

Additional information is available on the NDSU Institutional Biosafety Committee (IBC) webpage.

Plant, Animal, Greenhouse, and Field Biosafety

The NDSU Biosafety Manual includes guidance for laboratory biosafety levels (BSL), animal biosafety levels (ABSL), and plant biosafety levels (BL-P). PIs working with plant pathogens, animal pathogens, genetically modified organisms, greenhouse materials, environmental samples, field releases, or agricultural pathogens should consult the Safety Office and IBC early because additional containment, decontamination, disposal, access control, recordkeeping, or permit conditions may apply.

Bloodborne Pathogens

Any employee who has a reasonably anticipated potential for exposure to bloodborne pathogens (human blood or other potentially infectious materials) must be included in the Bloodborne Pathogens Program. Principal investigators must:

- Ensure compliance with NDSU Exposure Control Plan in work areas by working directly with the employees to promote proper exposure control procedures.
- Investigate and report exposure incidents immediately to the University Police and Safety Office and take the necessary action to prevent similar incidents from occurring.
- Provide lab-specific safety training at time of initial work assignment and annually thereafter. Ensure personnel have completed online Biosafety Training.

- Offer the Hepatitis B vaccine to personnel with a reasonably anticipated exposure to bloodborne pathogens.
- Evaluate biological hazards and ensure personnel are informed of recommended or required medical surveillance, immunizations, vaccinations, or other health precautions associated with the biological materials, animals, or agents used in the laboratory.

Select Agent and Dual Use Research of Concern

NDSU is not currently registered as a Select Agent Facility. If you are considering a project that would involve work with Select Agents, contact the Safety Office (701-231-7759) to discuss the requirements that would apply to your project. You can learn what organisms and toxins have been assigned to the Select Agent list, and an overview of what regulations apply to them by using the links below.

- Federal Select Agent Program
- Select Agents and Toxins List

Information regarding a subset of select agents covered under the Dual Use Research of Concern (DURC) policy is available on the DURC website.

Shipping Biological Materials

Shipping biological materials is a highly regulated activity. If you need training to ship biological specimens, please contact the University Police and Safety Office (701-231-7759) for recommendations of vendors that supply this training.

Biological Permits and Export Control

Research with certain infectious agents or regulated biological materials may require additional permits or approvals before materials are received, moved, used, released, shipped, or exported. The PI is responsible for obtaining and maintaining valid permits and supplying a copy to the Safety Office when applicable.

Common permit or review triggers include importing infectious biological agents or vectors of human disease; receiving or moving soil, plant pests, plant pathogens, noxious weeds, biological control organisms, plants, plant products, or genetically engineered organisms; working with animal pathogens, animal products, veterinary biologics, or vectors of livestock/poultry disease; field or greenhouse release of regulated organisms; select agents or regulated biological toxins; protected wildlife/specimens; and export-controlled biological agents, genetic material, or related technical information.

PIs should contact the Safety Office, IBC, and Export Controls early when planning work that may involve APHIS, CDC, Select Agent, U.S. Fish and Wildlife/CITES, DOT/IATA, or export control requirements. IBC approval does not replace any required federal or state permits.

Institutional Animal Care and Use Committee (IACUC)

All research and teaching involving animals goes through a rigorous protocol review process performed by a diverse committee of scientists, non-scientists, community members, and animal health professionals. Without approval by the committee, known as the Institutional Animal Care and Use Committee (IACUC), animal use cannot occur at NDSU.

Additional information is available on the IACUC website.

Institutional Review Board (IRB)

NDSU IRB review (or determination of exemption) is required when faculty, staff, students, or other representatives of NDSU become engaged in research that will involve human subjects/participants. IRB review is required regardless of funding source. Collaborative projects require NDSU IRB review when an agent or employee of NDSU will be involved (e.g., receiving funding, project planning/design, participant recruitment, obtaining informed consent, data collection, or handling of identifiable human data).

Additional information is available on the IRB website.

Biosafety and Bloodborne Pathogens Training

The Safety Office Biosafety and Bloodborne Pathogen Training is required annually for PIs conducting research involving the use of biohazardous agents. This training must also be completed by any faculty, staff, students, or other personnel who have the potential for exposure to biohazardous agents or bloodborne pathogens.

Additional safety training is required for any research protocols approved by the IBC, IRB, or IACUC. This training is coordinated through the Collaborative Institutional Training Initiative (CITI) Program.

Biosafety Cabinets

Contact the Safety Office if you plan to purchase or relocate a biological safety cabinet (BSC). The Safety Office can assist in the selection of the proper type of BSC, evaluate the lab space, and determine if the necessary ventilation and utilities are available.

BSCs must be certified annually to ensure proper operation. BSCs that fail the certification, or BSCs that have not been certified in the past year shall not be used. Biosafety cabinets should only be certified, modified, decontaminated, or repaired by qualified persons. The NDSU Safety Office does not provide BSC certification or decontamination services, but can recommend an appropriate vendor.

Procedures that may generate infectious aerosols or splashes must be conducted in a certified BSC or other appropriate containment equipment when required by the risk assessment or IBC approval. BSCs should not be used as chemical fume hoods and do

not provide protection from hazardous chemical vapors or fumes unless specifically designed and approved for that purpose.

Autoclave Verification Program

The Safety Office can assist with validating the performance of your autoclave. Additional information about the Autoclave Verification Program is available on the Biological Safety webpage.

Biohazard Waste

The Safety Office provides biohazard waste containers, and pick-up/disposal services to the campus community. Request biohazard waste containers, supplies, or a pick-up online.

PIs are responsible for ensuring that biohazardous waste is segregated, packaged, labeled, decontaminated, and prepared for pickup according to Safety Office procedures.

Sharps must be collected in appropriate puncture-resistant sharps containers. Sharps containers must be closed and locked before pickup, and the outside of the container must be decontaminated if contaminated.

Biohazard waste should not be mixed with hazardous chemical, radioactive, or nanomaterial waste. If your experimental protocol makes this unavoidable, please contact the Safety Office for assistance ahead of time to develop a waste management strategy.

Chemical Safety

Chemical safety depends on the use of safe practices, appropriate engineering controls, personal protective equipment, and other control measures to minimize or eliminate the risk of handling hazardous materials. The Safety Office provides tools and resources to help recognize, evaluate, and control the hazards posed by chemicals in the laboratory. More information is available on the Chemical Safety webpage.

Chemical Hygiene Plan

The NDSU Chemical Hygiene Plan is available for principal investigators and outlines the policies and procedures that will minimize the risks to personnel, facilities, and the environment from the use of chemicals on campus. NDSU's Chemical Hygiene Plan follows the RAMP framework: Recognize hazards, Assess risks, Minimize risks, and Prepare for emergencies. PIs are responsible for ensuring that laboratory personnel apply this approach when planning and conducting laboratory work.

Chemical Inventory

Every Principal Investigator (PI) or other authorized user is accountable for each hazardous substance or potentially hazardous operation in their possession from the time of receipt to its final disposal or depletion. Chemical inventory requirements include:

- The PI must check Safety Data Sheets and labels to determine the hazards and toxicity of materials procured and under their control.
- A current inventory of hazardous materials/substances, by name, amount, and hazard classification shall be maintained for all substances in storage and/or use in each laboratory.
- This inventory must be compliant with maximum allowable quantities as defined in the currently accepted International Fire Code.
- All containers that hold hazardous materials must be labeled to identify the contents and associated hazards. Labels may include GHS, NFPA, or other appropriate hazard information.

CHIMERA Chemical Inventory System

CHIMERA Chemical Inventory System is a cloud-based chemical inventory system available for users across campus. The inventory system helps PIs maintain an accurate chemical inventory, provides easy access to safety data sheets, and enables you to quickly and easily print emergency information posters for your lab.

More information about CHIMERA is available on the CHIMERA Training webpage.

Particularly Hazardous Substances

Work with particularly hazardous substances, including carcinogens, reproductive toxins, highly toxic chemicals, or other high-risk materials, requires additional planning and controls. PIs must ensure that appropriate SOPs, designated work areas, engineering controls, PPE, training, contamination control, and waste procedures are in place before work begins. PIs should consult the Safety Office when planning work with particularly hazardous substances.

Safety Data Sheets

The PI must maintain Safety Data Sheets (SDS) for all hazardous materials/substances in the lab and have them available for use by employees, students, and emergency responders. SDS Requirements include:

- Each laboratory shall hold a current binder of Safety Data Sheets (SDS) for all the materials used and stored in that laboratory. The Safety Office supplies empty, specially marked, green three-ring SDS binders.
- SDS Binders should be visible from the entrance of the laboratory so that emergency services personnel can find relevant information quickly if they are called to an accident or incident.

- The SDSs must be organized in a manner that allows for quickly locating a specific SDS.
- No hazardous material can be used before receipt and consideration of an SDS for that material.

Chemicals Synthesized at NDSU

Chemicals that have been synthesized in the laboratory at NDSU should be labeled by contents, date of synthesis, owner, and must have NFPA hazard information or GHS labeling information.

If synthesized chemicals are transferred within NDSU research groups, the hazards of the material must be communicated with the group receiving the material. If synthesized chemicals are transferred to non-NDSU research groups, the PI is responsible for creating SDSs to accompany these chemicals. An SDS Template is available on the Chemical Safety Webpage.

Shipping and Transporting Hazardous Materials

Shipping and transporting hazardous materials require additional training from the Department of Transportation (DOT) or the International Air Transport Association (IATA). Contact the Safety Office for guidance before shipping or transporting hazardous materials.

Shipping Hazardous Materials:

- If you prepare packages for shipping that contain hazardous materials, there are additional training requirements based on DOT or IATA Regulations.
- Contact the Safety Office (701-231-7759) for more information.

Transporting Hazardous Materials:

- Departments who transport hazardous materials on campus from building to building must comply with the DOT requirements including training.
- When transporting hazardous materials on campus you must only use interior campus roads, and transport chemicals in an ND State Fleet vehicle or by foot.
- If transportation of hazardous materials requires the use of ANY road or street that is not controlled by NDSU, a detailed SOP is required. Contact the Safety Office for details.
- Safety Data Sheets must accompany all chemicals transported on campus.

Hazardous Waste Handling

Hazardous waste management is covered in detail in the Chemical Hygiene Plan. The PI is responsible for identifying and labeling chemical, biological, and radiological waste generated in the laboratory and must follow all applicable waste handling procedures outlined in the CHP.

Initial Waste Handling In-Person Training is a requirement for employees who generate hazardous waste and the people who supervise them. This initial course is required once. Thereafter, **Waste Handling Refresher Online Training** is required each semester (spring, summer, fall). More information and available Waste Handling Training sessions can be found on the Safety Office Training Webpage.

Radiation Safety

When using radiological substances, all principal investigators at NDSU must follow procedures to assure the radiological safety of employees and students.

Radiation Safety Handbook

All educational and research activities involving the use of radiological substances or radiation producing devices shall be conducted under the conditions of the NDSU Radiation Safety Handbook.

Radiation Safety Training

The amount and level of training required for personnel will be evaluated based on the type of work performed in the laboratory.

Radiation Safety Training (Online) provides a basic understanding of radiation safety awareness in the laboratory.

Radiation Safety Short Course (In-Person provided by the Radiation Safety Officer) is an additional training course required for any lab personnel actively working with radioactive materials or radiation producing equipment. Contact the RSO for training: 701-231-7759. A Radiation Safety Refresher Course is required every 5 years.

Additional information on radiation safety training requirements can be found in the Radiation Safety Handbook.

Authorization to Use Radioactive Materials

All use of radioactive materials at NDSU must have approval of the Radiation Safety Committee. Application forms can be obtained from the University Police & Safety Office and must be submitted to the Radiation Safety Officer who will evaluate and present the application to the Radiation Safety Committee.

Approval or denial of an application to use radionuclides in research and development by the Radiation Safety Committee is based on:

- Training in and experience with radionuclide usage of the applicant.
- Proposed use of the radionuclides in the project and the precautions that are in place for the safe use of the radionuclides.
- Type of radionuclide and amount to be used.

- Adequacy of the facility and equipment for the projected use and compatibility of the project to other uses of the laboratory.
- Training and experience of others working on the project.

Procurement of Radioactive Materials

All radioactive materials intended for use at North Dakota State University shall be procured through the University Police and Safety Office's Radiation Safety Office. The Radiation Safety Officer will approve the purchase, process the order request, and place the order.

Shipping or Transferring Radioactive Materials

Transfer, exchange, or other disposition of radioactive materials and/or radiation emanating equipment to other laboratories or individuals shall not be made without prior approval of the Radiation Safety Committee (RSC).

Radioactive material shall not be shipped or transferred to or from the University without the approval of the Radiation Safety Officer.

Lasers

The responsibility for laser safety is primarily that of the PI under whose direction the laser is being used. Laser safety procedures are outlined in the Laser Safe Operating Procedure.

Laboratory personnel working with lasers must review the Laser Safety Training Module, and receive hands-on laser training provided by their PI.

Contact the Safety Office before procuring or using lasers in your laboratory.