Policies and Procedures of the SUNY ESF Institutional Biosafety Committee (IBC)

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Section 1. Version History

11/04/2025 *IBC-Approved.* Amendments to align with *NIH Guidelines.* Added new definitions, policies and procedures. Further emphasized the role of the PI in biosafety practices. Included links to more external resources and the most recent federal policy changes. Included required trainings and their descriptions.

Section 2. Definitions

CDC Guidelines: the most current version of Biosafety in Microbiological and Biomedical Laboratories available at https://www.cdc.gov/labs/bmbl/index.html. Recommends best practices for safe conduct of laboratory work from a biosafety perspective.

***NIH Guidelines*:** the most current version of *NIH Guidelines* for Research Involving Recombinant or Synthetic Nucleic Acid Molecules available at https://osp.od.nih.gov/wp-content/uploads/NIH_Guidelines.pdf. Provides the administrative framework for IBCs and biosafety control.

Principal Investigator, Investigator, or PI: For the purposes of this document, any ESF individual (e.g., researcher, instructor) proposing to initiate and oversee activities involving organisms, nucleic acids, or toxins that pose some risk to human or environmental safety.

Laboratory Personnel: Employees, students, volunteers, or anyone else conducting laboratory work. This may also include the Principal Investigator if they are conducting laboratory work.

Recombinant and Synthetic Nucleic Acid Molecules (NIH Definition):

- **i.** Molecules that a) are constructed by joining nucleic acid molecules and b) that can replicate in a living cell, i.e., recombinant nucleic acids;
- **ii.** Nucleic acid molecules that are chemically or by other means synthesized or amplified, including those that are chemically or otherwise modified but can base pair with naturally occurring nucleic acid molecules, i.e., synthetic nucleic acids, or
- **iii.** Molecules that result from the replication of those described in **i** or **ii** above.

Other potentially infectious material (OPIM): Any material (e.g., human tissue, blood, mammalian cell lines) that may contain pathogens or toxins.

Biohazardous materials: Pathogens, toxins, or OPIM capable of containing such pathogens or toxins a) requiring at least Biosafety Level 2 or b) containing recombinant DNA molecules as defined by the *NIH Guidelines*.

Dangerous gain-of-function research: Defined in an Executive Order signed May 5, 2025[1] as: scientific research on an infectious agent or toxin with the potential to cause disease by enhancing its pathogenicity or increasing its transmissibility.

Human gene transfer research: Research involving the deliberate transfer of recombinant DNA, or DNA or RNA derived from recombinant DNA into the somatic cells of human subjects.

[1] Executive Order, *Improving the Safety and Security of Biological Research*, May 05, 2025.

Section 3. About this Document

Section 3.1. Purpose

Section 3.1.1. Federal Mandate

This document is intended to serve as a resource for ESF personnel planning or conducting activities involving organisms, nucleic acids, or toxins that may pose some risk to human or environmental safety. It is derived from and in no way supplants federal policies and procedures documented in the two core biosafety documents:

- NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules ('*NIH Guidelines*'; [1])
- Biosafety in Microbiological and Biomedical Laboratories ('*CDC Guidelines*'; [2];)
- the two documents together are referred to herein as 'the Guidelines'.

Additional federal policies and procedures (e.g., Executive Orders, Federal Notices) will be incorporated as they arise. Note that NIH has proposed making significant changes for biosafety oversight for 2026[2]. This document describes the policies and procedures of ESF's Institutional Biosafety Committee (IBC) while referring to the Guidelines as much as possible, summarizing when accuracy can be retained.

Section 3.1.2. Expansion of the Federal Mandate

Another purpose of this document is to establish and clarify that activities with organisms that pose some risk to human health or the environment, but lack synthetic or recombinant components, still require special consideration and registration with, and possibly approval by, the IBC before initiating work. In defining the administrative scope of IBCs, the *NIH Guidelines* do not clearly state that activities with such organisms should be specially treated or reported to the IBC. However, "…IBC responsibilities need not be restricted to recombinant or synthetic nucleic acid molecule research" (Section IV-B-2, pg 27). Therefore, to ensure the protection of ESF personnel and the environment, all agents, toxins, OPIM, or species requiring USDA-APHIS permits, *whether they have synthetic or recombinant components or not*, should be registered with the IBC before initiating research.

Section 3.2. Limitations and Importance of The NIH and CDC Guidelines

Principal Investigators considering activities involving infectious agents, OPIM, species requiring USDA-APHIS permits, or recombinant or synthetic DNA will find this document as an initial, but incomplete source of information. The Guidelines are essential references that should be referred to frequently when conducting such activities. They describe in more detail the roles and responsibilities of relevant parties, administrative policies and procedures, risk assessment and containment procedures, established risk groups, as well as activities that are ultimately exempt from the *NIH Guidelines* and, therefore, do not need registration with the IBC.

[2] NIH, OSP. *Modernizing and Strengthening Biosafety Oversight*. Accessed Sept 10, 2025. https://osp.od.nih.gov/policies/biosafety-and-biosecurity-policy#tab2/

Each case is different and each case cannot be predicted in advance. Therefore, the PI and IBC will need to use their best judgement in assessing the risk posed in each experiment within the framework of the Guidelines.

Section 4. Policy and Procedures

Section 4.1. Policy

Section 4.1.1. Activities that require registration with the IBC

All activities conducted at or sponsored by ESF (or an ESF-affiliated organization) or conducted by an employee of ESF involving the use of infectious agents, OPIM, species requiring USDA-APHIS permits, or recombinant or synthetic DNA must be registered with the ESF Institutional Biosafety Committee ('IBC') in accordance with the *NIH Guidelines*.

Section 4.1.1.1. Activities Involving the Importation of Non-native Organisms

Registration with the IBC is required for all use of non-native organisms (including organisms native to NYS, but being transported across State lines) regulated by USDA-APHIS, US-FWS, and state agencies such as NYS Dept. Agric. & Markets.

Section 4.1.1.2. Activities Involving the Use of Human, Primate, and Mammalian Cell Lines

All related work must comply with the "SUNY ESF Institutional Biosafety Committee: Guidance on the Use of Human, Primate, and Mammalian Cell Lines".
https://www.esf.edu/biosafety/documents/IBC-Guidance-on-the-Use-of-Human-Cell-Lines.pdf

Section 4.1.2. Activities Requiring IBC Approval Before Initiating Work

Refer to Section III-D of the *NIH Guidelines* for a description of activities requiring IBC approval before initiating work.

Section 4.1.3. Activities Requiring IBC Notice Simultaneous With Initiation

This category of activities is described in Section III-E of the *NIH Guidelines*. However, note that ESF requires registration with the IBC *prior to* initiating this group of activities. Therefore, these activities are treated like the activities described under **Section 4.1.1**.

Section 4.1.4. Exempt Activities

Exempt activities are described in Section III-F of the *NIH Guidelines*. Below are some past ESF activities known to be exempt from *NIH Guidelines* and therefore do not require IBC approval, although they would require registration with the IBC.

Section 4.1.4.1. Synthetic DNA *Not* Expressed *in Vivo*

Synthetic nucleic acid segments which are likely to yield a potentially harmful polynucleotide or polypeptide (e.g., a toxin or a pharmacologically active agent) are considered as equivalent to their natural nucleic acid counterparts and are therefore non-exempt. However, if the synthetic nucleic acid segment is not expressed *in vivo* as a biologically active polynucleotide or polypeptide product, it is exempt from the *NIH Guidelines*.

Section 4.1.4.2. Transposons *Not* Containing Recombinant DNA

Genomic DNA of plants and bacteria that have acquired a transposable element, even if the latter was donated from a recombinant vector no longer present, are not subject to the *NIH Guidelines* and do not require IBC approval unless the transposon itself contains recombinant DNA.

Section 4.1.5. Prohibition of RG3 & RG4 Activities

Any work classified higher than risk group 2 is strictly prohibited at ESF.

Section 4.1.6. Institutional Biosafety Committee

Section 4.1.6.1. Membership

IBC membership is described in Section IV-B-2-a of the *NIH Guidelines*. Briefly, the IBC is composed of a minimum of 5 members. At least two members shall be unaffiliated with ESF (apart from their membership on the IBC) to represent the interests of the surrounding community, with respect to health and protection of the environment. The NIH also states elsewhere that "if the individual under consideration works for an entity that has a business relationship with the institution, he or she would not be a suitable choice to serve on the IBC in an 'unaffiliated' capacity"[3]. At least one member shall be a scientist with expertise in recombinant DNA technology and physical containment. The IBC shall include at least one individual with expertise in plant, plant pathogen, or plant pest containment principles when experiments involving plants as described in Appendix L of the NIH Guidelines require prior IBC approval. No member of the IBC may be involved (except to provide information requested by the Committee) in the review or approval of a project in which he/she has been or expects to be engaged or has a direct financial interest.

Section 4.1.6.2. Functions

IBC functions are described in Section IV-B-2-b of the NIH Guidelines. Briefly, the IBC is responsible for conducting a review of any activity involving organisms, nucleic acids, or toxins that pose some risk to human or environmental safety. This review includes an independent assessment of i) the containment levels required by the NIH Guidelines and ii) the facilities, procedures, practices, and training and expertise of personnel involved. The IBC will notify the Principal Investigator of the results of the IBC's review and approval, and periodically review research conducted at the institution to ensure compliance with the NIH Guidelines. The IBC is authorized to inspect research facilities, approve research practices and procedures, and to take actions, such as enforcement or cessation of research or instructional activities in the event of an unsafe workplace/instructional situation.

Section 4.1.6.3 Meetings

The IBC shall meet at least once annually and as frequently as necessary to carry out functions described. A quorum is defined as greater than 50% of IBC members.

[3] *FAQs on Institutional Biosafety Committee (IBC) Administration – April 2024*, NIH, Accessed April 18, 2025, https://osp.od.nih.gov/policies/biosafety-and-biosecurity-policy/faqs-on-institutional-biosafety-committee-ibc-administration-april-2024/

Section 4.1.7. Principle Investigator

Section 4.1.7.1. General Responsibilities

From Section IV-B-7 of the NIH Guidelines, the Principal Investigator shall:

Section 4.1.7.1.1. Initiate or modify no research which requires IBC approval prior to initiation until that research or the proposed modification thereof has been approved by the IBC and has met all other requirements of the NIH Guidelines.

Section 4.1.7.1.2. Determine whether experiments are covered by Section III-E of the NIH Guidelines, *Experiments that Require Institutional Biosafety Committee Notice Simultaneous with Initiation*, and ensure that the appropriate procedures are followed.

Section 4.1.7.1.3. Report any significant problems, violations of the NIH Guidelines, or any significant research-related accidents and illnesses to the Biological Safety Officer (where applicable), Greenhouse/Animal Facility Director (where applicable), Institutional Biosafety Committee, NIH OSP, and other appropriate authorities (if applicable) within 30 days.

Section 4.1.7.1.4. Be adequately trained in good microbiological techniques, and/or techniques commonly used to handle and contain project specific agents of concern.

Section 4.1.7.1.5. Adhere to IBC approved emergency plans for handling accidental spills, personnel contamination, or other accidents.

Section 4.1.7.1.6. Comply with shipping requirements for regulated materials including recombinant or synthetic nucleic acid molecules.

Section 4.1.7.1.7. Make an initial determination of the required levels of physical and biological containment in accordance with the *NIH Guidelines*.

Section 4.1.7.1.8. Select appropriate microbiological practices and laboratory techniques to be used for the research.

Section 4.1.7.1.9. Submit the initial research protocol and any subsequent changes to the IBC for review and approval or disapproval.

Section 4.1.7.1.10. Remain in communication with the IBC throughout the conduct of the project.

Section 4.1.7.1.11. Make available to all laboratory personnel the protocols that describe the potential biohazards and the precautions to be taken.

Section 4.1.7.1.12. Instruct and train laboratory personnel in: (i) the practices and techniques required to ensure safety, and (ii) the procedures for dealing with accidents.

Section 4.1.7.1.13. Inform the laboratory staff personnel of the reasons and provisions for any precautionary medical practices advised or requested (e.g., vaccinations or serum collection).

Section 4.1.7.1.14 Supervise the safety performance of the laboratory personnel to ensure that the required safety practices and techniques are employed.

Section 4.1.7.1.15. Investigate and report any significant problems pertaining to the operation and implementation of containment practices and procedures within 30 days in writing to the Biological Safety Officer (where applicable), Greenhouse/Animal Facility Director (where

applicable), IBC, NIH OSP (NIHGuidelines@od.nih.gov), and other appropriate authorities (if applicable).

Section 4.1.7.1.16 Correct work errors and conditions that may result in the release of recombinant or synthetic nucleic acid molecules or biohazardous materials.

Section 4.1.7.1.17 Ensure the integrity of the physical containment (e.g., biological safety cabinets) and the biological containment (e.g., purity and genotypic and phenotypic characteristics).

Section 4.1.8. Training Requirements

All laboratory personnel working with infectious agents, OPIM, species requiring USDA-APHIS permits, or recombinant or synthetic DNA must take the Basic Laboratory Safety Training offered by the Environmental Health & Safety Office and the "Basic Introduction to Biosafety" training through the CITI Program. Additional trainings also offered through CITI are required depending on specific hazards or procedures:

- If the work is deemed non-exempt, "Initial Biosafety" and "OSHA PPE Training" are also required. "Biosafety Retraining" is required every two years subsequently while non-exempt work is being conducted.
- If the work involves handling live animals, "Animal Biosafety" is also required.
- If the work involves human blood, blood components, or OPIM, "OSHA Bloodborne Pathogens" is also required.
- If the work involves shipping or transporting biohazardous material, "Shipping and Transport of Regulated Biological Materials" is also required.
- Additional training may be required depending on the specific activities proposed (e.g., USDA Permits).

Section 4.2. Procedures

Section 4.2.1. Scope and Procedure Description

The scope of activities requiring registration with the IBC is wider than the scope of activities requiring IBC approval (Figure 1). ESF requires registration with the IBC for all experiments involving infectious agents, toxins, OPIM, or species requiring USDA-APHIS permits, whether they have synthetic or recombinant components or not, including activities falling into the 'exempt' category according to NIH Guidelines. The various types of experiments, as well as the relevant approval/notification requirements, required for submission are outlined in the IBC application (https://www.esf.edu/biosafety/documents/ibc-application-form.pdf) and the *NIH guidelines*. Note it is the PI's responsibility to "make an initial determination of the required levels of physical and biological containment in accordance with the *NIH Guidelines*." (Section 4.1.7.1.7.).

Thus, the overall review process can be separated into a registration phase and application phase. Application review is more rigorous considering the elevated risks. It requires more documentation and review by the entire IBC. Only some projects will be deemed 'non-exempt' and require application review.

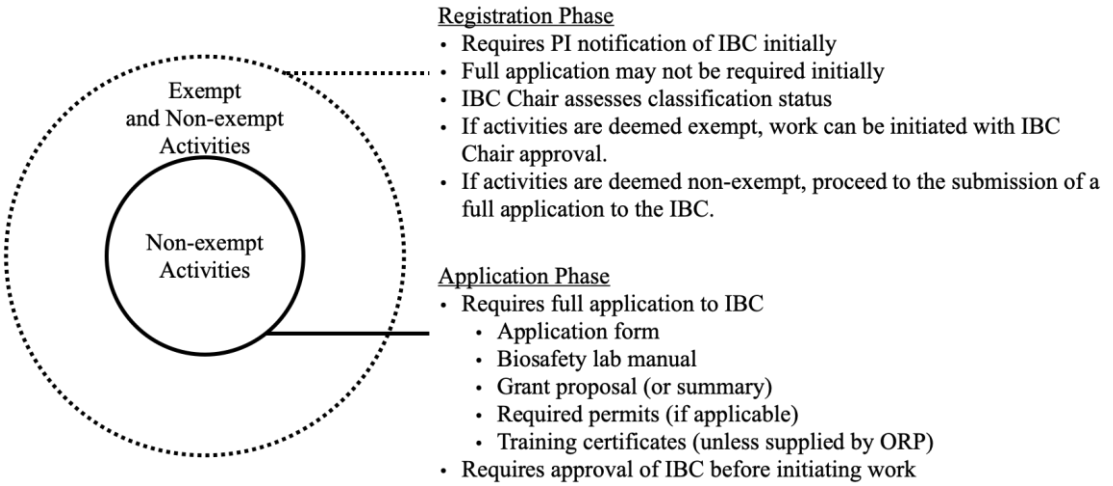

Figure 1. Relative scope of activities requiring notification and application to the IBC and a summary of phased application procedure.

Section 4.2.2. Procedures for Registering with the IBC

Each project involving agents, toxins, OPIM, or species requiring USDA-APHIS permits requires separate registration with the IBC.

Section 4.2.2.1. Required Documents

The following documents are required in the initial notification to the IBC Chair to allow a sufficient risk assessment:

- The agent(s) of concern, their source(s) (e.g., ATCC, collaborator name), and an initial assessment of their risk classification (e.g., risk group 1, risk group 2).
- A summary of the work involving the agent of concern. This summary should include a grant proposal (or grant proposal summary) if external funding has been awarded or is being sought to conduct the described work.
- A summary of containment procedures
- Any relevant government permits

The IBC Chair may consult IBC members, the PI, or other experts at any point or require submission of additional documentation of information by the PI to make their risk assessment.

Section 4.2.2.2. Submission and Review Procedure

i. The PI must submit documentation listed in Section 4.2.2.1 via email to the IBC Chair.

ii. If initial notification indicates that the proposed experiments are ‘exempt’ or require only notification (not approval) to the IBC, the IBC Chair or his/her designee, will review the materials for confirmation of the PI’s assessment. Note: the IBC Chair may also ‘down-grade’ experiments to ‘exempt’ if the PI has overestimated the risk posed or misinterpreted the Guidelines.

iii. The investigator will be notified if further information is required, or if the initial determination of ‘exempt’ is confirmed and the described work can be initiated.

iv. If ‘exempt’, an approval date will be issued for administrative purposes, so the classification of the research activity can be confirmed upon renewal.

v. If activities are deemed 'non-exempt', the PI should proceed to the submission of an application to the IBC for a full review.

Section 4.2.3. Procedures for Submitting Applications to the IBC

Section 4.2.3.1. Required Documents

The following documents are required as part of an application to the IBC:

- A completed IBC application form (https://www.esf.edu/biosafety/documents/ibc-application-form.pdf)
- A biosafety lab manual that describes all handling and containment procedures
- A grant proposal (or grant proposal summary) if external funding has been awarded or is being sought to conduct the described work.
- Any relevant government permits
- All required training completion certificates (See Section 4.1.8), unless supplied by the Research Office.

Section 4.2.3.1. Procedure

PIs should submit applications including required documentation via the PACs system.

Section 4.2.4. Procedures for Reviewing Applications to the IBC

Review by the IBC shall include i) an independent assessment of the containment levels required by the NIH Guidelines for the proposed research and ii) an assessment of the facilities (a site visit may be required), procedures, practices, and training and expertise of personnel involved in activities with biohazardous agents (*NIH* Guidelines, Section IV-B-2-b-(1)).

Section 4.2.4.1. Application Review Process

i. Applications and their associated documentation (e.g., lab safety manuals) will then be shared with all IBC members for their review.
ii. The IBC Chair, or a designee, will notify the PI of the results of the IBC's review or if more information is required.
iii. If approved, the PI may initiate the described activities.
iv. If approved with contingencies, a revised submission must undergo re-review by designated committee members before approval can be granted.
v. If not approved, revision and resubmission via ESF's Pre-award and Compliance system (PACs) will restart the process.

Section 4.2.4.2. Approval Duration

Approval will be granted for a maximum of five years.

Section 4.2.4.3. Continuing Review of Approved Projects

PI's must perform an annual review of all projects which have been reviewed and approved by the IBC. A Progress Report form (https://www.esf.edu/biosafety/documents/ibc-progress-report.pdf) must be submitted to the IBC for review at least two weeks prior to the project's expiration date. The Committee will re-review all approved research every five years to ensure compliance with the NIH and Institutional Guidelines. Investigators are expected to submit an

updated Application Form, Biosafety Manual and Personnel form, for the five year review if the activities are to be continued.

Section 4.2.5. Procedures for Amendments to Approved Projects

Prior to implementing any changes to an approved project (including exempt research) that may be directly relevant to biosafety, the PI will submit an amendment to the IBC Chair and await approval from the IBC Chair, his/her designee, and/or IBC Committee. Amendments will be reviewed by the Chair or an IBC member designated by the Chair and may be referred to the full committee for review if there is a change in risk to the public or employees or if required by the NIH guidelines.

Section 4.2.6. Transporting Biohazardous Materials

Biohazardous items transported in interstate commerce must be transported in accordance with DOT regulations. Biohazardous items being transported from one building to another by ESF personnel must be transported by labeled (i.e., biohazardous stickers) and sealed (i.e., locking handle cooler) secondary containment (i.e., test tube in plastic bag in locking cooler).

Section 4.2.7 Unexpected Agent Exceeding Approved Containment Procedures

In cases of unexpected discovery of agents whose risk exceeds the containment procedures in place (e.g., identification of RG2 pathogen in an environmental or clinical sample under BSL-1 containment), a) cease all work with the agent(s) and stabilize, b) prevent movement to lower containment levels, c) notify the IBC Chair, d) restrict access to the laboratory, and e) document the discovery and circumstances. Receive IBC approval before continuing work with the agent(s) or arrange for secure transfer to a laboratory with containment measures approved for storing and manipulating such agents.

Section 5. Additional Resources

- **NIH FAQs on IBCs**
  - https://osp.od.nih.gov/policies/biosafety-and-biosecurity-policy/faqs-on-institutional-biosafety-committee-ibc-administration-april-2024/
- **NIH FAQs about IBC Meetings and Minutes**
  - https://osp.od.nih.gov/policies/biosafety-and-biosecurity-policy/faqs-about-ibc-meetings-and-minutes/
- **American Biological Safety Association: Risk Group Classification**
  - https://my.absa.org/Riskgroups
  - A database of organisms searchable by genus and species name.
- **USDA-APHIS Plant Biotechnology Guidance and Resources**
  - Details on permits and regulatory review of transgenic plants
  - https://www.aphis.usda.gov/biotechnology-guidance
- **OSHA Laboratory Safety Guidance (OSHA 3404-11R, 2011)**
  - https://www.osha.gov/sites/default/files/publications/OSHA3404laboratory-safety-guidance.pdf
  - This guidance outlines a comprehensive framework for managing chemical and biological hazards in research laboratories, covering hazard identification, engineering controls (e.g., biosafety cabinets, ventilation), administrative

measures, and personal protective equipment. It advocates a continuous risk management cycle—conducting risk assessments, implementing controls, verifying effectiveness, training personnel, and fostering a safety culture through reporting of incidents and near misses in a nonpunitive environment.

- **OSHA Bloodborne Pathogens Standard (29 C.F.R. § 1910.1030)**
  - https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030
  - This regulation mandates protections for workers handling human blood and other potentially infectious materials, requiring written exposure control plans, use of engineering controls (e.g., sharps disposal containers), and provision of hepatitis B vaccination to at-risk employees. It also specifies training, medical surveillance, recordkeeping, and post-exposure evaluation and follow-up procedures to minimize occupational transmission of pathogens such as HIV and HBV.
- **World Health Organization Laboratory Biosafety Manual (4th ed.)**
  - https://www.who.int/publications/i/item/9789240011311
  - The WHO Laboratory Biosafety Manual (fourth edition) establishes a unified, risk- and evidence-based framework for the safe handling, containment and transport of biological agents in diagnostic, clinical and research laboratories worldwide . It guides users through a stepwise risk assessment cycle—gathering information, evaluating risks, selecting and implementing control measures, and reviewing outcomes—and prescribes core requirements, heightened control measures and maximum containment strategies tailored to local resources and contexts.
- **Guidance for Regulated Medical Waste Treatment, Storage, Containment, Transport and Disposal**
  - https://www.wadsworth.org/regulatory/rmwp
  - https://dec.ny.gov/environmental-protection/waste-management/solid-waste-types/regulated-medical-waste

Section 6. Additional Federal Policy and Procedure Documentation

Section 6.1. Notifications from 2025

March 28, 2025. NIH NOT-OD-25-082 Notice Implementation Update: Promoting Maximal Transparency Under the NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules; link: https://grants.nih.gov/grants/guide/notice-files/NOT-OD-25-082.html

May 05, 2025. Executive Order: Improving the Safety and Security of Biological Research; link: https://www.whitehouse.gov/presidential-actions/2025/05/improving-the-safety-and-security-of-biological-research/

September 9, 2025. NIH, OSP. *Modernizing and Strengthening Biosafety Oversight*. Accessed Sept 10, 2025. https://osp.od.nih.gov/policies/biosafety-and-biosecurity-policy#tab2/

Section 7. Training Descriptions

ESF Trainings

Basic Laboratory Safety Training (~1 hr)

This training offered by ESF EHS personnel provides an introduction to laboratory safety including handling hazardous chemicals (e.g., corrosives), flammables, and sharps as well as who to contact in case of an emergency or for further information or approvals.

CITI Trainings

Basic Introduction to Biosafety (~45 min)

Provides an introduction to biosafety for researchers handling Risk Group 1 agents and working only at Biosafety Level 1 (BSL-1) containment. Includes basic practices for containing aerosols, transporting (including shipping) biohazardous materials, as well as the seven core practices of biosafety recommended by the National Research Council[4].

Initial Biosafety (~80 min)

Initial training required for researchers conducting non-exempt work. Provides initial training for researchers handling biohazards in a research or clinical laboratory. The course addresses awareness of biohazards, risk assessment, and key risk management principles including work practices, personal protective equipment (PPE), engineering controls, and emergency response.

Biosafety Retraining (~50 min)

A refresher course required for researchers conducting non-exempt work that addresses awareness of biohazards, risk assessment, and key risk management principles including work practices, personal protective equipment (PPE), engineering controls, and emergency response.

Shipping and Transport of Regulated Biological Materials (~40 min)

Designed as initial training and periodic retraining for employees who package or ship diagnostic and clinical human or animal specimens, human or animal pathogens, and other regulated biohazards. The course provides a basic understanding of the International Air Transport Association (IATA) and the U.S. Department of Transportation (DOT) requirements.

Animal Biosafety (~30 min)

Provides initial training for researchers and animal handlers working with small or conventional animals used in biohazard experiments. It can also be used as periodic refresher training based on the schedule outlined by the host institution.

[4]National Research Council (US) Committee on Hazardous Biological Substances in the Laboratory. Biosafety In The Laboratory: Prudent Practices for the Handling and Disposal of Infectious Materials. Washington (DC): National Academies Press (US); 1989. 3, Safe Handling of Infectious Agents. Available from: https://www.ncbi.nlm.nih.gov/books/NBK218635/

OSHA Bloodborne Pathogens (~30 min)

Designed as initial training or annual retraining to meet the requirements of the U.S. Occupational Safety and Health Administration's (OSHA) Bloodborne Pathogen Standard.