

## BIOSAFETY TRAINING

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(For assistance, please contact EHS at (402) 472-4925, or visit our web site at <http://ehs.unl.edu/>)

### Scope

This SOP applies to all work at UNL that is subject to the UNL Biosafety Guidelines. The content of this SOP is based on training requirements established by the following standards:

- *NIH Guidelines for Research Involving Recombinant DNA Molecules (NIH Guidelines)*, National Institutes of Health
- *Biosafety in Microbiological and Biomedical Laboratories (BMBL)*, Centers for Disease Control and National Institutes of Health
- *Bloodborne Pathogens Standard, 29 CFR 1910.1030*, Occupational Safety and Health Administration

This information can be used by Principal Investigators (PIs) to develop a compliant biosafety training plan for workers under their supervision. This SOP is primarily intended for laboratory operations conducted under biosafety containment levels 1 and 2. Additional and specific training requirements apply to work with select agents and/or work conducted at biosafety containment level 3, which are beyond the scope of this SOP. Consult with the UNL Biosafety Officer for guidance on training applicable in these special circumstances.

### Training Frequency

Training must be conducted at the following frequency:

- Prior to initial assignment to work with biological agents
- Annually thereafter (refresher training)
- When procedures or policy changes occur or new hazards are introduced that render previous training incomplete or obsolete
- When observations of the employee's skills or knowledge indicate that prior training was insufficient or not retained

### General Training Content

Following is a list of topics to be included in a biosafety training plan. Resources available to support the training topic are indicated. PIs are encouraged to assemble all supporting materials in a laboratory specific biosafety manual that is reviewed by and readily available to all workers. See EHS SOP, ***Preparing a Laboratory Biosafety Manual***.

1. Potential hazards posed by the agent in use, as well as personal health conditions that may impact an individual's susceptibility to infection. This information is generally captured in the risk assessment conducted in support of the protocol, which is reviewed by the Institutional Biosafety Committee (IBC).
2. Instruction on the specific medical qualification, testing, or surveillance that is required as a condition of the IBC's approval of the protocol, and the basis/reasoning for such

requirements. This information is generally captured in the protocol that is approved by the IBC.

3. Instruction/guidance relative to laboratory access restrictions, as well as specific entry and exit procedures. This information is generally captured in the protocol that is approved by the IBC and documented on the laboratory door placard. The EHS SOP, ***Door Postings for Potentially Hazardous Locations***, provides explanatory information.
4. Standard and special microbiological practices, as well as laboratory specific practices and techniques (particularly those that are designed to minimize potential for exposure during high risk tasks/operations, e.g., use of sharps, aerosol generating activities, etc.). The EHS SOP, ***Standard and Special Microbiological Practices*** can be used as a basis, but PIs (or their designees) must ensure that trainees demonstrate hands-on proficiency. In addition, PIs must provide laboratory workers with access to written, relevant, and laboratory-specific procedures. In the case of inexperienced workers, a progression of work activities must be assigned as techniques are learned and proficiency is developed. Additional supporting EHS SOPs are also available, such as but not limited to: ***Avoiding the Production of Aerosols, Autoclave Operation and Performance Testing, Biosafety Cabinets***, etc.
5. Aseptic techniques, as appropriate to the specific procedures conducted in the laboratory, as well as proper use of Biosafety Cabinets. Refer to the EHS SOP, ***Biosafety Cabinets***.
6. Procedures to be followed in the event of a spill and/or known or suspected occupational exposure. The following EHS SOPs provide relevant information.
  - ***On the Job Injuries and Accident Investigations***
  - ***Incident Reporting – National Institutes of Health (NIH) Guidance***
  - ***Cleaning Up Spills of Biohazardous Materials***
7. Proper use, limitations, care, and maintenance of prescribed Personal Protective Equipment (PPE), including, as applicable, laboratory coats, gowns, or other outerwear; various types of gloves available and the tasks for which they provide protection; safe use and limitations of eye and face protection. This should include consideration of biological and chemical hazards.
8. Disinfection and decontamination agents, methods, and frequencies. This information is generally detailed in the protocol that is approved by the IBC. However, it is suggested to include Material Safety Data Sheets for specific chemical disinfectants and specific disinfection procedures, as appropriate.
9. Security provisions and requirements. General considerations are discussed in the EHS SOP, ***Security Advice for Biosafety Laboratories***. Training should include laboratory-specific security policies and procedures, as applicable.

### **Training Specific to HIV and HBV Laboratories**

In addition to the training specified elsewhere in this SOP, employees working in HIV and HBV laboratories must complete EHS Bloodborne Pathogens training (or equivalent).

## **Additional Considerations**

This SOP is specific to training that is relevant to biosafety. Following are additional considerations for other types of training requirements that may also apply to any given laboratory operation.

1. Use of a respirator requires full participation in UNL's Respiratory Protection Program, which includes medical qualification, annual training, and fit-testing. Training is accomplished via EHS.
2. All laboratory workers should complete EHS Core Training, which includes the following modules: UNL's Injury and Illness Prevention Plan, Chemical Safety, and Emergency Preparedness. In addition, this general training should be supplemented with instruction on building specific alarms, evacuation routes, shelter-in-place locations, locations of alarm stations, etc. See UNL's Emergency Preparedness website at <http://emergency.unl.edu/>.
3. PIs are encouraged to create a general laboratory safety manual, as a supplement to the biosafety manual. EHS SOPs and the Virtual Manual tool can be used for this purpose.
4. Use of radioactive materials and/or radiation-producing devices is subject to prior approval by the Radiation Safety Committee and requires specific training, delivered solely by EHS.
5. Use of vertebrate animals is subject to prior approval by the Institutional Animal Care and Use Committee (IACUC) and requires specific training.
6. Any person who participates in a transport function related to hazardous materials/dangerous goods (e.g., signs paperwork, conducts packaging, etc.) must participate in the EHS DOT/IATA training program.

## **Records**

The OSHA Bloodborne Pathogen Standard (29 CFR 1910.1030) mandates that training records be maintained for a minimum of three years from the date that training occurred. Records of training provided by EHS are maintained by EHS. PIs are responsible to maintain records of training that is provided under their supervision.

While the NIH Guidelines and BMBL are silent as to maintenance of training records, PIs are strongly encouraged to maintain such. EHS recommends maintenance of all training records in accordance with the requirements of the Bloodborne Pathogens Standard.

Model training documentation forms (limited in scope to biosafety training) are included in Appendices A and B to this SOP. These forms are provided for convenience only. Equivalent documentation is acceptable.

## Appendix A

### Record of Biosafety Training for Authorized Laboratory Personnel

*(Draw a single line through or highlight names of individuals no longer working in the lab)*

|   | <b>Printed Name</b><br><i>Signature</i> | Record Date(s) Completed (Record NA if Not-Applicable) |                       |                               |  |                                  |  |                         |  |
|---|---|--|-----------------------|-------------------------------|--|----------------------------------|--|-------------------------|--|
|   |   | EHS Core Training                                      | Read Biosafety Manual | Bloodborne Pathogens Training | Demonstrated Proficiency with Standard and Special Microbial Practices; Lab-Specific Procedures; and Aseptic Technique | Disinfection and decontamination | PPE use, limitation, care, and maintenance | Lab Security Provisions | Emergency Procedures and Spill Protocols |
| 1 |   |  |                       |                               |  |                                  |  |                         |  |
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|    | Printed Name<br><i>Signature</i> | Record Date(s) Completed (Record NA if Not-Applicable) |                       |                               |  |                                  |  |                         |  |
|----|----------------------------------|--|-----------------------|-------------------------------|--|----------------------------------|--|-------------------------|--|
|    |                                  | EHS Core Training                                      | Read Biosafety Manual | Bloodborne Pathogens Training | Demonstrated Proficiency with Standard and Special Microbial Practices; Lab-Specific Procedures; and Aseptic Technique | Disinfection and decontamination | PPE use, limitation, care, and maintenance | Lab Security Provisions | Emergency Procedures and Spill Protocols |
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## Appendix B

# Annual Biosafety Refresher Training

### Topics Covered (check all that apply)

- |   |   |
|---|---|
| <input type="checkbox"/> Biosafety Manual Review                  | <input type="checkbox"/> Disinfection and decontamination           |
| <input type="checkbox"/> Bloodborne Pathogens Training            | <input type="checkbox"/> PPE use, limitation, care, and maintenance |
| <input type="checkbox"/> Standard and Special Microbial Practices | <input type="checkbox"/> Lab Security Provisions                    |
| <input type="checkbox"/> Lab-Specific Procedures                  | <input type="checkbox"/> Emergency Procedures and Spill Protocols   |
| <input type="checkbox"/> Aseptic Technique                        |   |

|    | Printed Name | <i>Signature</i> | Date Completed<br>(MM/DD/YY) |
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**Trainer**

Printed Name \_\_\_\_\_

Signature \_\_\_\_\_