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Policy  
for  
**Biosafety**

**REVISION**

Rev No.	DCN No.	Change Summary	Release Date	DCN Initiator	Document Owner
6	DCN1767	Updated to reflect current practices; reference to IBC protocol and forms added, changes requested	8-9-19	K. Rhodes	T. Diamond

Prior revision history, if applicable, is available from the Document Control Office.

## 1. PURPOSE AND SCOPE

1.1 This biosafety policy and associated manual have been developed by SUNY Polytechnic Institute (SUNY Poly) to accomplish the following goals:

- Protect personnel from exposure to infectious agents
- Prevent environmental contamination
- Comply with applicable federal, state and local requirements

1.2 The biosafety policy provides SUNY Poly facility-wide safety guidelines, policies and procedures for the use and manipulation of biohazards

## 2. RESPONSIBILITIES

### 2.1 The SUNY Poly Environmental Health and Safety (EHS) Department

A representative from SUNY Poly EHS shall participate in the SUNY Poly Institutional Biosafety Committee (IBC). EHS shall ensure compliance with the directives of the IBC, this policy and the Biosafety Manual.

SUNY Poly EHS department and is responsible for the following:

Oversee and provide guidance on the policies and procedures of the program,

Assess, review and approve of new research, materials and facilities for working with bio-hazardous materials,

Develop, in collaboration with Principal Investigators (PIs) and others, standard operating procedures for controls used within bio-hazardous research laboratories,

Assist in the design and selection of new controls,

Understand biosafety hazards and biosafety controls,

Provide biosafety training, and

Evaluate the effectiveness of the program on an annual basis.

## 2.2 Facility Engineering

Albany Facilities Engineering is responsible for maintaining laboratory facilities and equipment as specified by this policy and applicable regulations, codes or recognized industry standards [at the Albany campus](#).

## 2.3 Laboratory Owners, Faculty and Principal Investigators (PIs) are responsible for the following:

The PI has overall responsibility for all work done in the laboratory, including ensuring compliance with the procedures in this policy and the Biosafety Manual.

Determine appropriate Biosafety Level for work performed in lab.

Ensure all staff has completed required general training (see Section 4.3) and provide lab-specific training on working with bio-hazardous materials and ensure that employees follow standard microbial practices, use appropriate primary barriers and personal protective equipment.

Determine appropriate disinfecting materials and methods for bio-hazards in laboratory.

## 2.4 Employees, Students and Researchers are responsible for:

Conducting their work in accordance with training provided

Understanding the biosafety hazards associated with their job task and work areas.

## 3. DEFINITIONS

3.1 **Biohazard** - Biological agents and materials which are potentially hazardous to humans, animals and/or plants. Infectious or etiologic (disease causing) agents, potentially infectious materials, certain toxins and other hazardous biological materials are included in the definition of a biohazard.

3.2 **Biosafety Level 1 (BSL-1)** practices, safety equipment, and facilities are appropriate for projects with defined and characterized strains of viable microorganisms not known to cause disease in healthy adult humans.

3.3 **Biosafety Level 2 (BSL-2)** practices, safety equipment, and facilities are applicable to work done with the broad spectrum of indigenous moderate-

risk agents present in the community and associated with human disease of varying severity.

- 3.4 **Biosafety Level 3 (BSL-3)** practices, safety equipment, and facilities are applicable to work done with indigenous or exotic agents with a potential for aerosol transmission, and which may cause serious and potentially lethal infection. No BSL-3 work is currently permitted at the SUNY Poly facility.
- 3.5 **Biosafety Level 4 (BSL-4)** practices, safety equipment, and facilities are applicable for work with dangerous and exotic agents, which pose a high individual risk of life-threatening disease, which may be transmitted via the aerosol route, and for which there is no available vaccine or therapy. No BSL-4 work is currently permitted at the SUNY Poly facility.
- 3.6 **Bloodborne Pathogens** - Pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, Hepatitis B virus (HBV) and Human Immunodeficiency virus (HIV).
- 3.7 **Primary Containment:** Protection of personnel and the immediate laboratory environment through good microbiological technique (laboratory practice) and the use of appropriate safety equipment.
- 3.8 **Recombinant Organisms / Molecules:** Genetically modified microorganisms or genetic elements from organisms, listed as select agents by CDC, shown to produce or encode for a factor associated with a disease. Also, genetically modified microorganisms or genetic elements that contain nucleic acid sequences coding for any such agent, or their toxic subunits.
- 3.9 **Secondary Containment:** Protection of the environment external to the laboratory from exposure to infectious materials through a combination of facility design and operational practices.
- 3.10 **Universal Precautions** - A method of infection control that treats all human blood and other potentially infectious materials as capable of transmitting HIV, HBV, and other Bloodborne pathogens.

## 4. ADMINISTRATIVE CONTROLS

### 4.1 Bio-hazard Warning Symbol

A biohazard label is required for all areas or equipment where BL-1 or above, procedures are utilized. The label shall be placed at the entrance to the laboratory and on equipment such as: refrigerators, incubators, transport containers, and/or lab benches (see Figure 1).



Figure 1 - Biohazard Label

#### 4.2 Bloodborne Pathogens Program and Exposure Control Plan

SUNY POLY has implemented a Bloodborne Pathogen Exposure Control Plan (ECP). [The Albany campus has implemented EHS-00012 and the Utica campus has implemented EHSU-00012](#) in accordance with 29 CFR 1910.1030. Employees with potential for exposure to bloodborne pathogens are identified and included in this program.

Employees [with occupational exposure potential as defined by OSHA 1910.1030](#) will receive training at initial assignment and annually thereafter.

Employees [included in the ECP](#) will be offered the Hepatitis B vaccination free of charge.

#### 4.3 Training

All laboratory employees shall complete Safety Orientation and Laboratory Safety Training from the EHS Department. [This training shall be appropriate for the campus and lab activities to be engaged in.](#)

All personnel working in the laboratory [directly with](#) biohazards shall receive laboratory specific training from the Principal Investigator (PI) or laboratory supervisor. Training should [be documented and](#) include, at a minimum:

Good laboratory and microbiological practices,

Laboratory or environment specific BSL-2 procedures, as applicable.

These personnel are also required to complete General Biosafety training in the form of either classroom or CITI online training. The classroom version of this training is strongly encouraged unless extenuating circumstances or location make this infeasible.

Biosafety classroom training shall be scheduled on a regular interval or may be requested by contacting the SUNY Poly EHS Department.

CITI online 'Complete Biosafety Training' can be accessed throughout the SUNY Poly EHS website (See Appendix B – SUNY Poly CITI Biosafety Training Guidance).

Biosafety training must be completed prior to providing access to a biosafety laboratory/area and biennially thereafter. Failure to comply with training requirements may result in revocation of laboratory access.

Retraining shall also be conducted when there is reason to believe that any affected employee or student who has already been trained does not have the understanding and skill required by this policy or following a biosafety related incident, as appropriate.

#### 4.4 **Recombinant DNA Program**

All research at SUNY Poly involving recombinant DNA (rDNA), independent of the funding source, needs to be in compliance with the requirement of the *NIH Guidelines for Research Involving Recombinant DNA Molecules*.

The SUNY Poly Institutional Biosafety Committee (IBC) shall review and approve all applicable research per **EHS-00056A** External Appendix A Institutional Biosafety Committee Charter.

## 5. ENGINEERING CONTROLS

- 5.1 Engineering controls and equipment shall be selected and used to control the potential for exposure to bio-hazardous materials. The following are examples of equipment that are commonly used for this purpose. **EHS-00056-LT** Biosafety Manual: Lab Template contains more detailed instruction on the appropriate use of this equipment.
- 5.2 **Biological Safety Cabinets (BSC) Class I, II and III:** The correct location, installation, and certification of the Biological Safety Cabinet are critical to its performance in containing infectious aerosols. All BSCs must be inspected and certified annually by trained and accredited service personnel. Inspection and re-certification is also mandatory if the cabinet is relocated; or after major repairs, filter changes etc. To request service or certification [guidance](#) contact the [SUNY Poly](#) EHS Office.

## 6. PERSONAL PROTECTIVE EQUIPMENT (PPE)

- 6.1 The minimum PPE for [biohazardous](#) laboratory work [includes](#); safety glasses, lab coat, and [disposable or chemical resistant](#) gloves.
- 6.2 Additional personal protective equipment may be required based upon specific risks of the research. Refer to **EHS-00010** [SUNY Poly](#) Personal Protective Equipment Requirements for more information.
- 6.3 **Respirators** - For certain protocols and projects, respiratory protection may be required. Personnel wearing respirators need to be included in the [SUNY Poly Respiratory Protection Program](#) (see **EHS-00015**).
- 6.4 All personal protective clothing must be cleaned, laundered or disposed of by the employer at no cost to employees. Apparel contaminated with human blood or other potentially infectious materials should be handled as little as possible; and collected in biohazard bags. Appropriate PPE must be worn by employees who handle [potentially](#) contaminated laundry.

## 7. RECOMMENDED WORK PRACTICES

- 7.1 Laboratory employees and students are to utilize good laboratory practices and use equipment in accordance with training. Employees are to comply with work practices as outlined in **EHS-00056-LT** Biosafety Manual: Lab Template, for the following equipment:

- Pipettes and Pipetting Aids
- Syringes and Needles
- Centrifuge Equipment
- Autoclaves
- Blenders, Ultrasonic Disrupters, Grinders and Lyophilizers
- Loop Sterilizers and Bunsen Burners

## 8. BIOHAZARD SPILL CLEAN-UP PROCEDURES

- 8.1 Laboratories working with biohazards should have a basic biological spill kit ready for use at all times. A basic kit shall consist of:

- Disinfectant appropriate to bio-hazardous material in lab (e.g., bleach 1:10 dilution, prepared fresh)
- Absorbent Material (e.g., paper towels)
- Waste Container (e.g., biohazard bags, sharps containers)
- Personal Protective Equipment (e.g., lab coat, gloves, eye and face protection)
- Mechanical Tools (e.g., forceps, dustpan and broom)

Refer to **EHS-00056-LT** Biosafety Manual: Lab Template for detailed procedures on the clean-up of biohazardous materials inside the lab.

Should the spill occur and you are unsure of what to do call the emergency number immediately.



## 9. ONSITE TRANSPORT OF BIOHAZARDOUS MATERIALS

- 9.1 Always double contain bio-hazardous materials for transport. Label with the biohazard symbol (plastic cooler, bio-specimen pack, etc.). Both containers shall be sealed and resistant to breaking.
- 9.2 Absorbent material should be used during transport of liquid biohazardous material.
- 9.3 Should a spill of BSL-2 material occur outside the lab, call the emergency number (518) 437-8600 immediately. DO NOT attempt to clean up the spill.

## 10. OFFSITE TRANSPORT OF BIOHAZARDOUS MATERIALS

- 10.1 Proper containment and packaging must be in place during transport (see packaging requirements in Section 9).
- 10.2 If transported by private vehicle, the vehicle used must be for direct and exclusive transport of the sample to the destination (no other stops permitted).
- 10.3 Biohazardous materials must NEVER be transported on public transportation.
- 10.4 Use cold packs or wet ice for temperature control during short-term transfers, as necessary. Place wet ice in a sealed plastic bag or leak-proof container to prevent water leakage.
- 10.5 Use special diagnostic shipping containers for frozen samples to maintain low temperature without the use of dry ice. If dry ice must be used, personnel must follow Department of Transportation (DOT) specifications for packaging in an insulated, gas-venting container:
- Place the dry ice outside of the secondary container inside an insulated cooler or similar gas-venting container.
  - Do not place dry ice in a closed, non-venting container to avoid explosion or injury.
  - Label the outside package with a “dry ice” label.

## 11. DECONTAMINATION

- 11.1 Decontamination is the reduction of microorganisms to an acceptable level. The PI is responsible to select and require the use of appropriate disinfectants for use in [their](#) laboratory.
- 11.2 Surfaces (e.g., lab bench) shall be cleaned with a disinfectant [daily or after completion of work](#).
- 11.3 Reusable containers such as glass flasks, bottles, test tubes, pipettes, etc. shall be sterilized in an autoclave.
- 11.4 Laboratory equipment [and components](#) shall be decontaminated, as needed, before being released for repair or maintenance.

## 12. BIO-HAZARDOUS WASTE

### 12.1 General Labeling, Packaging and Disposal Procedures

Bio-hazardous waste BSL-2 or greater shall not be decontaminated before leaving SUNY Poly.

All bio-hazardous waste shall be disposed into appropriately labeled red bags, boxes lined with red bags or sharps containers. The items shall be packaged, contained and located to prevent the waste from release, at any time, prior to ultimate disposal.

[Bio-hazardous waste must not be stored in a storage area for a period exceeding 30 days, unless 50 pounds per month is being in which case it may be stored for up to 60 days.](#)

Waste Specific Procedures for BSL-1 and BSL-2 are contained in **EHS-00056-LT** Biosafety Manual: Lab Template.

### 13. RESTRICTED AGENTS (CDC)

Laboratories and Principal Investigators seeking to use materials defined by CDC as select agents and toxins must receive approval prior to ordering, receiving or working with these agents. Some of these agents classified as BSL-3 or BSL-4 will require containment procedures and facilities currently not available at SUNY Poly.

A listing of select agents is available on the CDC website:  
<http://www.cdc.gov/phpr/dsat.htm> or in regulation 42 CFR Part 73

#### 13.1 Other Restricted Materials and Activities

13.2 The deliberate transfer of a drug resistance trait to microorganisms that are not known to acquire the trait naturally is prohibited by NIH *Guidelines for Research Involving Recombinant DNA Molecules*, if such acquisition could compromise the use of the drug to control these disease agents in humans or veterinary medicine.

### 14. ORDERING PROCEDURE

#### 14.1 Ordering Procedure for Biological Materials: BSL-1, BSL-2, Biological Kits & Dyes

Prior EHS approval is not required for purchase of BSL-1 and BSL-2 biological materials and biological kits and dyes for use in the CNSE bio labs. These materials do not need to be managed through the hazMIN system. This includes chemicals/chemistry that may be included with these materials in small quantities as preservatives, fixing agents, etc., consistent with R&D/industry standards for these laboratory materials. A copy of the current Safety Data Sheet (SDS) for these materials must be obtained from the manufacturer/supplier as part of the materials order. The SDS must be reviewed prior to initial use of the subject material for proper handling and use precautions.

When submitting a request to the Procurement Department for purchase of such materials, include “biological materials”, “biological kit” or “biological dye”, consistent with the subject material being ordered, with the description/identification of the materials requested to be purchased.

For purchase of biological materials, the Biological Agent Inventory Form (EHS-00056-LT Biosafety Manual: Lab Template, Appendix A) must be maintained accurate and current for these materials.

## 15. TABLES

## 15.1 Table 1 - Summary of Biosafety Levels for Infectious Agents (BL-1 to BL-2)

**TABLE 1**  
**SUMMARY OF BIOSAFETY LEVELS FOR INFECTIOUS AGENTS (BSL-1 TO BSL-2)**

Biosafety Level	Agents	Practices	Safety Equipment (Primary Barriers)	Facilities (Secondary Barriers)	Examples
<b>BSL-1</b>	Not known to cause disease in healthy adults	Standard Microbiological Practices	PPE: laboratory coats, gloves, safety glasses, face protection as needed	Open bench top sink required	<a href="#">E. Coli</a> , <a href="#">Bacillus subtilis</a>
<b>BSL-2</b>	Associated with human disease, hazard (exposure) = auto-inoculation, ingestion, mucous membrane exposure	BSL-1 practice plus: Limited access; biohazard warning signs; "Sharps" precautions; biosafety manual defining any needed waste decontamination or medical surveillance policies	Class I or II Biological Safety Cabinets (BSCs) or other physical containment devices used for all manipulations of agents that cause splashes or aerosols of infectious materials; PPE: laboratory coats, gloves, safety glasses, face protection as needed	BSL-1 plus: Autoclave available	<a href="#">Influenza</a> , <a href="#">HIV</a> , <a href="#">Lyme disease</a>