University of Bridgeport

Personal Protective Equipment (PPE) Policy

July 2024

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Overview

The University of Bridgeport (UB) is committed to providing a safe environment for all students, faculty, and staff. Part of that pledge to safety includes requirements regarding the use of personal protective equipment (PPE) as laid out in Occupational Safety and Health Administration (OSHA) regulations, 29 CFR 1910.132 – 29 CFR 1910.140. In compliance with these federal regulations, this policy will describe the types of PPE typically used at UB, as well as provide pertinent information for assessing which PPE are appropriate for different laboratory scenarios. These scenarios will vary by department and type of research conducted and should always begin with a safety assessment (see Section 8) to be completed in accordance with the policies listed in this document, as well as any additional safety measures required at the departmental level.

SECTION 1: CONTACT INFORMATION

For PPE planning purposes, the following people and departments may be contacted:

NAME/TITLE/DEPARTMENT	CAMPUS PHONE	CELL/ HOME PHONE
President *Dr. Danielle Wilken*	203-576-4665	
Vice President for Academic Affairs Chief Academic Officer *Dr. Manyul Im*	203-576-4234	203-615-8348
Dean of the College of Science and Society *Amy Nawrocki*	203-576-4297	203-804-8845
Chemical Hygiene Officer *Dr. Abu Gafar Hossion*	203-576-4174	405-761-7426 / 475-282-9235
Biological Safety Officer *Fred Ferraro*	203-576-2395	203-417-6481
Campus Security	203-576-4911	
Student Health Services	203-576-4712	

SECTION 2: BIOSAFETY LEVELS

2.01 Introduction

Biosafety levels (BSL) are used to protect workers, the public, and the environment by assessing the risk of experimental research protocols and then utilizing the appropriate level of safety requirements. These include a combination of laboratory design features, specialized equipment, and PPE. There are four numbered levels, with each higher number indicating an increasing risk. As the risk increases, the safety requirements increase, as well. The requirements of a particular biosafety level include the requirements of all lower biosafety levels in addition to specifications for that level. The University of Bridgeport currently conducts research in BSL-1 and BSL-2 laboratories, but all levels are briefly summarized here.

2.02 Description of Biosafety Levels

BSL-1 labs are authorized to study infectious agents and/or toxins that do not routinely cause disease in healthy adults. Basic safety procedures are appropriate for this kind of research and there is no need for additional equipment or special lab design features. No engineering controls are required beyond benchtop surfaces that are made to withstand thorough cleaning with basic suitable chemicals.

BSL-2 labs are prepared to handle moderate-risk infectious agents and/or toxins, which have the potential of causing disease in humans if inhaled, ingested, and/or absorbed subcutaneously. These laboratories include hand washing sinks, eye wash stations, and self-closing, lockable doors. Waste generated by these labs must be decontaminated (by incinerator, autoclave, or other suitable method) prior to disposal.

BSL-3 labs are designed to contain infectious agents and/or toxins that may become airborne and potentially cause a serious or lethal infection in humans if inhaled. Protocols must be conducted using specialized equipment (biosafety cabinets) to control air flow and protect workers from exposure. The entire BSL-3 facility operates under negative air pressure, with air flowing into the lab from adjacent hallways and other spaces, thereby preventing harmful agents/toxins from accidental release into the surrounding environment. These labs must also include sealed windows and walls, two self-closing and interlocked doors, and filtered ventilation. Prior to disposal, waste must first be decontaminated within the BSL-3 lab. **(This level is not currently in use at the University of Bridgeport).**

BSL-4 facilities are equipped to handle high risk infectious agents and/or toxins. Inhalation of these aerosolized particles is highly likely to cause severe infection or life-threatening disease. No treatments or vaccines are currently available for diseases caused by these agents and/or toxins. As a result, these facilities are set apart by various means and workers receive extensive training. Experiments are either conducted in Class III biosafety cabinets with rigorous safety procedures and controls or entrance to the lab is restricted to personnel wearing full-body suits with self-contained air supplies. Additionally, all personnel are required to decontaminate prior to exiting

the lab, which includes a chemical shower (for the suit) and a change of personal clothing. **(This level is not currently in use at the University of Bridgeport).**

SECTION 3: GENERAL LAB SAFETY RECOMMENDATIONS

Prior to donning any PPE, all laboratory workers should:

1. Store personal belongings, such as backpacks and outerwear, in a safe place (not the lab benchtop) where they will not become contaminated.
2. Store cell phones, laptops, and other personal devices in a safe place outside of any "splash zones" and where the owner will not inadvertently touch them with contaminated gloves.
3. Wear close-toed, heeled shoes, preferably impervious to liquid.
4. Cover exposed skin with socks, long pants, long shirt sleeves, and full coverage shirts. When possible, PPE should not be the only layer between a laboratory worker and potential hazards.
5. Secure and/or contain hair so that it does not interfere with work or become accidentally contaminated.
6. Remove any jewelry that could compromise safety, such as rings that may puncture a glove. Loose bracelets should be removed or tucked under gloves.

SECTION 4: TYPES AND KINDS OF PPE

The following is a list of commonly used PPE. It is meant to as a guide for planning purposes but is not an exhaustive list. PPE may be required which are not included on this list.

1. **Safety glasses** act as a shield to protect the eyes from anything that could result in irritation or injury. OSHA requires that all eye and face protection meet the standards as outlined by American National Standards Institute (ANSI) Z87.1-2010. Safety glasses are typically made of a durable material, must have shatter-proof lenses and impact resistant frames, and include side panels to protect the eye from splashing liquid or projectiles and debris. Safety glasses may be customized with prescription lenses.

2. **Safety goggles** also act as a shield to protect the eyes by enclosing them from anything that could result in irritation or injury. They may provide greater protection than safety glasses as they include flexible top and bottom pieces and an elastic strap, enabling them to fit more snugly and securely on the face. They may be worn over a person's prescription glasses or they may be customized with a built-in prescription. To reduce fogging, safety goggles usually have built in vents, which may decrease protection. Another option is an anti-mist coating on the lenses.

3. **Face masks** protect the wearer from inhaling particulates, viruses, aerosols, and other similarly hazardous substances. Surgical masks are a commonly used face mask meant to provide a barrier to larger particle droplets, including projectiles, which might otherwise be inhaled through the nose and mouth. KN95 masks filter up to 95% of viruses, bacteria, bodily fluids, and similar items that can be airborne and inhaled. For all masks, best results are achieved by wearing masks that fit snugly and properly.

4. **Respirators** require fit testing and are the subject of a separate policy (See Respirator Policy).

5. **Face Shields** are usually made of clear plastic and provide a physical barrier for the whole face. They are often worn in conjunction with safety glasses/goggles and a face mask. The shield attaches via an elastic strap and fits snugly across the forehead. The sides and bottom of the shield are usually open.

6. **Lab coats** come in several different kinds. They may be loose-fitting, knee-length garments made of fabric with buttons in the front. These lab coats are autoclavable, washable, and reusable. They are made with or without knitted cuffs (for a snug fit) and with or without pockets. They may be treated with a flame-retardant substance. Lab coats may also be disposable, single use garments made of a variety of materials. These may be a loose smock that opens in the back with a tie to close the neck and strings to secure around the waist.

7. **Lab aprons** (worn over a lab coat) may be advisable as an extra and more durable layer of protection. Manufactured with a rubber coating, lab aprons should be used when handling corrosive substances, for example, or any activities with an increased splash/spill potential.

8. **Sleeves** may protect the arms from chemical splashes, biological materials, heat/sparks that could result in burns, or cuts and/or abrasions. Depending on the purpose, sleeves are made in a variety of materials. They are often worn in conjunction with gloves and may serve as an extension of the glove.

9. **Gloves** protect the hands in a variety of ways depending on the type of glove. Most chemistry and biology labs use disposable nitrile or latex gloves for experiments. Chemical resistant gloves are also available for use with heavy-duty chemicals and other substances. They are thicker and longer, covering the wrist and elbow. Heat resistant gloves are available for removing items from an autoclave, for example.

10. **Shoe covers** may be disposable or reusable, waterproof, and tear-proof. They may cover just the sole and shoe itself, or may cover the shoe and ankle, thereby protecting the gap between pants and shoes.

11. **Safety boots** are thicker boots that cover the ankle and may have a reinforced toe.

SECTION 5: CONSIDERATIONS WHEN SELECTING PPE

5.01 Type of Risk

Selection of PPE is dictated by the kind of research being conducted and the risks associated with that research. Chemical hazards may be assessed differently from biological hazards, for example. Another category includes hazards from equipment or projectiles generated by an experiment. PPE selection must consider the entire scope of hazards generated by one or more of these categories.

5.02 Fit

After the PPE needed for an experiment has been assessed, it is important to make sure the PPE fit well. Baggy gloves may impede dexterity. Masks or safety glasses that do not fit well and require frequent adjustment increase the likelihood of the wearer contaminating themselves. Lab coats that do not provide adequate coverage or restrict free movement may also be problematic.

5.03 Maintenance

Consider how PPE will be maintained. Disposable gloves need to be changed frequently and therefore require an adequate stockpile. Reusable lab coats will need to be autoclaved and laundered periodically. Safety glasses and goggles will need to be cleaned and/or sterilized. Consider where PPE items will be stored or hung up so they are easily accessible and part of the flow of traffic (hooks for lab coats might be placed near the hand washing sink, for example, so workers can easily remove their lab coats and immediately wash their hands).

SECTION 6: DEFECTIVE AND DAMAGED PPE

Any PPE that is found to be defective or damaged must be discarded and replaced with PPE in good working order.

SECTION 7: TRAINING

All laboratory workers must receive training regarding how to properly don, doff, adjust for proper fit, and work while wearing PPE and must demonstrate those competencies.

SECTION 8: CERTIFICATION

The following certification must be used to assess the risk of any newly proposed research. It should also be used to reevaluate risks periodically, as when new technology is introduced that may improve the safety of a proto

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Certification of Hazard Assessment

This assessment should be submitted to the Department Chair for review and approval prior to submission to the Institutional Biosafety and Laboratory Safety Committee (IBLSC):

Assessment Date: _____
Start Date for Proposed Research or Task: _____
End Date for Proposed Research or Task: _____
Department: _____
Building and Room: _____
Principal Investigator (PI): _____
PI email address: _____ PI phone: _____

Description of Proposed Research or Task: _____
_____
_____
_____

Body Part(s)	Hazard(s)	PPE Requirement(s)
Eyes:		
Face:		
Head:		
Airway:		
Hands:		
Feet:		
Whole Body:		
Other:		
Other:		

Certification: I certify that this hazard assessment was conducted in accordance with the provisions of the University of Bridgeport's Personal Protective Equipment (PPE) Policy.

Signature of Department Chair: _____ Date: _____

Signature of IBLSC Chair: _____ Date: _____

SECTION 9: REFERENCES

https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.132
https://www.purdue.edu/ehps/rem/documents/programs/PPEPolicy.pdf
https://www.phe.gov/s3/BioriskManagement/biosafety/Pages/Biosafety-Levels.aspx
https://www.grainger.com/category/safety/hand-arm-protection/protective-sleeves
https://lsm.alfaisal.edu/documentations/lab-coats-and-aprons/#:~:text=Lab%20aprons%20are%20designed%20to,likelihood%20for%20splashes%20or%20spills.