University of California Policy

Personal Protective Equipment

Responsible Officer:	Chief Risk Officer
Responsible Office:	RK - Risk / EH&S
Issuance Date:	June 12, 2013
Effective Date:	March 31, 2014
Scope:	This policy and regulatory standards require the supervisor to select Personal Protective Equipment (PPE) for workers under their supervision based on an assessment of hazards in the workplace which those workers are likely to encounter. Supervisors are required to inform such workers of the selection decisions, and to have their workers follow those decisions when obtaining PPE. PPE will be provided to workers at no cost. Full implementation of this policy shall occur 60 days past receipt of PPE scheduled delivery per policy requirement. This policy applies to students enrolled in academic courses in which PPE is required by the instructor and/or indicated in the course syllabus.

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I. POLICY SUMMARY

The University of California is committed to providing a healthy and safe working environment for all members of the campus community. This Personal Protective Equipment (PPE) policy is designed to prevent workplace injuries and illnesses for all academic appointees, staff, students, and visitors.

II. DEFINITIONS

Hazardous Materials: Hazardous materials, for the purposes of this policy, are chemical or biological agents that have been generally accepted as a health or physical hazard. Unsealed radioactive materials are also included as "hazardous materials." Additional guidance is included in Appendix A.

Laboratory/Technical Areas: For the purposes of this policy, a laboratory/technical area is a location where the use or storage of hazardous materials occurs or where equipment may present a physical or chemical hazard. It includes, but is not limited to:

Research laboratories	Waste accumulation areas/locations
Teaching laboratories	Cold rooms
QA/QC and analytical laboratories	Machine and other Workshops
Stock rooms	Vivaria
Storage rooms	Visual/performing arts studios and shops

Personal Protective Equipment (PPE): Personal protective equipment is worn to minimize exposure to a variety of hazards. Examples of PPE include such items as lab coats, gloves, foot protection (steel-toed shoes),eye protection (safety glasses or goggles), protective hearing devices (earplugs, muffs), hard hats, respirators, fall protection harnesses, etc.

Physical Hazards: Physical hazards are identified as substances, equipment, or activities that can threaten physical safety. Physical hazards can include but are not limited to: impact (falling objects), fall hazards, extreme pressures, temperature extremes (heat/cold), radiation (ionizing and non-ionizing), noise, vibration, electrical, light (optical), welding, cutting, brazing.

Student: An individual enrolled in an academic class.

Supervisor: An employee who may have authority to hire personnel, evaluate performance, direct work assignments, apply progressive discipline, direct resources to correct identified safety issues. This includes a Principal Investigator, area manager, unit manager, project manager, superintendent, and foreman/person. Unless specified in writing, the default "supervisor" in laboratory/technical areas is the Principal Investigator.

Use or Storage: For the purposes of this Policy, "use or storage" includes those operations where workers are directly manipulating hazardous materials, adjacent to or in proximity to a hazard or in areas where there is a reasonable risk of exposure. Reasonable risk of exposure includes all activities identified in the hazard assessment that pose an exposure risk to the worker.

Worker: For purposes of this policy, a worker is an individual who actively performs work functions with hazardous materials or equipment in a laboratory/technical area. A "worker" may be faculty, staff, student volunteer assisting in a non-academic class, or visitor/visiting scholar. For the purpose of this definition, "worker" excludes individuals who only passively participate in tours, lectures, conferences, etc.

III. POLICY TEXT

Hazards exist in every University workplace and can take many different forms: sharp edges, falling objects, flying sparks, chemicals, noise, and a myriad of other potentially dangerous situations. This policy requires that the University protect its workers from workplace hazards that can cause injury.

Controlling a hazard at its source is the best way to protect employees. Depending on the hazard or workplace conditions, the preferred solution is the use of engineering or work practice (administrative) controls to manage or eliminate hazards to the greatest extent possible. When engineering or administrative (work practice) controls are not feasible or do not provide sufficient protection, supervisors must provide personal protective equipment (PPE) to their workers and ensure its use.

Failure/refusal to wear required PPE is a basis for discipline, in accordance with locally-established procedures. A student not wearing course required PPE in a laboratory/technical area may not participate in lab activities until such PPE is worn.

This policy sets minimum systemwide requirements; each campus may develop policies and procedures which meet or exceed this policy standard.

A. General Program Requirements

1. For workers:

a. Perform Hazard Assessment

Each supervisor shall assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE). This assessment must evaluate both the hazards to the individuals performing the work and assess the hazards to individuals who occupy the room or space where the work is being performed.

Each supervisor shall verify that the required workplace hazard assessment has been performed through a written certification that identifies the workplace evaluated; the person certifying that the evaluation has been performed; the date(s) of the hazard assessment and identifies the document as being a certification of hazard assessment. Hazard assessments that indicate less than the minimum PPE for a laboratory/technical area as stated in section B require review and approval from campus Environment(al) Health and Safety (EH&S) in accordance with local procedures (See section B3).

A completed standard operating procedure, job hazard analysis, or other similar document which includes a workplace hazard assessment can be used to satisfy this requirement.

b. Identify Required PPE

Each supervisor, based upon the hazard assessment, shall ensure that the appropriate personal protective equipment has been identified and is provided for each user. The PPE must be the proper fit and design for the user and not interfere with the ability of the worker to work safely. The PPE will be provided to the worker at no cost.

c. Training

Each supervisor will assure workers know how to properly wear, adjust and maintain assigned PPE. Workers will demonstrate understanding of the proper use of assigned PPE. The training must cover these elements: When PPE is necessary; What PPE is necessary; How to properly don, doff, adjust, and wear PPE; The limitations of the PPE, and; The proper care, maintenance, useful life and disposal of the PPE. Training will be documented.

d. Maintenance and Replacement

Each worker is responsible for properly wearing required PPE. Each worker is responsible for informing their supervisor when worn or damaged PPE needs to be replaced.

e. Evaluating the Appropriateness of Identified PPE

Each supervisor is responsible for periodically re-evaluating the selection and use of PPE in work areas under their control. The hazard assessment should be repeated when new hazards are identified or introduced into the workplace or at least every three (3) years.

2. For students:

Academic courses which include laboratory, shop or field work are required to indicate PPE requirements (including specifications of the type of PPE) as part of the course syllabus. These PPE items shall be the responsibility of the student to obtain and wear as part of the class. Common communal PPE such as thermal protective, welding aprons, face shields, etc., will be provided by the sponsoring department. The instructor of record for a course, or designee, is responsible for ensuring that students are familiar with and properly using required protective devices

B. Minimum Attire and Personal Protective Equipment Requirements for Laboratories/Technical Areas

The following minimum attire and PPE requirements pertain to all laboratories/technical areas where use or storage of hazardous materials occurs or a physical hazard exists. This section should be used as the basis for developing the required PPE elements to include in the course

syllabus for laboratory classes. The wearing of required PPE may only be modified as determined by a standard operating procedure or the laboratory hazard assessment. (See section III.A.1.a).

1. Attire when occupying a Laboratory/Technical Area

a. Full length pants (or equivalent) and closed toe/heel shoe attire must be worn at all times by all workers who are occupying or entering a laboratory/technical area. The area of skin between the pants and shoe should not be exposed.

2. PPE when working with, or adjacent to, hazardous material use areas within a Laboratory/Technical Area

a) Laboratory coats (or equivalent protective garments) and protective eyewear are required to be worn by all workers working with hazardous materials. In addition, laboratory personnel occupying the adjacent area, who have the potential to be exposed to chemical splashes or other hazards as determined by SOP requirements and/or the laboratory hazard assessment, are required to wear laboratory coats (or equivalent protective garments) and protective eyewear.

i. Laboratory coats must be appropriately sized (and if necessary fitted) for the worker. Coats must be buttoned/snapped to their full length. Laboratory coat sleeves must be of a sufficient length to prevent direct skin exposure while wearing gloves.

ii. Flame Resistant (FR-rated) laboratory coats must be worn when working with any amount of pyrophoric materials. FR-rated lab coats are also required when working with flammable liquids in laboratories using open flames or other potential ignition sources; or as determined by the hazard assessment.

iii. Laboratory coats shall not be laundered at private residences or public laundry facilities. Any protective clothing that becomes contaminated with hazardous materials must be decontaminated prior to being laundered or appropriately discarded. Campuses are responsible for providing suitable laundry services to maintain required laboratory coats.

iv. All protective eyewear must meet American National Standards Institute (ANSI) standards and be appropriate for the work being done. Typical prescription spectacles are not suitable eye protection. Prescription safety glasses/goggles are available through individual campus procurement offices. Protective eyewear may be removed when using optical microscopes or similar instruments, requiring close contact between the eyes and the eyepieces.

b) Protective gloves must be worn while using any hazardous materials, hot or cold liquids (including cryogenics), objects that pose a risk of thermal burns, items having physical hazards, or equipment that may cause hand injury. These gloves must be appropriate for the material or process being used and must not interfere with the ability of the worker to work safely. The Safety Data Sheet (SDS) for the material and the manufacturer-specific glove selection guide should be referenced to determine appropriate glove type.

c) Some operations and procedures may warrant additional PPE, as indicated by the Safety Data Sheet (SDS), the Standard Operating Procedures (SOP), facility policies, regulatory requirements, or the hazard assessment. These might include face shields, aprons, respiratory protection, hearing protection, etc.

3. Exceptions

a) The minimum personal protective equipment requirements for Laboratories/Technical Areas (sections III.B.1-2) will not apply to:

   i. Laboratories/technical areas which have been designated and posted as free of physical or chemical hazards. Examples: Laboratories/technical areas that house only operations with no inherent physical or chemical hazards during normal, reasonably foreseeable upset (unexpected occurrence), or routine maintenance activities. Examples include some electron microscope rooms, precision measurement rooms, etc.

b) Exceptions that require written approval from their campus Environment(al) Health and Safety (EH&S) Department or EH&S approved department designees. EH&S has the final authority for determining this risk assessment.

   i. The establishment of a level of personal protective equipment below the minimum specified in sections III.B.1-2 to a laboratory/technical area that uses hazardous materials or includes a physical hazard.

   ii. The establishment of non-PPE required corridors that may be delineated within technical areas provided that the corridor does not pass near any potential exposure hazard.

   iii. Non-hazardous work areas (e.g., offices, work stations) that are within laboratory/technical areas but are clearly delineated by distance or physical barrier (e.g., walls, doors, or cubicle dividers). It must be clear that the area is intended to be a self-contained, dedicated area. Readily movable

furniture does not constitute a physical barrier as envisioned here.

1. Exceptions for individual desks or work spaces within a Technical Area are discouraged.

c) This policy does not apply to College of American Pathologists (CAP) accredited laboratories, which meet equivalent safety standards through CAP accreditation requirements.

IV. COMPLIANCE / RESPONSIBILITIES

The Chancellor has overall responsibility for compliance with health and safety requirements at all facilities and programs under her/his control.

Vice Chancellors/Directors/Deans/Departments Chairs are responsible for communicating, promoting and enforcing the Policy in areas under their control.

The Campus or School Laboratory and/or Chemical Safety Committee is responsible for promoting a safe working environment in all research and teaching laboratories on campus.

Supervisors are responsible for complying with this policy and ensuring their staff complies with this policy. Supervisors are also responsible for ensuring their staff receives both the required PPE identified in the hazard assessment, and documents their training on the proper use of their PPE. Noncompliance with the policy is handled in accordance with Personnel Policies for Staff Members (PPSM) policies 62-65 pertaining to disciplinary actions and Academic Personnel Manual (APM) policies 015-016 pertaining to the Faculty Code of Conduct and administration of discipline; and APM 140 and 150 pertaining to Non-Senate Academic Appointees.

Workers are responsible for knowing the PPE requirements for areas in which they work or enter, and for properly wearing PPE as established in this policy and in the hazard assessment. All workers are responsible for completing training, for knowing how to use PPE, for knowing how to properly put on and take off required PPE, and for knowing how to care for and maintain PPE. They are responsible for informing others in the area of these requirements and reporting unsafe conditions to their supervisor, or EH&S. Workers are NOT responsible for purchasing their own PPE. As applicable, a staff employee may address issues of noncompliance with this Policy through the complaint resolution processes described in PPSM 70 and II-70 (Complaint Resolution) and PPSM 71 and II-70 (Resolution of Concerns) or Collective Bargaining Agreement.

Students are responsible for obtaining course required PPE as noted in the course syllabus and wearing as directed by the instructor.

The Office of Environment(al), Health & Safety (EH&S) is responsible for providing interpretation and clarification regarding this Policy. EH&S will also provide consultation and tools to assist supervisors in performing the hazard assessment and with developing training. In cases where work activities pose an immediate danger to life or

health, designated EH&S staff have the responsibility and authority to order the temporary cessation of the activity until the hazardous condition is abated.

The Academic Personnel or Staff Human Resources Offices are responsible for all employee and labor relations issues, including interpretation and clarification of Personnel Policies and Collective Bargaining Agreements related to this Policy.

V. PROCEDURES

Not applicable

VI. RELATED INFORMATION

Appendix A – Hazardous Materials

Appendix B – Laboratory Hazard Assessment Tool (LHAT)

8 CCR 3380 Personal Protective Devices: (http://www.dir.ca.gov/title8/3380.html)

8 CCR 5191 Laboratory Standard: (http://www.dir.ca.gov/title8/5191.html)

8 CCR 5194 Hazard Communication: (http://www.dir.ca.gov/title8/5194.html)

8 CCR 3203 IIPP: (http://www.dir.ca.gov/title8/3203.html)

8 CCR 5209: Listed Carcinogens (http://www.dir.ca.gov/title8/5209.html)

VII. FREQUENTLY ASKED QUESTIONS

Not applicable.

VIII. REVISION HISTORY

This is the first version of this policy.

Appendix A
Hazardous Materials

Hazardous materials may be described using the following characteristics or regulatory definitions. This list is to be used as a guideline and allows for some laboratory/ technical areas to be classified as non-hazardous materials areas. It does not supersede Cal/OSHA regulations or accepted safe work practices for specific materials. The container label and the Safety Data Sheet for the material should be consulted to determine the hazard classification(s) of a particular substance.

a) Corrosives. Any chemical that causes visible destruction of, or irreversible alterations in, living tissue at the site of contact. *Examples: hydrochloric acid, sulfuric acid, sodium hydroxides, potassium hydroxides.*

b) Materials recognized as readily absorbed through the skin. *Examples: phenol, THF, DMSO, benzene, carbon disulfide, toluene.*

c) Skin or eye irritants are chemicals which are not corrosive, but which cause a reversible inflammatory effect on living tissue by chemical action at the site of contact. *Examples: xylenes, formamide, many amines like triethanolamine, carbon tetrachloride, perchloroethylene, many inorganic salts like cobalt and nickel sulfate.*

d) Flammable liquids having a flash point not more than 93°C. *Examples: organic solvents, ethers, alcohols, toluene, pentane, acetone.*

e) Violently air-reactive or water-reactive chemicals, including pyrophorics (substances that spontaneously ignite in air). *Examples: sodium or potassium metal, diethyl zinc, lithium aluminum hydride, t-butyl lithium, aluminum alkyls, calcium carbide, phosphine.*

f) Carcinogens or Mutagens. *Examples: formaldehyde, dichloromethane, benzene, chloroform.*

g) Reproductive Hazards. *Examples: acrylamide, Cd, Pb, Hg, Cr(VI), carbon disulfide, toluene, chloroform, ethylene glycol ethers*.

h) Toxic or Highly Toxic Chemical. A material likely to be fatal or toxic if inhaled, ingested or by skin contact.

i) Oxidizing Agents. A material not necessarily combustible, but may, generally by yielding oxygen, cause or contribute to the combustion of other material. *Examples: nitric and perchloric acids, chromates, nitrates, nitrites, hydrogen peroxide, chlorates.*

j) Any unsealed radioactive material.

k) Biological materials classified as Risk Group 2, or greater.

l) Centers for Disease Control Select Agent Toxins

Appendix B - Laboratory Hazard Assessment Tool
(Non-Mandatory)

This Laboratory Hazard Assessment Tool facilitates the identification of hazards and appropriate Personal Protective Equipment (PPE) to ensure the safety of lab personnel during work activities. The LHAT must be updated as hazards and personnel change, and at least once every 12 months, irrespective of changes to hazards or personnel.

The process is as follows:

1. Lab Personnel – Identify all lab personnel associated with the PI. This includes researchers, post-docs, graduate students, lab helpers, undergraduates and volunteers. Begin the LHAT with this step
2. Attend PPE Distribution Event with receipt of LHAT completion and type(s) PPE needed for individual
3. Fit PPE @ Event
4. Issue PPE @ Event
5. Training and Documentation of Training @ Event

What is a Lab Group?

Most PIs create a separate Lab Group for each lab they oversee. However, Lab Groups are designed to be flexible to allow PIs to create them in a manner that is intuitive to them. Please note that an LHAT Survey must be completed for each Lab Group created.

This tool is based on a model developed and used at the UCLA campus.

Appendix B - Laboratory Hazard Assessment Tool
(Non-Mandatory)

This form must be completed by the PI, Lab Manager, or their designee at least once each calendar year to conduct an activity hazard assessment specific to activities in their laboratories. The Activity Hazard Assessment identifies hazards to employees and specifies personal protective equipment (PPE) to protect employees during work activities. The person(s) conducting the assessment must verify that it is complete and that training has been conducted.

EH&S personnel are available to assist you with completing your Activity Hazard Assessment form or with reviewing it after you've completed it. EH&S may also be consulted for specific questions regarding PPE requirements. Contact your EH&S representative.

Principal Investigator:		
Department:		
PI Phone:		
PI e-mail:		
Laboratory Safety Contact:		
Laboratory Safety Phone:		
Laboratory Safety e-mail:		
Name of Person(s) conducting Assessment		
Assessor e-mail:		
Assessor Phone Number		
Date Assessment Completed		
Lab Locations: Building(s) / Room(s):		

Appendix B - Laboratory Hazard Assessment Tool
(Non-Mandatory)

Provide a listing of all of your Laboratory Personnel using the format below.

	First Name	Last Name	E-mail	Role (Principal Investigator (PI), Lab Manager (LM), Lab Worker (LW))
Laboratory Personnel:				

Role: LW = Lab Worker, PI = Principal Investigator

Appendix B - Laboratory Hazard Assessment Tool
(Non-Mandatory)

Activity Hazard Assessment

In this section, you will:

- Conduct a hazard assessment of this lab group to identify activities when PPE is needed to protect the lab personnel;
- Certify the hazard assessment for the laboratory.

Note: In all cases chemical splash goggles can be substituted for safety glasses. For splash or impact protection, either safety goggles or safety glasses respectively need to be worn under face shields.

The final assessment report will identify PPE applicable to each hazard identified in the lab. **For activities that are described in a laboratory specific SOP or for activities where a Use Authorization(s) (UA) has been issued by a campus safety committee, the PPE specified in that SOP/UA shall take precedence.**

Appendix B - Laboratory Hazard Assessment Tool
(Non-Mandatory)

Activity performed		**All Laboratories** ☐ Laboratory has been approved and posted as free of physical or chemical hazards Skip all other sections.			
Yes	**No**	**Activity in lab**	**Potential Hazard**	**Active Researcher Attire (direct manipulation)**	**Adjacent Individuals Attire**
☐	☐	E01. Entering laboratory	Many	✓ Long pants or equivalent ✓ Closed-toed/heel shoes ✓ Long hair tied back Note: Tights & panty hose are considered undergarments	All personnel in laboratory room: ✓ Long Pants ✓ Closed toed/heel shoes

Under UC Policy full length pants (or equivalent), and closed toe/heel shoe attire must be worn at all times by all individuals who are occupying or entering a laboratory/technical area.

Appendix B - Laboratory Hazard Assessment Tool
(Non-Mandatory)

Activity performed		Chemical Hazards			
Yes	**No**	**Activity in lab**	**Potential Hazard**	**Active Researcher PPE (Direct Manipulation)**	**Adjacent Individuals PPE**
☐	☐	C01. Working with small volumes of corrosive (e.g. acids, caustics, etc.) liquids or solids.	Eye or skin damage. Low probability for a splash hazard.	✓ Safety glasses ✓ Chemical-resistant gloves ✓ Lab coat	In adjacent area within ___meters: ✓ Safety glasses ✓ Lab coat
☐	☐	C02. Working with corrosive or acutely toxic liquids or other materials which creates a splash hazard.	Poisoning, increased potential for eye and skin damage.	✓ Safety goggles ✓ Chemical-resistant gloves ✓ Lab coat and ✓ Chemical-resistant apron	In adjacent area within ___meters: ✓ Safety glasses ✓ Lab coat
☐	☐	C03. Working with small volumes of flammable solvents/materials when no reasonable ignition sources are present.	Skin or eye damage, potential poisoning through skin contact.	✓ Safety glasses ✓ Chemical-resistant gloves ✓ Lab coat	In adjacent area within ___meters: ✓ Safety glasses ✓ Lab coat
☐	☐	C04. Working with flammable materials (including solvents): When using a large quantity; or, any quantity when there is a risk of ignition; or, areas where flammable vapors or gas are may be present.	Major Fire. Major skin or eye damage, potential poisoning through skin contact.	✓ Safety glasses ✓ Flame-Resistant (FR) outer gloves ✓ Chemical-resistant inner gloves ✓ NFPA 2112 rated Flame-Resistant (**FR) lab coat**	All personnel in laboratory room: ✓ Safety glasses ✓ NFPA 2112 rated Flame-Resistant (FR) lab coat
☐	☐	C05. Working with toxic or hazardous chemicals (solid, liquid, or gas). (including but not limited to GHS H301, H302, H311, H312, H331 H332)	Skin or eye damage, potential poisoning through skin contact.	✓ Safety glasses (chemical splash goggles for large quantities) ✓ Chemical-resistant gloves ✓ Lab coat	In adjacent area within ___meters. ✓ Safety glasses ✓ Lab coat
☐	☐	C06. Working with Acutely Toxic Chemicals. (GHS H300, H310, H330)	Spills, splashes, ingestion, inhalation, absorption. Chemicals pose a high level of immediate health risk.	✓ Safety glasses ✓ Chemical resistant gloves ✓ Lab coat (plus chemical protective apron for H330)	All personnel in laboratory room: ✓ Safety glasses ✓ Lab coat
☐	☐	C07. Working with an apparatus with contents under pressure or vacuum.	Eye or skin damage.	✓ Safety glasses ✓ Face shield (for high risk activities) ✓ Chemical-resistant gloves ✓ Lab coat ✓ Chemical-resistant apron (for high risk activities)	In adjacent area within ___meters. ✓ Safety glasses ✓ Lab coat

Appendix B - Laboratory Hazard Assessment Tool
(Non-Mandatory)

Activity performed		Chemical Hazards			
Yes	**No**	**Activity in lab**	**Potential Hazard**	**Active Researcher PPE (Direct Manipulation)**	**Adjacent Individuals PPE**
☐	☐	C08. Working with pyrophoric (air reactive) chemicals or chemicals that in contact with water releases flammable gasses (water reactive). (GHS H25x and H26x)	Severe skin and eye damage. Fire.	For work outside glove boxes: ✓ Safety glasses ✓ Face shield ✓ FR rated outer gloves ✓ Chemical-resistant inner gloves ✓ NFPA 2112 Flame Resistant **(FR) lab coat.** Work in inert atmosphere when possible.	All personnel in laboratory room: ✓ Safety glasses ✓ NFPA 2112 Flame Resistant (FR) lab coat
☐	☐	C09. Working with potentially explosive chemicals. (e.g. Nitrates, Perchlorates, Azides, Nitrites etc.)	Splash, detonation, flying debris, skin and eye damage, fire.	✓ Safety glasses ✓ Face shield, and/or use blast shield ✓ Chemical-resistant gloves ✓ **NFPA 2112 Flame Resistant (FR) lab coat**	All personnel in laboratory room: ✓ Safety glasses (or goggles) ✓ NFPA 2112 Flame Resistant (FR) lab coat
☐	☐	C10. Minor chemical spill cleanup	Skin or eye damage, respiratory damage.	✓ Safety glasses ✓ Chemical-resistant gloves ✓ Shoe covers ✓ Chemical-resistant apron ✓ Lab coat	In adjacent area within ___meters: ✓ Safety glasses ✓ Lab coat
☐	☐	C11. Major chemical spill cleanup	Multiple hazards.	Call for EH&S assistance	All personal evacuate lab
☐	☐	C12. Working with known or suspect human carcinogens (GHS H350, H351)	Spills, splashes, ingestion, inhalation, absorption. High hazard cancer-causing agents.	✓ Safety glasses ✓ Chemical-resistant gloves ✓ Lab coat	In adjacent area within ___meters: ✓ Safety glasses ✓ Lab coat
☐	☐	C13. Working with reproductive hazards (GHS H340, H341, H360, H361)	Spills, splashes, ingestion, inhalation, absorption. Agents that affect reproductive capabilities, cause mutation and adversely affect fetal development.	✓ Safety glasses ✓ Chemical-resistant gloves ✓ Lab coat	In adjacent area within ___meters: ✓ Safety glasses ✓ Lab coat

Appendix B - Laboratory Hazard Assessment Tool
(Non-Mandatory)

Activity performed		Chemical Hazards			
Yes	**No**	**Activity in lab**	**Potential Hazard**	**Active Researcher PPE (Direct Manipulation)**	**Adjacent Individuals PPE**
☐	☐	C14. Working with engineered nanomaterials.	Inhalation, exposure, dermal exposure.	✓ Chemical Splash goggles ✓ Chemical-resistant gloves ✓ Lab coat	All personnel in laboratory room: ✓ Safety glasses ✓ Lab coat

Appendix B - Laboratory Hazard Assessment Tool
(Non-Mandatory)

Activity performed		Physical Hazards			
Yes	**No**	**Activity in lab**	**Potential Hazard**	**Active Researcher PPE (Direct Manipulation)**	**Adjacent Individuals PPE**
☐	☐	P01. Working with cryogenic liquids.	Major skin, tissue, or eye damage.	✓ Safety glasses (goggles for large volumes) ✓ Face shield ✓ Cryogenic protective gloves ✓ Lab coat	N/A
☐	☐	P02. Removing freezer vials from liquid nitrogen.	Vials may explode upon rapid warming. Cuts to face/neck and frostbite to hands.	✓ Safety glasses ✓ Face shield ✓ Cryogenic protective gloves ✓ Lab coat	N/A
☐	☐	P03. Working with very cold equipment or dry ice.	Frostbite, hypothermia.	✓ Safety glasses ✓ Cryogenic protective gloves ✓ Lab coat (possibly warm clothing)	N/A
☐	☐	P04. Working with scalding liquids or hot equipment (e.g. autoclave, water bath, oil bath).	Burns resulting in skin or eye damage.	✓ Safety glasses (goggles for large volumes) ✓ Thermal protective gloves (impermeable insulated gloves for liquids and steam) ✓ Lab coat	N/A
☐	☐	P05. Glassware washing.	Lacerations, chemical splash.	✓ Safety glasses ✓ Heavy rubber gloves ✓ Lab coat	N/A
☐	☐	P06. Working with loud equipment, noises, sounds, alarms, etc.	Potential ear damage and hearing loss.	✓ Earplugs or ear muffs as necessary	✓ Earplugs or ear muffs as necessary
☐	☐	P07. Working with a centrifuge.	Imbalanced rotor can lead to broken vials, cuts, exposure.	✓ Safety glasses ✓ Disposable gloves ✓ Lab coat	N/A
☐	☐	P08. Working with a sonicator.	Ear damage, exposure.	✓ Safety glasses ✓ Disposable gloves ✓ Earplugs or ear muffs as necessary ✓ Lab coat	N/A

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(Non-Mandatory)

Activity performed		Physical Hazards			
Yes	**No**	**Activity in lab**	**Potential Hazard**	**Active Researcher PPE (Direct Manipulation)**	**Adjacent Individuals PPE**
☐	☐	P09. Working with sharps (e.g. needles and razor blades.)	Cuts, exposure.	✓ Safety glasses ✓ Cut resistance gloves ✓ Lab coat	N/A

Appendix B - Laboratory Hazard Assessment Tool
(Non-Mandatory)

Activity performed		**Biological Hazards** ☐ I have a BUA that addresses all of these items. Skip to next section.			
Yes	**No**	**Activity in lab**	**Potential Hazard**	**Active Researcher PPE (Direct Manipulation)**	**Adjacent Individuals PPE**
☐	☐	B01. Working with human or non-human primate blood, body fluids, tissues, cells or other potentially infectious material (OPIM) which may contain human blood borne pathogens (BBP).	Exposure to infectious material, sharps injuries.	✓ Eye and mucous membrane protection (as appropriate for operations) ✓ Disposable gloves ✓ Disposable lab coat impervious to fluids	In adjacent area within ___meters: ✓ Safety glasses ✓ Lab coat
☐	☐	B02. Working with microbial agents (bacteria, virus, parasites, yeast, fungi, prions), recombinant DNA and/ or biological materials (cells, tissues, fluids) exposed to or likely to contain Risk Group 1 microbial agents or recombinant DNA. (BSL-1)	Eye irritation, sharps injury. Exposure of infectious material to those who may have personal health issues which make them more susceptible to infection; cross contamination of animal or extra laboratory areas.	✓ Safety glasses ✓ Disposable gloves ✓ Lab coat	In adjacent area within ___meters: ✓ Safety glasses ✓ Lab coat
☐	☐	B03. Working with microbial agents, recombinant DNA and/or biological materials (cells, tissues, fluids) exposed to or likely to contain Risk Group 2 microbial agents or recombinant DNA. (BSL-2)	Exposure to infectious material, particularly through broken skin or mucous membranes, sharps injuries.	✓ Safety glasses ✓ Double layer of disposable gloves ✓ Lab coat	All personnel in laboratory room: ✓ Safety glasses ✓ Lab coat.
☐	☐	B04. Working microbial agents, recombinant DNA and/or biological materials (cells, tissues, fluids) exposed to or likely to contain Risk Group 2 microbial agents or recombinant DNA for which Biosafety Level 3 practices are required. (BSL-2+)	Exposure to infectious materials with high risk of exposure by contact with skin or mucous membranes and/ other potential or unknown routs of entry and or increased consequences of exposure. Sharps injuries.	✓ Safety glasses ✓ Double layer disposable gloves ✓ Lab coat or disposable lab coat	All personnel in laboratory room: ✓ Safety glasses ✓ Lab coat or disposable lab coat.

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(Non-Mandatory)

Activity performed		**Biological Hazards** ☐ I have a BUA that addresses all of these items. Skip to next section.			
Yes	**No**	**Activity in lab**	**Potential Hazard**	**Active Researcher PPE (Direct Manipulation)**	**Adjacent Individuals PPE**
☐	☐	B05. Working with microbial agents, recombinant DNA and/or biological materials (cells, tissues, fluids) exposed to or likely to contain Risk Group 3 microbial agents or recombinant DNA. (BSL-3)	Exposure to infectious materials with high risk of exposure, particularly through the inhalation route.	✓ Safety glasses ✓ Double layer disposable gloves ✓ Shoe cover or dedicated shoe ✓ Full back closing disposable gown or coveralls (preferred)	All personnel in laboratory room: ✓ Safety glasses ✓ Double layer disposable gloves ✓ Shoe cover or dedicated shoe ✓ Full back closing disposable gown or coveralls (preferred)
☐	☐	B06. Working with live animals-alone or in conjunction with Risk Group 1 microbial agents or recombinant DNA. (ASBL-1)	Animal bites, allergies, eye irritation, sharps injury. Exposure of infectious material to those who may have personal health issues which make them more susceptible to infection; cross contamination of animal or extra laboratory areas.	✓ Safety glasses ✓ Disposable gloves ✓ Lab coat Additional PPE (e.g. puncture resistant gloves) may be required based on risk assessment by the IBC & IACUC. Additional gowning (shoe covers, face mask) may be required for animal welfare purposes.	All personnel in laboratory room: ✓ Safety glasses ✓ Lab coat
☐	☐	B07. Working infected or potentially infectious live animals—alone or in conjunction with Risk Group 2 microbial agents or recombinant DNA (or materials exposed to RG-2 agents). (ABSL-2)	Animal bites, exposure to infectious material, allergies, sharps injury.	✓ Safety glasses ✓ Disposable gloves ✓ Bouffant ✓ Lab coat Additional PPE (e.g. puncture resistant gloves) may be required based on risk assessment by the IBC & IACUC. Additional gowning (shoe covers, face mask) may be required for animal welfare purposes.	All personnel in laboratory room: ✓ Safety glasses ✓ Bouffant ✓ Lab coat

Appendix B - Laboratory Hazard Assessment Tool
(Non-Mandatory)

		Radiological Hazards ☐ I have a RUA and/or MUA that addresses all these. Skip to next section.			
Yes	**No**	**Activity in lab**	**Potential Hazard**	**Active Researcher PPE (Direct Manipulation)**	**Adjacent Individuals PPE**
☐	☐	R01. Working with unsealed radioactive materials including generally licensed radioactive material or devices (e.g., uranyl acetate, uranyl nitrate, thorium, nitrate).	Cell damage, potential spread of radioactive materials.	✓ Safety glasses ✓ Impermeable gloves or chemical resistant gloves ✓ Lab coat	In adjacent area of ___meters. ✓ Safety glasses ✓ Lab coat
☐	☐	R02. Working with unsealed radioactive materials in hazardous chemicals (corrosives, flammables, liquids, powders, etc.).	Cell damage or spread of contamination plus hazards for the specific chemical.	✓ Safety glasses (goggles for splash hazard) ✓ Chemical-resistant gloves ✓ Lab coat *Note: Select gloves for applicable chemical hazards above.*	In adjacent area of ___meters. ✓ Safety glasses ✓ Lab coat
☐	☐	R03. Working with radioactive sealed sources or devices containing sources of radioactive materials (e.g., liquid scintillation counters, gas chromatographs/electron capture detectors, static eliminators, etc.)	If sealed source is compromised due to removal from equipment or physical abuse: cell damage, potential spread of radioactive materials.	PPE is not necessary under normal operating instructions. *Note: Source may not be removed form device except by EH&S or manufacturer.*	N/A

Appendix B - Laboratory Hazard Assessment Tool
(Non-Mandatory)

Activity performed		Non ionizing Radiation Hazards			
Yes	**No**	**Activity in lab**	**Potential Hazard**	**Active Researcher PPE (Direct Manipulation)**	**Adjacent Individuals PPE**
☐	☐	N01. Working with ultraviolet radiation.	Conjunctivitis, corneal damage, skin redness.	✓ UV face-shield with correct OD value ✓ Opaque gloves ✓ Lab coat	In adjacent area within ___meters with direct line of sight. ✓ UV face-shield with correct OD value ✓ Lab coat
☐	☐	N02. Working with infrared emitting equipment (e.g. glass blowing).	Cataracts, burns to cornea.	✓ Appropriate shaded glasses ✓ Lab coat	In adjacent area within ___meters with direct line of sight. ✓ Appropriate shaded glasses ✓ Lab coat

Appendix B - Laboratory Hazard Assessment Tool
(Non-Mandatory)

Activity performed		**Laser Hazards** ☐ I have a LUA that addresses all these. Skip to next section.			
Yes	**No**	**Activity in lab**	**Potential Hazard**	**Active Researcher PPE (Direct Manipulation)**	**Adjacent Individuals PPE**
☐	☐	L01. Open Beam- Performing alignment, trouble-shooting or maintenance that requires working with an open beam and/or defeating the interlock (s) on any Class 3 or Class 4 laser system.	Eye damage	✓ Appropriate protective eyewear, wavelength and optical density based on individual beam parameters.	All personnel in laser use room: ✓ Appropriate protective eyewear, wavelength and optical density based on individual beam parameters.
☐	☐	L02. Open Beam- Viewing a Class 3R laser beam with magnifying optics.	Eye damage	✓ Appropriate protective eyewear, wavelength and optical density based on individual beam parameters.	N/A
☐	☐	L03. Open Beam- Working with a Class 3B laser open beam system with the potential for producing direct or specular reflections.	Eye damage	✓ Appropriate protective eyewear, wavelength and optical density based on individual beam parameters.	All personnel in laser use room: ✓ Appropriate protective eyewear, wavelength and optical density based on individual beam parameters. Appropriate skin protection.
☐	☐	L04. Open Beam- Working with a Class 4 laser open beam system with the potential for producing direct, specular or diffuse reflections.	Eye damage, skin damage	✓ Appropriate protective eyewear, wavelength and optical density based on individual beam parameters. ✓ Appropriate skin protection.	All personnel in laser use room: ✓ Appropriate protective eyewear, wavelength and optical density based on individual beam parameters. Appropriate skin protection.
☐	☐	L05. Non-Beam - Handling dye laser materials, such as powdered dyes, chemicals, and solvents.	Cancer, explosion, fire.	✓ Gloves, safety glasses, flame-resistant lab coat or coveralls.	In adjacent area within ___meters. ✓ Safety glasses ✓ Lab coat
☐	☐	L06. Non-Beam- Maintaining and repairing power sources for large Class 3B and Class 4 laser.	Electrocution, explosion fire	✓ Electrical isolation mat, ✓ Flame-Resistant NEC 70E APC rated lab coat or coveralls.	N/A
☐	☐	L07. Enclosed Beam- Using a Class 1 device housing a Class 3B or Class 4 enclosed or embedded laser with the potential for beam exposure during a Service Event.	Eye damage, skin damage	✓ Appropriate protective eyewear, wave length and optical density based on individual beam parameters, appropriate skin protection.	All personnel in laser use room: ✓ Appropriate protective eyewear, wavelength and optical density based on individual beam parameters. Appropriate skin protection.

Appendix B - Laboratory Hazard Assessment Tool
(Non-Mandatory)

Activity performed		**Unique or Lab Specific Activities** If your lab conducts any additional or unique activities that are not listed above, identify the potential hazards and appropriate PPE then add these activities to the table below. If a lab activity is similar to but somewhat different than one of the common activities listed, include it in this section as well.			
Yes	**No**	**Activity in lab**	**Potential Hazard**	**Active Researcher PPE (Direct Manipulation)**	**Adjacent Individuals PPE**
☐	☐				
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Hazard Assessment Certification: This 'certifies' that you have conducted the hazard assessment. Maintain a copy of the signed hazard assessment (this document) in the lab safety records.

Name and title of person conducting assessment

Name: _____ **Title:** _____

Date assessment completed: _____

Appendix B - Laboratory Hazard Assessment Tool
(Non-Mandatory)

The following Employees have reviewed the EHS Activity Hazard Assessment Tool specific to this lab and have received the following training:

1. When PPE is necessary
2. What PPE is required
3. How to properly don, doff, adjust and wear PPE
4. The Limitations of PPE
5. The proper care, maintenance, useful life, and disposal of PPE
6. General PPE safety practices of (e.g. not wearing PPE outside the lab)

Worker Name	UID	Training Date	Trainer	Worker Signature