1. **Program Description**

In order to protect the health and welfare of faculty, staff, students, visitors and volunteers and to strive towards compliance with state, federal and local regulations, appropriate protective equipment is required in areas where there may be a risk of injury or exposure to hazardous substances or conditions. This program contains general requirements to protect University researchers from various hazards encountered in their laboratory areas/spaces.

The use of Personal Protective Equipment (PPE) is often required to augment engineering or administrative controls or is used as a stand-alone control when engineering and administrative controls are not feasible. When properly selected and used, PPE can be effective in eliminating or minimizing individual exposures to hazardous materials and physical hazards encountered in many different laboratory environments.

The PPE program is designed to:

1. Establish requirements for workplace PPE assessments, training, provision, use and maintenance/replacement/disposal of PPE.
2. Assign responsibilities for program implementation to all stakeholders regarding PPE management.
3. Comply with California Occupational Safety and Health (Cal/OSHA), 8 CCR 3380, Personal Protective Devices and other regulations.
4. Comply with the University of California, Office of the President (UCOP) PPE policy.

2. **Scope**

The use of appropriate personal protective safety equipment applies to faculty, staff, students, visitors and volunteers who are performing tasks or entering in areas that require specific PPE. This program also applies to students enrolled in academic courses in which PPE is required by the instructor and/or indicated in the course syllabus.
3. Definitions

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. The 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 gloves, 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.

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

EH&S Laboratory PPE Coordinator: Responsible individual for administrating the selection, fitting, laundering and dispersion of PPE to laboratories on campus.

Hazard: A potential for harm. The term is often associated with an agent, condition, or activity (a natural phenomenon, chemical, and mixture of substances, process involving substances, source of energy or a situation or event) that if left uncontrolled, could result in an injury, illness, loss of property or damage to the environment. Hazards are intrinsic properties of agents, conditions or activities.

Hazard Analysis: A term used to express the complete process of hazard identification, evaluation and control.

Hazard Control: A barrier; such as a device, measure or limit; used to minimize the potential consequences associated with a hazard.

Hazard Evaluation: The qualitative and, whenever possible, quantitative description of the inherent properties of an agent or situation having the potential to cause adverse effects.

Hazardous Materials: 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 the UCOP PPE policy - Appendix A http://policy.ucop.edu/doc/3500597/PersonalProtectiveEquip.

Job Hazard Analysis: A systematic approach to address hazards by looking at a task and focusing on the relationship between the laboratory worker, the task, the tools and the work environment to identify the hazards and reduce the risks.

Laboratory Coat Laundry Service: There are six sites on campus (including UCI Medical Center) for workers to drop off their dirty lab coats for laundering and pick up when clean. Each coat will be marked with the coat’s unique identifying number, the individual's name and lab location, and a laundry barcode specific to the designated laundry location. Cleaned coats will be returned to the designated laundry site.

Laboratory Hazard Assessment Tool (LHAT): An online tool for supervisors and employees to use, which identifies lab-specific hazards and the PPE needs for their laboratory workers. The LHAT can only be accessed via an individual's UCInetID and Password. https://ehs.ucop.edu/ihat/ (link is external). The LHAT provides a summary of the PPE needs of laboratory/technical areas and provides/documents training on basic lab coat and eyewear use and maintenance. LHAT allows a researcher worker to manage their activities in the lab or
technical research area in a way that permits them to ensure safe research.

**Laboratory/Technical Areas:** 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
- Teaching laboratories
- QA/QC and analytical laboratories
- Stock rooms
- Storage rooms
- Waste accumulation areas/locations
- Cold rooms
- Machine and other workshops
- Vivaria

**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.

**Body Protection:** Protective clothing, such as lab coats, should be worn when handling hazardous materials. This will prevent the contamination of skin and clothing.

**Eye/Face Protection:** Equipment, such as impact glasses, chemical splash goggles, and face shields, designed to provide protection to the face and eyes during exposure to such hazards as flying particles, molten metal or sparks, liquid chemicals, acids or caustic liquids or potentially injurious light radiation (i.e., lasers, welding, etc.).

**Foot Protection:** Equipment designed to provide protection to the feet and toes during exposure to situations with the potential for foot injuries such as falling or rolling objects, chemical or liquid exposures, piercing objects through the sole or uppers and/or where the employee's feet are exposed to electrical hazards.

**Hand Protection:** Equipment designed to provide protection to the hands during exposure to potential hazards such as sharp objects, abrasive surfaces, temperature extremes and chemical contact. Hand protection is selected based upon the hazard and performance characteristics of the gloves. (e.g. the Safety Data Sheets (SDSs) for the material should be referenced when determining the type of glove to be used. The manufacturer for specific glove guides should also be consulted to determine appropriate glove type).

**Physical Hazards:** 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), and radiation (ionizing and non-ionizing), noise, vibration, electrical, light (optical), welding, cutting and brazing.

**Risk:** Takes into account the probability or likelihood that a consequence will occur and the severity of the consequence should it occur. An unlikely hazard with the potential to cause death is a higher risk than an unlikely hazard which would cause temporary illness.

**Standard Operating Procedures (SOPs):** A written series of steps that can be followed to correctly and safely obtain a desired outcome. In laboratories, SOPs are typically developed for repetitive procedures which are known to have associated hazards where injury, property loss or productivity loss could result if the steps are not followed precisely.

**Student:** An individual enrolled in an academic class where hazardous materials are handled and stored.

**Supervisor:** An employee who may have authority to hire personnel, evaluate performance, direct work assignments, apply progressive discipline and direct resources to correct identified
safety issues. This includes a Principal Investigator (PI), 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. Throughout this documents, the term Supervisor refers to any of the following roles PI/ Laboratory Supervisor/Teaching Assistant titles/ Responsible Person for the activities in the laboratory.

**Use or Storage:** For the purposes of this program, “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:** This 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 volunteers assisting in a non-academic class, or visitors/visiting scholars. For the purpose of this definition, “worker” excludes individuals who only passively participate in tours, lectures, conferences, etc. All UCI laboratory workers are required to certify the LHAT.

**Teaching Assistant (TA):** An academically qualified and registered graduate student in full-time residence chosen for excellent scholarship and for promise as a teacher, who is assigned to assist in the delivery of instruction under the active supervision of a faculty member. A majority of graduate students who perform instructional functions are assigned to the Teaching Assistant title; their responsibilities are to assist the supervising faculty member by conducting discussion, laboratory or quiz sections that supplement faculty lectures, assist in the instruction of any lower-division course, or may be assigned to conduct the entire instruction of a lower-division course. In academic courses, Teaching Assistants may be placed in the position of authority for a classroom and conduct instruction for a course.

4. **Responsibilities**

**Campus 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 and promoting this program within their unit and enforcing the Policy in areas under their control.

**Department Requirements:** Each department may disseminate and enforce more stringent PPE requirements than those identified by the laboratory or unit’s work area through the hazard assessment or Standard Operating Procedures (SOP’s) (e.g., requiring lab members to don lab coats and safety eyewear at the threshold of labs).

**Departmental Support:** Supporting the Supervisor/Principal Investigator (PI)/Lab Supervisor/Faculty/ Lecturer/TA, or his/her designee by implementing department- wide programs and/or services (e.g., acquisition of lab coat laundering services, requiring safety data sheets for academic courses as part of the syllabi).

**Campus, Academic Schools, Laboratories 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, ensuring their staff complies with this policy, and performing a Hazard Assessment to identify the proper PPE needed through completion of the LHAT. Supervisors are also responsible for ensuring their staff receives both the required PPE identified in the hazard assessment, and documenting 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; 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 and certifying through the LHAT system, and for knowing how to use PPE, how to properly put on and take off required PPE, and 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 responsible for notifying the Supervisor if the hazards of the task change and wearing only the PPE assigned for a specific job assignment.

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. Workers are responsible for consulting the Safety Data Sheets when handling hazardous materials. Safety Data Sheets provide and list the appropriate safety equipment needed when handling a hazardous material.

**Training:** Completing site-specific PPE training provided by the Supervisor which includes demonstrating the ability to use PPE properly and certifying the hazard assessment through the LHAT.

**Use:** Using correct and properly fitted PPE under the conditions identified by the Supervisor on the LHAT, as well as wearing proper attire when occupying a Laboratory/Technical Area.

**Maintenance, Replacement and Disposal of PPE:** Maintaining, replacing and disposing of PPE as trained, and informing their Supervisor when PPE is damaged or worn out. Avoid altering the PPE as this may compromise the effectiveness of the PPE.

**Students:** are responsible for obtaining course-required PPE as noted in the course syllabus, and wearing it as directed by the TA/instructor.

**Training:** Completing site-specific PPE training provided by the Supervisor or his/her designee (e.g. Teaching Assistant (TA)), which includes demonstrating the ability to use PPE properly.

**Use:** Using the correct and properly fitted PPE under the conditions identified by the Supervisor in the LHAT or as part of the course syllabus. All academic courses on campus which include laboratory, shop or field work are required to indicate PPE requirements including specifications of the type of PPE, as well as wearing proper attire when occupying a Laboratory/Technical Area.

A student not wearing PPE in a laboratory/technical area as required in their course syllabus may not participate in lab activities until such PPE is worn. Recommendations for laundering of lab coats belonging to students in teaching laboratories are dependent on the quantities and types of materials used. Written instructions for laundering will be developed with guidance from EH&S and provided by course instructors.

**Maintenance, Replacement and Disposal of PPE:** Maintaining, replacing and disposing of PPE as trained is the responsibility of each student, as is informing his/her Supervisor (e.g. TA) when PPE is damaged, contaminated or worn out. In the event of an incident when PPE is damaged or contaminated during an academic course, or a potential exposure occurs, this will need to be reported to EH&S to ensure the student receives proper medical treatment. Avoid altering the PPE as this may compromise the effectiveness of the PPE.
Environmental Health and Safety (EH&S): is responsible for the development and maintenance of the UC Irvine Research Laboratory PPE Program, including:

**Implementation Tools:** Developing and distributing PPE assessment and training tools (LHAT).

**Technical Assistance:** When requested, assist Supervisors, PI/Lab Supervisors or his/her designees with PPE assessments and training.

**Quality Assurance Checks:** Conducting periodic quality assurance checks of PPE compliance in work areas which includes: (a) review PPE assessment/training records for completion; (b) evaluate PPE use; and (c) communicate those findings, as appropriate, to Supervisor, PI/Lab Supervisor, Department Chair and/or School Dean.

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.

**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.

5. **Program Components**

The University of California is committed to providing a healthy and safe working environment for all members of the campus community. It is University policy to comply with all applicable health, safety and environmental protection laws, regulations and requirements. The Occupational Safety and Health Administration (OSHA) ensures workplace safety through the enforcement of established federal legislation and the California Occupational Safety and Health Administration (CalOSHA) operates as the acting regulatory enforcement body under the direction of the OSHA act.

Title 8 California Code of Regulations, General Safety Orders and Title 29 of the Code of Federal Regulations, Part 1910, 132 Subpart 1. Personal Protective Equipment, states that “protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact." Pursuant to this regulation, and in an effort to prevent workplace injuries and illnesses, UC Irvine has established this program regarding Personal Protective Equipment (PPE) requirements for all campus research laboratory faculty, staff and students.

The following requirements pertain to all research and teaching laboratory environments utilizing hazardous chemical, hazardous biological or unsealed radiological materials.
Each Supervisor must assess the laboratory space to determine if the hazards are present, or are likely to be present, which necessitates the use of personal protective equipment by completing hazard assessment via the campus Laboratory Hazard Assessment Tool (LHAT). Laboratories that solely involve mechanical, computer, lasers or other non-ionizing radiation or electrical operations are also required to complete a hazard assessment through the campus LHAT. Due to the widely diverse, ever-changing tasks and conditions that exist throughout the university laboratories/technical areas, everyone is required to re-certify the Laboratory Hazard Assessment Tool when new hazards are introduced or identified, work processes have changed, new locations are added or at least every three years. If you strongly believe your laboratory has large hazard-free areas, including physical hazards, that may not require PPE, you must obtain an approval and/or exception, with appropriate labeling from EH&S.

EH&S, in cooperation with regulatory mandated safety committees, has the final authority for determining whether any specific material is classified as hazardous. Deviations from these requirements, including the defining of specific hazardous materials use areas within rooms, may be permitted under certain conditions and will require express, written approval from EH&S.

Minimum Requirements per UC policy:

- Full length pants, or the equivalent, and closed-toe/heel shoes must be worn at all times by all individuals that are occupying the laboratory area. The area of skin between the shoe and ankle should not be exposed.
- Protective gloves must be worn while utilizing any hazardous chemical, biological or unsealed radiological material. These gloves must be appropriate for the material being used. The Safety Data Sheet (SDS) for the material should be referenced when determining the effectiveness of the type of glove to be used. There is not one type of glove that can protect against all hazards; choose the correct glove based on the hazard(s) present. Supervisors are responsible for choosing the appropriate PPE for the tasks and hazard. If assistance is needed for completing an assessment, contact EH&S.
- Laboratory coats, or the equivalent, are required to be worn while working on or adjacent to all bench top procedures utilizing hazardous chemical, biological or unsealed radiological materials. These laboratory coats must be appropriately sized for the individual and be buttoned to their full length. Laboratory coat sleeves must be of a sufficient length to prevent skin exposure while wearing gloves.
- Flame resistant (FR) laboratory coats must be worn when working with any amount of pyrophoric materials or any amount of flammable liquids near ignition sources. FR laboratory coats must be worn when working with flammable liquids in amounts that pose a greater than de minimus risk as determined by a hazard assessment through the LHAT. It is recommended that cotton (or other non-synthetic material) clothing be worn during these procedures to minimize injury in the case of a fire emergency.
- Laboratory coats may not be worn outside of a laboratory unless the individual is traveling directly to an adjacent laboratory work area. Protective gloves must not be worn in any public area outside of the laboratory (i.e., hallways, elevators, offices). Gloves should also be removed prior to handling any equipment that could likely result in cross-contamination (e.g., telephones, computer work stations, etc.).
- EH&S is currently responsible for providing professional laundry services as needed to maintain the hygiene of laboratory coats. They may not be cleaned by staff members or
students at private residences or public laundry facilities. Any clothing that becomes contaminated with hazardous materials must be decontaminated before it leaves the laboratory.

- Eye protection or equivalent engineering controls must be used while handling any hazardous chemical, biological or unsealed radiological materials. All eye protection equipment must be American National Standards Institute (ANSI) approved and 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. Supervisors are required to assess the workplace to determine if hazards are present or likely to be present that necessitate the use of the PPE, provide employees with appropriate PPE and training, and require the usage and maintenance of the PPE.

- Some operations and procedures may warrant further PPE as indicated by the SDS, the Standard Operating Procedures for the material being used, facility policies, regulatory requirements and the EH&S LHAT.

- Requirements for pyrophoric users: Hand protection requirements for the use of liquid pyrophoric chemicals (outside an inert glove box) include wearing/donning the appropriate chemical resistant outer gloves (Neoprene) and fire resistant (FR) inner gloves/liners. Handling includes opening shipping containers, moving agents from storage to use areas, and the transfer into and out of glove boxes or other protected manipulation equipment. This thermal hand protection – neoprene outer gloves and fire resistant inner gloves/liners – is also needed in the quenching or inerting of waste products and excess reagents when done or moved outside of a glove box. “Gloves or glove liners composed of the tight weave, inherently flame resistant materials Kevlar®, Nomex®, Kerinel®, or PBI®, or a blend of those materials, of sufficient thickness to prevent or minimize burn injuries to the extent feasible. Gloves or glove liners meeting MIL-DTL-81188C are also acceptable.” Choosing the appropriate PPE for the tasks and hazard. If assistance is needed for completing an assessment, contact EH&S.

- Laboratory coats, or the equivalent, are required to be worn while working on or adjacent to all bench top procedures utilizing hazardous chemical, biological or unsealed radiological materials. These laboratory coats must be appropriately sized for the individual and be buttoned to their full length. Laboratory coat sleeves must be of a sufficient length to prevent skin exposure while wearing gloves.

- Flame resistant (FR) laboratory coats must be worn when working with any amount of pyrophoric materials or any amount of flammable liquids near ignition sources. FR laboratory coats must be worn when working with flammable liquids in amounts that pose a greater than de minimus risk as determined by a hazard assessment through the LHAT. It is recommended that cotton (or other non-synthetic material) clothing be worn during these procedures to minimize injury in the case of a fire emergency.

- Laboratory coats may not be worn outside of a laboratory unless the individual is traveling directly to an adjacent laboratory work area. Protective gloves must not be worn in any public area outside of the laboratory (i.e., hallways, elevators, offices). Gloves should also be removed prior to handling any equipment that could likely result in cross-contamination (e.g., telephones, computer work stations, etc.).

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Acceptable glove liners include the following:

- Ansell Kevlar® Goldknit® Lightweight 70-200*
- Hanz Extremity Wear Nomex® Utility 2257C and 2259C.*
- Other Kevlar® gloves with the fabric basis weight of a minimum of 7.7 ounces per square yard and if one layer of the material has a minimum of 35 mils in thickness, and *
- Other Nomex® gloves meeting the specifications for Hanz Extremity Wear Nomex® Utility 2257G and 2259C.*

Laboratories must have these gloves available and use them for this specific research activity. This requirement may not be superseded by reference to a Safety Data Sheet (SDS).

*Cal/OSHA has identified FR gloves by material type and testing criteria that are acceptable. The purchase of any other type of material available needs to be submitted to Cal/OSHA. Specific testing protocols and test data must be approved by Cal/OSHA. Please contact EH&S to discuss any alternate FR gloves and the subsequent approval process.

Laboratory PPE Distribution Program
UC Irvine has a centrally funded PPE Distribution Program to provide laboratories with the minimum personal protective equipment (PPE). Each eligible laboratory member will receive, at a minimum, two
laboratory coats as recommended in the LHAT, one pair of safety glasses and one pair of splash
goggles for the duration of their time at UC Irvine. Other types of PPE such as face shields, fire
resistant aprons and pyrophoric gloves etc. are available for laboratories by special request. In the
event the safety eyewear does not fit properly, individuals will be given an additional face shield to
wear and training will be provided.

PPE Fitting Room
Location: Environmental Health & Safety Room 109
Contact: ehs-ppe@uci.edu, (949) 824-6200

How to be fitted for PPE?

Instructions for Principal Investigators/Supervisors/ Laboratory Supervisors/ TAs/Responsible Person:

All supervisors must access and authenticate the LHAT system in order to allow admittance for
laboratory personnel. As a Principal Investigator/Supervisor/Laboratory Supervisor/TA/Responsible
Person, you may choose to complete the hazard assessment or delegate the task to your Safety
Representative. However, the Principal Investigator/
Supervisor/Laboratory Supervisor/TA/Responsible Person must certify the LHAT on behalf of the
Regents of the University of California that reflect the activities in their laboratories.

Access the LHAT system (https://ehs.ucop.edu/lhat) securely through In Common by selecting
“University of California, Irvine”. Log in using your UCInetID and Password.

- Log into LHAT (https://ehs.ucop.edu/lhat) and create a profile
- Add lab personnel to roster
- Denote Safety Representative or Laboratory Manager as "Delegate" (Optional)
- PI or Delegate completes hazard assessment (takes 15-30 min)
- Certify assessment (PI/Supervisors/ Laboratory Supervisor/TA only)
- Principal Investigator/Supervisors/Laboratory Supervisor/TA/Responsible Person or Delegate
invites lab personnel to complete LHAT

For detailed instructions on the following topics please visit the links below:

How to Set Up a Lab Group in the LHAT & Complete a Hazard Assessment

- Setting up a Lab Group to be completed by PI or Supervisor only
- Creating a hazard assessment to be completed by PI or Supervisor only
- Laboratory member instructions on how to certify the LHAT
- Obtaining Personal Protective Equipment
- Roster Upkeep - How to add/remove members from the “Lab Roster” for
PIs/Supervisors and Delegates only

Instructions for Students/Employees/Lab Members/Visitors

www.ehs.uci.edu   October 2020
Access the LHAT system (https://ehs.ucop.edu/lhat) securely through InCommon by selecting “University of California, Irvine”. Log in using your UCInetID and Password.

- Ask your PI/Supervisor/Laboratory Supervisor/TA/Responsible Person or Delegate to add you to the lab group (Supervisors must create Lab Group first)
- Once you are invited by the PI/Supervisor/Laboratory Supervisor/TA/Responsible Person or Delegate, log into LHAT at https://ehs.ucop.edu/lhat
- Review lab specific hazard assessment
- Complete training and quiz
- Print PPE voucher
- Please visit https://ucippe.youcanbook.me/ to book an appointment
- EH&S Address: 4600 Health Sciences Road (Building 41 on the campus map)

If you have any problems or questions, contact the EH&S Laboratory PPE Coordinator at ehs-ppe@uci.edu or 949-824-6200.

Access the Laboratory Hazard Assessment Tool (LHAT) https://ehs.ucop.edu/lhat/ review the lab hazard assessment, complete training and obtain a PPE voucher.

Fittings are by appointment only. Visit https://ucippe.youcanbook.me/ to schedule an appointment. If no appointments are available, please email ehs-ppe@uci.edu to request an appointment.

Eligibility for the PPE Distribution Program
Any researcher at UC Irvine (i.e. paid or unpaid undergrads, grad students, post-docs, and staff) that will be working in the laboratory at any given time is eligible to be part of this program. The only requirements are to be added to the lab group, certified on your PI/Supervisor/Laboratory Supervisor/TA/Responsible Person’s LHAT https://ehs.ucop.edu/lhat/, and complete training requirements found in the system.

Volunteers who will be working in the laboratory are also eligible to obtain PPE through UC Irvine. As stated in the UCOP policy “PPE is required when working with, or adjacent to, hazardous material use areas within a laboratory/technical area”.

Important Information: If you are not a UC Irvine student or staff member (i.e., visiting scholars, volunteers, etc.), you must have an active UCInetID. This system is your electronic identification used for many online services at the University of California, Irvine. For more information please, visit this site: https://ucinetid2.nacs.uci.edu/activate/menu.html

For people not eligible for this program, PPE may be obtained through the UC Irvine Coat Loaner Program by contacting the EH&S PPE Laboratory Coordinator at ehs-ppe@uci.edu or 949-824-6200. Laboratory members should not use other laboratory members’ lab coats; regulations require that individuals be properly fitted and adhere to the PPE standard and requirements identified in the LHAT. Cal/OSHA Title 8 regulations Section 3380, states that no coat should be used in the lab as a “general
use” lab coat. Additionally, coat standards have become more rigorous. Please review the Lab Coat Guide to determine the coats you will need to use in your lab. The light blue coats issued from TANGO in 2011 should NOT be used as a Flame Resistant coat as it no longer meets the new UC requirements. All lab coats have an expiration date of 3-5 years depending on their use and condition. If your lab coat has any holes or tears, and/or is otherwise damaged beyond repair, contact the EH&S Laboratory PPE Coordinator at ehs- ppe@uci.edu or 949-824-6200 for removal from the campus coat inventory and replacement.

If laboratories have additional coats provided by the PPE distribution program, be sure to return them to the EH&S Laboratory PPE Coordinator. If the coats are in good condition, EH&S recycles them and makes them part of the UCI Coat Loaner Program.

UC Irvine Coat Loaner Program

The Coat Loaner Program provides a laboratory coat to any individual who does not have a personally fitted coat. Program users are predominantly in teaching laboratory courses or are visiting a laboratory on campus and will be working with or adjacent to hazardous materials use areas within a laboratory/technical area.

Loaner coats need to be returned to EH&S once the individual is no longer working in the laboratory. The coats are part of the campus laundry program. It is important that coats are not laundered at home; if not laundered properly, the fibers and/or safety properties of the coat may be damaged. Flame Resistant (FR) apparel should be washed using soft water. Hard water adversely affects cleaning, resulting in increased detergent usage. Hard water contains mineral salts that can form insoluble deposits on the surface of fabrics. Sufficient buildup can negate the FR characteristics of the garment and may serve as fuel if garments are exposed to an ignition source. Using items like starch, fabric softener and other laundry additives can coat the fiber and mask the FR performance or serve as fuel in the case of combustion. Therefore, their use is not recommended and laboratory coats and other PPE should never be brought home to launder. Regulations dictate that the employer must provide a means for cleaning and decontaminating the PPE.

Types of PPE provided by this program:

<table>
<thead>
<tr>
<th>PPE</th>
<th>Image</th>
<th>Usage</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Splash Goggles</td>
<td><img src="https://example.com/image.jpg" alt="Image" /></td>
<td>Are intended to protect the wearer’s eyes if there is a risk of being splashed in the face with hazardous chemicals.</td>
<td>Goggles do not provide skin protection when working with corrosive chemicals; be sure to add a face shield to protect your face. PPE must meet the requirements specified in the American National Standards Institute Z87.1- 1989 or later standard.</td>
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</table>

Goggles provide a tighter face seal than safety glasses and are not for general laboratory use. Wear them when there is a hazard from splashing chemicals or flying particles. For example, wear goggles when using glassware under reduced or elevated pressure or using glass apparatus in combustion or
other high temperature operations. Impact-protection goggles have perforated sides to provide ventilation and reduce fogging of the lens but do not offer full protection against chemical splashes. Use chemical goggles with splash-proof sides for protection from harmful chemical splashes. There are also specific goggles and masks for glassblowing and intense light sources such as welding or lasers. For more information, please EH&S at 949-824-6200 or safety@uci.edu

Face Shield

<table>
<thead>
<tr>
<th>PPE</th>
<th>Image</th>
<th>Usage</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face Shield</td>
<td><img src="image" alt="Face Shield Image" /></td>
<td>Is intended to protect the entire face or portions of it from impact hazards such as flying fragments, objects, large chips and particles. Use safety glasses for minor splash hazards, goggles for moderate hazards and goggles combined with a face shield for severe hazards.</td>
<td>Must meet the requirements specified in the American National Standards Institute Z87.1-1989 or later standards and be worn in combination with safety glasses or chemical splash goggles. <strong>Not intended to be worn alone.</strong> If you need skin protection from infrared (IR) or ultraviolet light (UV), use a face shield with appropriate filtration.</td>
</tr>
</tbody>
</table>

Goggles or safety glasses alone do not meet the ANSI standards for face and neck protection. For greater protection from flying particles and harmful liquids, wear a face shield to protect the face and throat—critical if your work puts you at risk of hazardous material splashes or flying debris from possible explosions. For full protection, wear a pair of safety glasses or goggles (depending on the hazard) in combination with a face shield. Consider using a face shield or mask when operating a vacuum system (which may implode) or conducting a reaction with explosive potential. Always use a UV-blocking face shield when working with transilluminators or other devices that produce unshielded ultraviolet radiation.
<table>
<thead>
<tr>
<th>PPE</th>
<th>Image</th>
<th>Usage</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Traditional Lab Coat</strong> <em>(Cotton or cotton/polyester blend)</em></td>
<td><img src="image.png" alt="Image" /></td>
<td>Is intended to protect the wearer and the wearer's clothes from incidental splashes of hazardous materials found in research labs.</td>
<td>This coat should not be used when working with: greater than &gt; 25 ml per container of human or non-human primate blood, body fluids, tissues, cells or other potentially infectious material (OPIM) which may contain human bloodborne pathogens (BBP); HIV/HBV/HCV; unfixed cadavers or tissue of human or non-human primates where a splash hazard exists or a large amount of unfixed human or non-human tissue. Quantities large enough to soak through to the skin, flammable materials greater than 1 L or smaller quantities of flammable materials when there is a risk of Ignition.</td>
</tr>
<tr>
<td>PPE</td>
<td>Image</td>
<td>Usage</td>
<td>Limitations</td>
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<tr>
<td><strong>Barrier Lab Coat</strong></td>
<td></td>
<td>Is intended to protect the wearer when working with greater than 25 ml per container of human or non-human primate blood, body fluids, tissues, cells or other potentially infectious material (OPIM) which may contain human bloodborne pathogens (BBP). When working with HIV / HBV / HCV. Working with unfixed cadavers or tissue of human or non-human primates where a splash hazard exists or a large amount of unfixed human or non-human tissue.</td>
<td>This coat should not be used when there is a risk of fire.</td>
</tr>
<tr>
<td><em>(Made mostly of polyester)</em></td>
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<td></td>
</tr>
<tr>
<td>PPE</td>
<td>Image</td>
<td>Usage</td>
<td>Limitations</td>
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</tr>
<tr>
<td>Flame Resistant Lab Coat</td>
<td></td>
<td>Is intended to protect the wearer when there is a risk of personal</td>
<td>FR garments are not designed to be “fire-proof,” nor are they designed to eliminate the risk of</td>
</tr>
<tr>
<td>(6 Oz/yd Nomex is best)</td>
<td></td>
<td>garments or skin catching on fire. FR clothing will resist ignition,</td>
<td>burns. If FR clothing is splashed or contaminated with a flammable substance and ignited, the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>prevent the spread of fire over the garment and quickly self-</td>
<td>substance will continue to burn on the surface of the garment until the fuel is exhausted. This</td>
</tr>
<tr>
<td></td>
<td></td>
<td>extinguish following removal of the ignition source, such as a</td>
<td>garment is not fluid resistant and should be immediately removed and replaced (or laundered) if</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bunsen burner.</td>
<td>it comes in contact with spilled substances.</td>
</tr>
<tr>
<td>PPE</td>
<td>Image</td>
<td>Usage</td>
<td>Limitations</td>
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</tr>
<tr>
<td>Pyrophoric Gloves/ Flame Resistant Glove (Cut Resistant Gloves, ANSI/ISEA Cut Level 2, Kevlar)</td>
<td><img src="image_url" alt="Image" /></td>
<td>Lightweight cut protection for light-duty applications. Style: 70-200 Construction: Knitted – Uncoated. Linear Material: DuPont™ Kevlar. Style: Knitwrist Sizes: 7 - 9 <strong>Description:</strong> 100% DuPont™ Kevlar® glove provides light-duty cut protection. Protection from sharp edges of metals, ceramics, glass and other materials. The gloves has a reversible design allows glove to be worn on either hand, reducing replacement costs.</td>
<td>If there is a potential for biological or chemical contamination: wear appropriate disposable gloves on top of your cut-resistant gloves and discard after use via the appropriate waste stream. For more information please visit <a href="http://www.ansellpro.com/">http://www.ansellpro.com/</a> Featured Technology DuPont™ Kevlar <strong>Caution:</strong> The elastic band on this product may contain natural rubber latex which may cause allergic reactions in some individuals.</td>
</tr>
<tr>
<td>PPE</td>
<td>Image</td>
<td>Usage</td>
<td>Limitations</td>
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Personal Protective Equipment, including Flame Resistant (FR) Lab Coat and Gloves:

- Be sure all personal protective equipment is clean, in good working-order and properly sized (fitted)
- Gloves should fit closely enough to allow dexterity in manipulations but not too tight as to restrict circulation or prevent convenient and safe removal in case of contamination
- Don/wear FR inner gloves first
  - Pull down in webbed area between each finger to get a snug fit around fingertips
- Pull on chemically resistant outer gloves (neoprene) carefully to prevent damage/tearing
  - Again, pull down in webbed area between each finger to get a snug fit around fingertips
- Examine gloves for integrity before active use and frequently during extended periods of use

Donning Inner FR & Outer Chemically Resistant Gloves

1. Protective Eyewear
2. Flame Resistant Lab Coat
3. Flame Resistant Glove Liners
4. Chemical Resistant Outer Gloves

(Above picture courtesy of UC Riverside EHS)

Removing (Doffing) gloves:

- Leave eye protection and (uncontaminated) lab coat in place while removing gloves
- If a glove is contaminated or involved in a fire/accident situation, remove it quickly pinching the area at the palm-wrist interface (not the cuff-edge) with the “other” gloved hand.
  - You may remove both inner and outer gloves at once if necessary or just the outer contaminated glove but do not allow the glove to snap and splatter contamination
- Now carefully insert a finger from an ungloved hand under the wrist cuff-edge of the remaining glove(s) and methodically slide the glove(s) from your hand
  - Do not allow the glove(s) to snap and splatter contamination
Dispose of contaminated glove(s) into a safe container via a protected hand or using tongs or a tool.

Practice glove donning/doffing to gain confidence and fluency before using active reagents.

If Flame Resistant gloves compromise dexterity due to the nature of the work, contact the Chemical Safety Officer (949-824-6200) for guidance. Never reuse disposable gloves.

Safety Glasses

<table>
<thead>
<tr>
<th>PPE</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Safety Glasses</td>
<td></td>
<td>Are intended to protect the wearer's eyes when working with materials</td>
<td>Safety glasses are not appropriate against splashes of caustic chemicals or fumes. Must meet</td>
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<tr>
<td></td>
<td></td>
<td>that may fly towards the researcher's face, impacting the eyes with</td>
<td>the requirements specified in the American National Standards Institute Z87.1-1989 or later</td>
</tr>
<tr>
<td></td>
<td></td>
<td>solid materials that may damage the eyeball. We have different styles</td>
<td>standard.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>including some that go over the glasses and bifocals.</td>
<td></td>
</tr>
</tbody>
</table>

Eye protection is indicated for flying particles, acids or caustic liquids, welding, light that could injure eyes (lasers, ultraviolet, infrared, radiation) and infectious body fluids.

Adequate eye protection requires the use of hardened glass or plastic safety spectacles with side shields. Safety glasses used in the laboratory must comply with the Standard for Occupational and Educational Eye and Face Protection (Z87.1) established by the American National Standards Institute (ANSI).

Side shields on safety glasses offer some protection from objects approaching from the side but do not provide adequate splash protection. Wear chemical splash goggles or full-face shields when significant liquid splash hazards exist.

How To Request Additional PPE
For any additional PPE that is necessary, please contact the EH&S Laboratory PPE Coordinator at ehs-ppe@uci.edu or 949-824-6200.

Reasons to request additional PPE include:

- Torn or damaged coats
- Contaminated coats
Contaminated eyewear
Different coat sizes needed due to pregnancy or medical conditions
Different coat sizes needed based on comfort issues
Broken or damaged eyewear
Additional face shields
New projects with new hazards
Additional rooms or new locations not previously listed
Dedicated coats to a particular project and/or prevention of cross contamination
Old light blue coats exchanged for FR dark blue coats with snaps
Old FR coats with buttons for FR dark blue coats with snaps

Prescription Safety Eyewear
At this time, the Laboratory PPE Distribution Program only offers safety glasses that can be placed over the researcher’s personal prescription glasses. Be sure to bring your glasses for fitting. For researchers who wear prescription glasses, side shields must be permanently affixed to the frames to protect eyes from flying particles. Ask your local eye care professional to show you the latest prescription safety glasses that best suit your needs. All prescription safety glasses must have markings specified by the ANSI Z87.1-2010 standard on both the lenses and the frame of the eyewear. The employee’s home department is responsible for paying and covering the cost of prescription eyewear materials (frames and impact resistant lenses), up to a maximum of $150 per year*. Researchers are responsible for any additional professional fees associated with the eye examination, fitting and dispensing. You must have a copy of your current eyeglass prescription from an ophthalmologist or optometrist.

Prescription safety eyewear should be fitted only by qualified optical personnel. Currently, retail Lenscrafters stores carry up to 20 styles of eyeglass frames with permanently affixed side shields that meet Z87.1. Departments may use PalCard or the employee may be reimbursed for the cost of the frames and lenses.

As of July 1, 2019, Laboratory PPE Distribution Program implemented a first come, first serve Prescription Safety Eyewear Program. To be eligible for prescription safety eyewear funded through EH&S, the individual must meet the following criteria**:

Eligibility requirements include but are not limited to:
- Completion of LHAT training
- Having been fitted for and received all recommended PPE
- Completion of a questionnaire to gather additional information about hazards in the laboratory
- Having a copy of current of eyeglass prescription (within the last 18 months)

If an individual is selected for prescription safety eyewear to be funded by EH&S, the Laboratory PPE Coordinator will issue a referral and provide instructions for fitting.

Referrals have an expiration date of 30-60 days, depending on date of issue. If referrals are not used and have expired, referrals may be reissued if funding is still available.
For more information about the EH&S-funded Prescription Safety Eyewear Program, please contact the Laboratory PPE Coordinator at ehs-ppe@uci.edu or 949-824-6200.

*This may be subject to change based on union contract agreements. Check with the campus Human Resources Officer for details.

**Interest in the program and meeting eligibility requirements does not guarantee prescription safety eyewear; referrals are given on a first come, first serve basis.

Lab Coat Laundry Procedures
Any member of a UC Irvine research laboratory who has received coats through the campus distribution event, or EH&S directly, qualifies for the free laundry program. Unfortunately, the campus cannot launder purchased coats that are not part of this program as every single coat provided in the program must have a barcode with a specific campus laundry location. Without this barcode, the professional laundry company does not have a way to track the coats back to a campus laundry location or the institution that it comes from. The laundry company provides services for all the UC campuses in Southern California, thus, each coat must be tracked by the barcode.

Getting Your Coat Cleaned
Important: If a coat is potentially contaminated with hazardous material, DO NOT send it in for laundering. Contact the EH&S Laboratory PPE Coordinator at ehs-ppe@uci.edu for instructions.

Contaminated coat procedures: All laboratory coats must be decontaminated prior to laundry. Do not place soiled coats in red biohazardous bags inside the laundry bin; placing coats in biohazardous red bags means that your coats are contaminated and should be incinerated through our biomedical waste program.

Small splashes of contamination should first be blotted before placing the coat into the laundry bin. Grossly contaminated laboratory coats should be treated as hazardous waste. Carefully insert your contaminated coat into a leak-proof bag while wearing gloves to protect yourself from the contamination. Properly doff your gloves and dispose of them. Next, securely close the bag and immediately affix a completed hazardous waste label onto the bag. Contact the EH&S Laboratory PPE Coordinator at ehs-ppe@uci.edu or 949-824-6200 to arrange for the item to be picked up during the next hazardous waste pick-up.

For chemical waste: [https://www.ehs.uci.edu/apps/waste/cwcollect.jsp](https://www.ehs.uci.edu/apps/waste/cwcollect.jsp)

For biomedical waste: [https://www.ehs.uci.edu/apps/waste/biocollect.jsp](https://www.ehs.uci.edu/apps/waste/biocollect.jsp)

For radioactive waste: [https://www.ehs.uci.edu/apps/waste/radcollect.jsp](https://www.ehs.uci.edu/apps/waste/radcollect.jsp)

Laboratory Coat Laundering Process
- There are six laundry drop off/pick up sites on campus
  - Medical Sciences C Loading Dock (Med Sci C-142)
  - Engineering Tower Loading Dock (ET 105)
Empty pockets and place dry coat in the designated laundry bin (identified when you were fitted). Remove all personal belongings from your lab coat pockets especially pens and sharpies. If these materials are left in your pockets, they will damage your coats and the rest of the coats from UC Irvine. Ideally, you want to launder one coat at a time so you don’t find yourself without a coat.

Laundry is picked up on Wednesday. During major holidays, the drop off/pick up day will change to Tuesday.

All clean lab coats are returned on hangers to a coat rack at your designated laundry location (identified during your fitting). Check laundry locations weekly for your laundered coats; clean lab coats are returned 2-3 weeks after pick up.

If you dropped off your coat in the bin for laundering and it has been over 3 weeks since your drop off, please contact the EH&S Laboratory PPE Coordinator at ehs-ppe@uci.edu or 949-824-6200 to have the coat tracked or replaced.

Disposal of your Laboratory Coat
Your laboratory coat should be retired when it is permanently soiled, notably stained, perforated with holes, and/or otherwise damaged beyond repair. The laboratory coat should be removed from the laundry inventory and destroyed. For more information, contact the EH&S Laboratory PPE Coordinator ehs-ppe@uci.edu or 949-824-6200 for disposal and replacement.

Laboratory Coat Alterations
Beginning July 1, 2019, EH&S no longer allows alterations, including the addition of patches, emblems, custom embroidery, made to lab coats provided by the PPE Distribution Program. Altering lab coats damages the material and compromises the integrity of the lab coat; lab coats altered in any way can no longer be reused.

For more information about placing patches, emblems and/or embroidery on lab coats, contact the EH&S Laboratory PPE Coordinator at ehs-ppe@uci.edu or 949-824-6200 to discuss the following approval process:

- Purchase new lab coats directly from EH&S-approved vendor
- EH&S must approve the lab coats to be purchased
- If you want to use the UCI seal, you will need to obtain permission from Strategic Communications at 949-824-5028. For more information
- Campus laundry vendor must assign each approved coat with a unique, identifying number
- EH&S must tag each coat with a designated laundry location barcode and assign coats to your lab through LHAT

Care and Disposal of your Protective Eyewear
Clean your safety glasses or goggles daily with a soft cloth and store them in a clean, dry place where they will not be damaged. Inspect your glasses or goggles to make sure the lenses are firmly attached
and undamaged. Make sure the face seal around goggles remains flexible and provides a good seal to your face and that the elastic band is not damaged. Do not hang goggles by their straps; over time, they will lose their elasticity, compromising their effectiveness. Replace scratched, pitted, broken, bent or ill-fitting safety eyewear.

Inspect your face shield for proper attachment of the lens to the headgear. Replace the face shield lens when it becomes scratched or damaged. Replace the entire face shield when the headgear is no longer functional. For more information, contact the EH&S Laboratory PPE Coordinator at ehs-ppe@uci.edu or 949-824-6200.

If your eyewear should become damaged or is no longer functional, discard it in the regular trash. If the eyewear is contaminated with a hazardous material, try to decontaminate before placing them into the trash, or consider sending them through our campus hazardous waste program.

   For chemical waste: https://www.ehs.uci.edu/apps/waste/cwcollect.jsp
   For biomedical waste: https://www.ehs.uci.edu/apps/waste/biocollect.jsp
   For radioactive waste: https://www.ehs.uci.edu/apps/waste/radcollect.jsp

Please contact the EH&S Laboratory PPE Coordinator at ehs-ppe@uci.edu to discuss your options.

If you break/scratch/lose your safety glasses, contact the EH&S Laboratory PPE Coordinator at ehs-ppe@uci.edu. Our department will gladly provide a replacement pair as long as we have them available. Certain eyewear may change or may not be available to purchase; in those cases, you will need to be fitted again with the new items we have in stock.

**Hand Protection:**
Gloves are not provided as part of the UC Irvine PPE Distribution Program* but you should be familiar on how to perform a risk assessment before making your selection. Supervisors are required to assess the workplace using the LHAT to determine if protective gloves are necessary and provide the employee with the appropriate gloves and training. Not every glove is good for every application. Common glove materials include neoprene, polyvinyl chloride, nitrile, butyl and natural rubbers (latex). These materials differ in their resistance to various substances. Chemicals eventually permeate all glove materials. However, gloves are safe for limited periods if one knows the specific use and glove characteristics (such as thickness and permeation rate and time).

Wear proper protective gloves for potential contact with corrosive or toxic materials, materials of unknown toxicity, sharp edged objects and very hot or cold materials. Select gloves based on the material handled, the particular hazard involved and their suitability for the operation conducted. Consider these factors when choosing the right glove for the task:

- Chemical type and concentration
- Temperature extreme
- Equipment used (sharps, piercing object)
- pH
- Toxicity
- Duration of contact
Use disposable gloves for incidental contact. Consider double gloving (the wearing of two gloves on each hand) when handling highly toxic or carcinogenic materials. Use heavy-duty gloves for non-incidental contact and gross contamination.

Wear sturdier gloves such as leather for handling broken glassware, inserting glass tubes into rubber stoppers, and similar operations where you do not need protection from chemicals.

Use insulated gloves when working at temperature extremes. Do not wear woven gloves while working with cryogens as the liquid may work its way through the glove to your hand. Use gloves specifically designed for work with cryogens. Gloves worn for working with elevated temperatures may not be appropriate for working with extremely low temperature liquids.

*EH&S PPE Distribution Program provides pyrophoric gloves to lab workers when use of pyrophoric chemicals is indicated on the Hazard Assessment in LHAT.

6. Reporting Requirements

None

7. References

State and Federal Regulation:


8 CCR 3381 Head Protection: [http://www.dir.ca.gov/title8/3381.html](http://www.dir.ca.gov/title8/3381.html)


8 CCR 3384 Hand Protection: [http://www.dir.ca.gov/title8/3384.html](http://www.dir.ca.gov/title8/3384.html)

8 CCR 3385 Foot Protection: [http://www.dir.ca.gov/title8/3385.html](http://www.dir.ca.gov/title8/3385.html)

8 CCR 5098 Hearing Protection [http://www.dir.ca.gov/title8/5098.html](http://www.dir.ca.gov/title8/5098.html)

8 CCR 5144 Respiratory Protective Equipment: [http://www.dir.ca.gov/title8/5144.html](http://www.dir.ca.gov/title8/5144.html)

8 CCR 5191 Occupational Exposure to Hazardous Chemicals in Laboratories: [http://www.dir.ca.gov/title8/5191.html](http://www.dir.ca.gov/title8/5191.html)

8 CCR 5193 Bloodborne Pathogens: [https://www.dir.ca.gov/title8/5193.html](https://www.dir.ca.gov/title8/5193.html)

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

8 CCR 5200 –5220 Regulated Carcinogens: [http://www.dir.ca.gov/title8/sb7g16a110.html](http://www.dir.ca.gov/title8/sb7g16a110.html)


California Labor Code Section 6400-6413.5:
Prudent Practices in the Laboratory, National Research Council, 2011
http://www.nap.edu/openbook.php?record_id=12654&page=1 Biosafety in Microbiological and Biomedical Laboratories (BMBL)


UCOP:
PPE policy: http://policy.ucop.edu/doc/3500597/PersonalProtectiveEquip

UC Irvine:
