



Minors in Laboratories and Shops

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| Responsible Officer: | Grace Crickette |
| Responsible Office: | RK - Risk / EH&S |
| Issuance Date: | [] |
| Effective Date: | [] |
| Scope: | Faculty, Academic Appointees, Staff, and Volunteers who work with Minors |

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I. POLICY SUMMARY

This policy governs the presence of minors in any University laboratory or shop that uses hazardous chemicals, biohazardous or infectious materials, radioactive materials or radiation-producing equipment, or where there are physical hazards including (but not limited to) compressed gases, high voltage, extreme temperatures, excessive noise, or lasers.

The policy does not apply to students enrolled in courses listed in a campus course catalog having a laboratory component or in any of the University of California's educational outreach programs, including students working on science fair projects.

This policy applies to all minors involved in summer internships, volunteering in research projects and participating in scheduled assignment in a laboratory setting.

This policy sets restrictions on minors' participation based on age ranges. Minors under the age of 14 are not permitted in University of California laboratories or shops, except when participating in an approved and supervised tour. This prohibition extends to the minor children related to laboratory personnel.

This policy sets minimum requirements; each campus may develop more stringent policies and procedures as deemed necessary.

II. DEFINITIONS

Biological Agents: Living organisms or products of living organisms such as viruses, bacteria, fungi, prions & parasites.

Biosafety Level (BSL) Containment Protocols: Biosafety Levels 1-4 as defined by the National Institutes for Health guidelines, describe containment practices for hazardous chemicals and dangerous materials, based on advice from the federal [Centers for Disease Control and Prevention](#). Containment strategy is linked to the type of facility, appropriate engineering controls, safe work practices, and use of personal protective equipment.

Biosafety Level 1 containment is prescribed for agents that are not known to cause disease in healthy adult humans.

Biosafety Level 2 containment is prescribed for agents linked to human disease, but the disease is rarely serious; treatment is often available.

Biosafety Level 3 containment is prescribed for agents that are linked to serious or lethal human disease; treatment may be available.

Biosafety Level 4 containment is prescribed for agents that are linked to serious or lethal human disease; treatment is rarely available.

Controlled Substances: Narcotic and non-narcotic substances that are regulated under the federal Controlled Substances Act and the California Uniform Controlled Substances Act including but not limited to those substances listed in 21 CFR 1308.11-1308.15

Laboratory: As used in this Policy, “laboratory” refers to any part of a building used or intended to be used by the University for scientific or technical activities which may be hazardous; this includes teaching laboratories as well as research laboratories. This policy also covers off-campus facilities, on-and off-campus clinical facilities, and fieldwork locations where approved educational activities are conducted.

Minor: An individual under 18 years of age (California Family Code §6500-6502).

Personal Protective Equipment (PPE): Personal protective equipment is equipment 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.

Shop: As used in this Policy, a place where machinery and tools are used. “Shops” include but are not limited to engineering shops, art workshops, and other sites.

Vivarium: A facility where live animals or plants are housed and kept under natural conditions for research

III. POLICY TEXT

The University of California is committed to providing a healthy and safe environment for all members of the campus community and visiting members of the public.

This policy is meant to protect both the safety of minors and of other laboratory personnel. The principles underlying this policy are:

- Minors may be more susceptible to certain toxic agents and chemicals,
- Minors may be less aware of the potential risks and hazards in laboratories,
- Minors may require supervision and oversight.

The policy does not apply to students enrolled in courses listed in a campus course catalog having a laboratory component or in any of the University of California's educational outreach programs, including students working on science fair projects.

This policy is intended as a minimum requirement; each campus may develop more restrictive policies and procedures as deemed necessary.

- A. Minor children of laboratory personnel are not permitted in laboratories or shops except as part of an organized event such as a tour. Exceptions may be granted on a case-by-case basis according to local guidelines, pending review and written approval by the campus Research Vice Chancellor (or designee).
- B. Minors are never permitted in any setting where research involving controlled substances is being performed, even if they are enrolled students. Persons under age 18 are not permitted in University of California vivaria unless their participation has been reviewed and approved by the campus Institutional Animal Care and Use Committee (IACUC) and the responsible vivarium facility manager based upon criteria established by the campus.
- C. Minors between the ages of 14 and 18 are allowed in laboratory settings only when:
 - 1. They are students enrolled in courses listed in a campus course catalog or part of an approved and supervised tour, **or**
 - 2. They have written consent from their parent(s) or guardian(s); and, They have received the appropriate University of California safety training and the campus has documented that training; and They agree to strictly adhere to the campus or laboratory-specific requirements concerning Personal Protective Equipment (PPE); and,

They are at all times under the direct supervision of a qualified adult designated for this responsibility.

- D. Before their scheduled assignment in a laboratory begins, minors must be trained on specific hazards to which they may be exposed in the laboratory/shop, how to recognize those hazards, and how to protect themselves from those hazards. Minors must be trained on the contents of the laboratory-specific chemical hygiene plan and the standard operating procedures and emergency procedures applicable to their scheduled assignment. Additional training may be required for tasks that involve hazardous chemicals, biological agents, radioactive materials, research animals, and physical hazards. All training must be documented. Refer to the Policy on Laboratory Safety Training.
- E. Legal Restrictions Regarding Certain Chemicals and Biologicals and Radiation

Regulations prohibit minors from using certain chemical, biological, or radiological materials. There are also specific training requirements based on the materials a minor will be handling and/or exposed to. Restrictions on chemical, biological, and radiological materials are as follows.

1. Chemical Safety Restrictions: Minors are not allowed to work with:
 - a) Highly hazardous materials, including pyrophorics, explosives, large quantities of flammable materials (i.e., 4 liters or more), and compounds having a rat oral LD₅₀ less than or equal to 50 mg/Kg (e.g., hydrofluoric acid, acrylonitrile, osmium tetroxide, etc.)
 - b) International Agency for Research on Cancer (IARC) Group 1 or 2A carcinogens or Cal/OSHA-regulated carcinogens
2. Biological Safety Restrictions: Minors may never work with or be present in circumstances requiring BSL-3 or BSL-4 containment. Restrictions for handling potentially biohazardous substances depend on age group:
 - a) Persons ages 14 to 16:
 - Are prohibited from handling biohazardous materials that require containment above BSL-1.
 - May enter a BSL-1 in a large open bay laboratory where BSL-2 work may be taking place, providing they have no contact with the BSL-2 work.
 - b) Persons ages 16 to 18:

- Are prohibited from handling biohazardous materials that require containment above BSL-2.
 - May enter a BSL-2 with appropriate training and medical surveillance (if applicable).
3. Radiation Safety Restrictions: Minors are not allowed to handle radioactive materials or radiation-producing machines. PIs must apply to their campus EH&S Radiation Safety Officer (“RSO”) for exceptions. Exceptions must be documented in writing.

IV. COMPLIANCE / RESPONSIBILITIES

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| Chancellor / Laboratory Director (or Designee) | The Chancellor or LBNL Director or designee is responsible for implementing this policy and location-specific procedures |
| Laboratory Supervisor or Principal Investigator | <p>The University academic or staff employee who sponsors a non-student minor’s educational activity must certify adherence to this policy and local implementing procedures on the Minors Performing Research Registration Form.</p> <p>The PI or supervisor must make an evaluation of each physical hazard present in the work environment (e.g., compressed gases, high voltage, extreme temperatures, excessive noise, lasers, etc.) the minor may encounter as part of their scheduled assignment in the laboratory and (1) review the physical hazards with the minor, (2) review safe operating procedures for the equipment with the minor, (3) review emergency procedures for the equipment with the minor, and (4) establish specific and explicit instructions for the scheduled assignment the minor is allowed to perform</p> |
| Location EH&S Personnel | The local EH&S Office is responsible for assisting laboratory personnel in maintaining and monitoring health and safety requirements. |
| Human Resources Office | <p>Any policy covered UC employee who oversees minors must have a criminal background check conducted in accordance with University policy and local procedures.</p> <p>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; APM 140 and 150 pertaining to Non-Senate Academic Appointees, or Collective Bargaining Agreement.</p> |
| Under Age 18- Participant | The participant must undergo required training and complete campus required registration forms. |

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| Participant's Parent or Guardian | Parent/guardian must sign campus required campus required registration form, including a release of liability and hold-harmless agreement. |
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V. PROCEDURES

Principal Investigators or activity sponsors must follow these steps to obtain advance authorization and parental permission before allowing a minor to participate in research activities, and must ensure that minors under their supervision receive appropriate training about hazardous materials handling requirements and restrictions. Failure to do so will result in corrective action.

- A. Obtain written authorization before the minor begins scheduled assignment in the lab in accordance with location- specific policies and procedures, using appropriate forms (e.g., Waiver of Liability, Assumption of Risk and Indemnity Agreement).
- B. Provide direct supervision of the minor in the laboratory environment by a qualified adult laboratory supervisor at all times. Ensure supervision requirements are observed. "Direct supervision" means while entering, leaving or in the laboratory, the minor is physically accompanied at *all* times by a trained and knowledgeable supervisor.
- C. Review emergency procedures with the minor. Show the minor the following emergency equipment and locations: (Refer to the *Laboratory Site Safety Orientation* in the Policy on Laboratory Safety Training)
 - Telephone and emergency phone numbers,
 - First-aid kit,
 - Eye wash and emergency shower,
 - Fire alarm pull stations and fire extinguishers,
 - Building exits,
 - Where to assemble outside in case of building evacuation.
- D. Provide general and laboratory specific safety training.

As the Principal Investigator / Supervisor you must confirm that the minor receive appropriate laboratory safety training by:

- Assure that the minor completes campus-specific safety training before the minor begins scheduled assignment,
- Explain hazards specific to your lab, equipment, and the materials the minor may handle; e.g.
 - Show the minor how to access and understand Safety Data Sheets (SDS) for the chemicals with which they will utilize.

- Explain possible routes of exposure, as appropriate (e.g., skin absorption, ingestion, inhalation) and precautionary measures precautions to limit exposures,
- Evaluate each potential hazard present in the work environment (e.g., compressed gases, high voltage, extreme temperatures, excessive noise, lasers, etc.) the minor may encounter as part of their scheduled assignment in the laboratory and
 - (1) review the potential hazards,
 - (2) review safe operating procedures for the equipment,
 - (3) review emergency procedures for the equipment, and
 - (4) establish specific and explicit written instructions (Standard Operating Procedures) for the work the minor is allowed to perform.
- Provide appropriate PPE and engineering controls, and train the minor in their proper use.
- Maintain all safety training documentation and *Release of Liability* forms in the lab's files in accordance with campus policy.

VI. RELATED INFORMATION

Minors in Labs Registration Packet (samples)

Release of Liability, Waiver of Claims, Express Assumption of Risks and Hold Harmless Agreement (form)

Notification of Possible Hazards to Minors Performing Research ("Potential Hazard Information Sheet")

Rules for Minors in Laboratories and Shops

Minors Research Proposal Project Registration Form

[University Policy on Management of Health, Safety and the Environment](#)

Centers for Disease Control, Biosafety in Microbiological and Biomedical Laboratories (<http://www.cdc.gov/biosafety/publications/bmbl5/index.htm>)

Personnel Policies for Staff Members [62](#), [63](#), [64](#), [65](#), and [67](#)

VII. FREQUENTLY ASKED QUESTIONS

Not Applicable.

VIII. REVISION HISTORY

This is the first version of this Policy.

**RELEASE OF LIABILITY, WAIVER OF CLAIMS, EXPRESS
ASSUMPTION OF RISKS, AND HOLD HARMLESS AGREEMENT**

I HAVE READ, UNDERSTAND, and INITIALED the documents Rules for a Minors Working in Laboratories and Shops and Potential Hazard Information Sheet describing the potential risks and dangers associated with my child's research project. I fully understand that there are potential risks and hazards associated with exposure to hazardous materials or substances.

I AGREE TO ALLOW my minor child to participate on a scheduled assignment in the University of California laboratories and freely accept and assume all associated risks and hazards. I ALSO AGREE AND UNDERSTAND that my child's research project may be suspended at any time, at the discretion of the University of California and its officers, agents, and employees, if the safety of my child, University of California employees and/or other volunteers at the University of California become a concern.

I, for myself and my estate, heirs, administrators, executors, and assigns, hereby release and hold harmless the State of California, the UC Board of Regents, and their officers, directors, employees, representatives, agents, and volunteers (collectively, the "Releases"), from any and all liability and responsibility whatsoever, however caused, for any and all damages, claims, or causes of action that I, my estate, heirs, administrators, executors, or assigns may have for any loss, illness, personal injury, death, or property damage arising out of, connected with, or in any manner pertaining to my child's scheduled assignment in the University of California laboratories, whether caused by the negligence of Releases or otherwise. I further hereby agree to defend, indemnify and hold harmless the Releases from any judgment, settlement, loss, liability, damage, or costs, including court costs and attorney fees that Releases may incur.

In signing this agreement, I acknowledge and represent that I have read and understand it and that I sign it voluntarily and for full and adequate consideration, fully intending to be bound by the same.

Printed Name of Minor Child

Signature of Parent/Legal Guardian

Printed Name of Parent/Legal Guardian

Date

I have read, understand, and will adhere to the University of California Minors in Laboratories and Shops Policy. I understand that failure to comply with this Policy is dangerous to my health and safety and that I may be removed from the facility immediately for any failures or deviations in compliance.

Signature of Minor

Date

Potential Hazard Information Sheet

| Type | Characteristics/potential hazards | | Examples |
|-----------------------------------|---|--|---|
| Chemicals | Refined compound that may be in the form of a solid, liquid or gas. These may or may not be hazardous. Some compounds may have numerous hazard classifications (e.g., flammable, toxin & carcinogen) | Carcinogens: may cause cancer with long term exposure - usually many years in the future | Benzene |
| | | Teratogens: known to affect the reproductive system of males /females & may cause birth defects in the developing fetus. | Alcohol, thalidomide, X-rays |
| | | Neurotoxins: may affect the nervous system. | Ethidium bromide, snake venom |
| | | Flammables: may burn or explode | Acetone, Xylene, Alcohol |
| | | Reactives: may react explosively | Peroxides, acrylamide |
| | | Corrosives: may cause tissue damage through inhalation or direct contact with eyes, skin, etc. | Acids & Bases |
| | | Toxins: may cause illness or death on exposure. | Cyanide |
| Compressed Gases | Gases frequently housed in large & heavy high-pressure cylinders. The gas itself may be harmless, toxic, corrosive, flammable | Physical hazard: Explosion hazard upon rupture Asphyxiant hazard if gasses enter workplace & displace oxygen | Asphyxiant: nitrogen, helium, any other non-oxygen gas Flammable: hydrogen Toxic: ammonia |
| Radiation / Radioactive Materials | High energy particles (alpha & beta) or photon (X-rays, gamma) | Tissue & Organ damage with high doses | Uranium, Phosphorus-32, Sodium-35, X-rays |
| Physical Hazards | Exposure to noise, machinery, heat, cold, etc. | Tissue damage, hearing loss | Scrapes, cuts Cold: liquid nitrogen, dry ice Heat: burners |
| Lasers | Light Amplification by Stimulated Emission of Radiation | Eye damage and possible skin damage | Class IIIB and IV, and open beam laser operation |

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| Biological Agents | Living organisms or products of living organisms such as viruses, bacteria, fungi, prions & parasites. Hazards from infection are organism dependent & may range from mild treatable to severe untreatable. Hazards are classified according to recommended containment protocol. | Biosafety Level 1 - No hazard | Baker's yeast & E. coli K12 |
| | | Biosafety Level 2 - Mild to severe illness | Influenza, Polio & Salmonella |
| | | Biosafety Level 3 – Severe illness & possible death | Tuberculosis & AIDS |
| | | Biosafety Level 4 – Fatal disease | Hemorrhagic fever |
| Recombinant DNA | Genetically modified organisms. | Scant scientific knowledge as to effects once introduced to the human body. | Viral vectors such as Adeno & Adeno-associated viruses used to transfect or express genes. |
| Toxins – Microbial, Plant, Animal | Poisonous substances produced by plants, living organisms or animals. | Tissue & organ damage or death. | Plants – Ricin Animals – fish / Reptile venom Microbials – Staphylococcus, Tetanus |

Parent/Legal Guardian signature: _____ Date: _____

RULES FOR MINORS IN LABORATORIES AND SHOPS

1. Never participate on a scheduled assignment alone in any laboratory environment without direct, immediate adult supervision from the sponsor or someone designated by the sponsor.
2. Complete and follow safety training specific to the hazards in the laboratory.
3. Always wear the personal protective equipment as directed and dispose of it appropriately. This personal protective equipment (PPE) includes goggles, gloves, coats/gowns, and other face/body protection as dictated by the hazard being worked with or around. Always remove PPE when leaving the work area.
4. Always follow the instructions of the sponsor or laboratory supervisor.
5. Always report any accident (regardless of severity) immediately to the sponsor or laboratory supervisor.
6. Always keep your hands away from your face and wash them well with soap and water prior to leaving any laboratory area and after removing gloves.
7. Never eat, drink, chew gum, apply lip balm, or touch contact lenses while in any laboratory environment.
8. Always wear closed-toe shoes while in any laboratory.
9. Always tie back long hair to keep it out of all the hazards listed above.
10. Always wear clothing that reduces the amount of exposed skin.
11. Always ask questions if you don't understand the safety requirements.

Printed Name of Minor Child

Signature of Minor

Signature of Parent/Legal Guardian

Printed Name of Parent/Legal Guardian

Date

Minors Research Proposal Registration Form

Proposals are due to the Department Chair at least 2 weeks prior to the beginning of the project.

Principal Investigator/Sponsor Name _____ Department: _____

Phone: _____ Email: _____

Student/Minor Name: _____ Date of Birth: _____

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| <p>The nature of this project is (check one)</p> <p><input type="checkbox"/> Student Intern <input type="checkbox"/> Volunteer</p> <p><input type="checkbox"/> Other (specify) _____</p> <p><input type="checkbox"/> Part of a University of California Sponsored Program (which program?) _____</p> | <p>Project Title: _____</p> <p>Project Start Date: _____ Project End Date: _____</p> <p>Project Description (attach separate sheet if necessary): _____</p> <p>Location: Bldg. _____ Room(s) _____</p> |
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Materials and Equipment to be Used Check and List all that apply:

| Chemicals | Biological Material | Equipment |
|--|--|---|
| <input type="checkbox"/> Flammable | <input type="checkbox"/> Recombinant DNA | <input type="checkbox"/> Fume Hood |
| <input type="checkbox"/> Reactive | <input type="checkbox"/> Bacteria | <input type="checkbox"/> Biosafety Cabinet |
| <input type="checkbox"/> Carcinogenic | <input type="checkbox"/> Viruses | <input type="checkbox"/> Laminar Clean Bench |
| <input type="checkbox"/> Toxic | <input type="checkbox"/> Fungi | <input type="checkbox"/> Autoclave |
| <input type="checkbox"/> Corrosive | <input type="checkbox"/> Parasites | <input type="checkbox"/> Centrifuge |
| <input type="checkbox"/> Oxidizer | <input type="checkbox"/> Human Source Material | <input type="checkbox"/> Analytical Instruments |
| <input type="checkbox"/> Cryogen | <input type="checkbox"/> Insects | <input type="checkbox"/> Industrial Machinery |
| <input type="checkbox"/> Pharmaceuticals | <input type="checkbox"/> Plants | <input type="checkbox"/> Noise Producing Equip. |
| <input type="checkbox"/> Gasses | <input type="checkbox"/> Animals | <input type="checkbox"/> Other Equipment |
| | | _____ |

I AGREE TO SPONSOR (MINOR'S NAME) _____

AND BY MY SIGNATURE BELOW, AGREE THAT:

- I have read, understand, and will adhere to the "Minors in Laboratories and Shops" Policy. The potential hazard information signature sheet is attached.
- I will ensure that this Minor's Hazard Specific Safety Training is completed and documented.
- Personal protective equipment appropriate for, and specific to, laboratory hazards will be provided.
- This individual will be supervised at all times while in the laboratory and never left alone.
- My laboratory is in full compliance with all applicable University of California safety programs and regulations
- I understand that my failure to adhere to the "Minors in Laboratories and Shops" Policy may result in my receiving corrective action or discipline, up to and including dismissal.

Printed Name of PI/Sponsor Date

Signature of PI/Sponsor Date

Department Chair Approval (if required)

Printed Name of Department Chair Date

Signature of Department Chair Date

Retain for 3 years