University of California, Merced

Environmental Health and Safety



Laboratory Safety Plan Supplement

This LSP Supplement has been prepared for the following Laboratory:

Principal Investigator: ­­

Laboratory Location:

Date:

Instructions for Completing the

UC Merced Laboratory Safety Plan Supplement

There are two components to a lab specific Laboratory Safety Plan (LSP):

1. The generic LSP (available from the [Environmental Health and Safety website](http://ehs.ucmerced.edu/2.asp?uc=1&lvl2=39&lvl3=39&lvl4=41&contentid=96)).
2. The LSP Supplement (this document) to be completed by the PI or an assigned lab member.

A copy of the completed LSPS should be kept in the lab and used for employee training.

 **Procedures for completing a lab-specific LSP Supplement:**

1. Review the UC Merced LSP.
2. Complete a LSP Supplement form (Form 2) for each lab.
3. Once the LSPS is completed, all lab personnel assigned to the subject lab must review the LSP and LSPS and sign a copy of the LSP **Training Sheet** (Form 4)which isfound at the end of this document.
4. All labs should conduct a self-assessment using the LSP Self-assessment form (Form 3) at least annually. One copy of the completed self-assessment should be kept on file, and one copy should be sent to EH&S.

## Purpose

The UC Merced LSP provides health and safety information to lab personnel. If laboratory personnel read the LSP, complete the LSPS, and implement the LSP’s provisions, the lab will have satisfied regulatory requirements for basic lab safety, including the Injury and Illness Prevention Program, and the Cal-OSHA Chemical Hygiene Plan.

The LSP only covers general safety and chemical safety issues, along with basic biosafety (BSL-1) issues. Additional administrative approvals are still necessary for work with biological hazards (BSL-2 or higher), lasers, radiation, controlled substances, select agents, and research using animals and human subjects.

## Procedures for updates and changes:

Labs are required to update their LSPS annually or more frequently if operations change significantly. In addition, each lab member must review the LSP and associated Supplement and fill-out a new training sheet annually. Finally, each PI must complete a **PI Information sheet** (Form 1) if his or her lab moves or his or her contact information changes, please forward all completed PI information sheets to EH&S.

**FORMS**

The LSSP consist of the following forms:

Form 1: Principal Investigator Information

Form 2: Lab Safety Plan Supplement

Form 3: Lab Self-Assessment Form

Form 4: Lab Safety Plan Training Form

**Form 1 Principal Investigator Information**

The UC Merced Office of EH&S is developing a database of safety-related information to enable it to manage its programs more efficiently and effectively. **Complete and return this form only if you have not done so previously or if there are any updates or changes to the following information.** Confidential information, such as home phone numbers, will only be used to contact people in emergencies.

# Principal Investigator (PI) Information Sheet

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| PI First Name: |       | Middle: |  | Last: |  |
| **PI Work Phone:** |       | PI Fax: |  |
| **PI email:**  |  |  |  |
| **Assigned Space (bldg., room) please list all:** |  |
|  |
| **Preferred Method of Contact:** |  **Paper Electronic Both** |
| **Number of lab workers: (average throughout the year including undergraduates, postdocs, etc.)** |  **<5 5 – 10 >10** |
| **Nature of Laboratory work:** |       |
| **Laser Use Authorization needed:** |  yes no |
| **Biohazard Use Authorization needed:** |  yes no |
| **Radioisotope Use Authorization needed:** |  yes no |

Laboratory Safety Contacts

PIs are accountable for all health and safety activities in space assigned to them. However, they may choose to delegate certain day-to-day responsibilities to qualified lab personnel. Use the space below to indicate personnel EH&S can contact (in addition to the PI) for after hours emergencies or other safety related issues.

|  |  |  |  |
| --- | --- | --- | --- |
| **Safety Contact Person** | **Phone** | **e-mail** | **Home Phone** (confidential) |
|       |       |       |       |
|       |       |       |       |

Signature\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Please return the completed form to EH&S. If you have any questions please call 228-7864.

**Form 2**

**Lab Safety Plan Supplement**

Please review this list and check applicable sections. Review all sections in this plan that you have checked.

**This Laboratory Safety Plan Supplement is for the \_\_\_\_\_\_\_\_\_\_\_\_\_ lab (fill in PI last name).**

|  |  |  |
| --- | --- | --- |
|  | **General Safety (Chapters 1 – 6 apply to all UC Merced spaces)**  |  |
|  | 1. **General Safety**
 | *The general safety issues in chapters 1 – 6 apply to all UC Merced labs and are based on University policy and applicable regulations.* |  |
|  | 1. **Emergency Prep**
 |  |
|  | 1. **Fire Safety**
 |  |
|  | 1. **Electrical Safety**
 |  |
|  | 1. **Ergonomic**
 |  |
|  | 1. **Clearance and Relocation**
 |  |
|  | **Chemical Safety (Chapters 7 – 12 apply to all labs using chemicals)** |  |
|  | 1. **Chemical Safety Basics**
 | *Chapters 7 – 12 apply to all labs using any chemicals for research purposes. Requirements are based on University policy as well as federal, state and local regulations for using and disposing of hazardous materials.* |  |
|  | 1. **Chemical Storage**
 |  |
|  | 1. **Fume Hoods and Engineering Controls**
 |  |
|  | 1. **Protective Equipment (PPE)**
 |  |
|  | 1. **Chemical Emergencies**
 |  |
|  | 1. **Chemical Wastes**
 |  |
| Lab Specific Safety Issues (mark boxes below to indicate each chapter that applies) |  |
|  | 1. **Carcinogens and Reproductive Toxins**
 |  |
|  | 1. **Controlled Substances –** *includes listed chemicals.*
 |  |
|  | 1. **Hazardous Drugs-** *i.e. - anti-neoplastic agents*
 |  |
|  | 1. **Acutely Hazardous Materials -** *safety issues for labs using extremely hazardous materials (LD50<50mg/kg)*
 |  |
|  | 1. **Select Agents**
 |  |
|  | 1. **Compressed and Hazardous Gases**
 |  |
|  | 1. **Cryogenic Liquids –** *(liquefied gases)*
 |  |
|  | Operational Hazards - *equipment and processes such as:* |  |
|  Centrifuges & Ultrasonication |  Photography |  |
|  Quenching Stills |  Water cooled equipment  |
|  Cleaning Glassware |  Vacuum Pumps and systems |
|  Rotary Evaporator use and trapping |
|  **21. Biosafety & Biohazardous waste -** *procedures to use and dispose of biological materials, including autoclave use – see* [*Biosafety program*](http://ehs.ucmerced.edu/researchers-labs/biological-safety)  *for more information* |
|  **22. Lasers and Radiation**- *procedures for work with radiation and lasers – see* [*Radiation Safety Program*](http://ehs.ucmerced.edu/researchers-labs/radiation-safety) *for more information.* |
|  **23. Physical Hazards** |
|  |

# Section 1 – Responding to and Reporting Worker Injuries

**Location of the closest First Aid Kit:**

Building:       Room:

Location in room (i.e., above sink at middle bench):

# Section 2 – Emergency Preparedness

Primary (P) and Secondary (S) emergency contacts are personnel who need to be called in an emergency. The primary contact is the PI. The secondary contact is usually the lab manager. This information will be kept confidential.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **P/S** | **Name** | **Title** | **Home Phone** | **Office Phone** |
| P |  | **PI** |  |  |
| S |  |  |  |  |
|       |       |       |       |       |

All personnel need to be aware of the location of the lab assembly point outside the building in the event of an emergency. Each lab should maintain and have access to a current list of lab personnel. A copy of this list should be maintained by someone outside the lab for use in a drill or emergency.

Lab Personnel List Location:

Lab Gathering Point:

# Section 3 – Fire Safety

**Fire Extinguisher Information:**

List all fire extinguishers that would be used by your lab in an emergency. This list may include extinguishers in the hallway, outside of your lab.

Choose from the following types:

 CO2,  ABC (dry chemical),  H2O, or  class D (for metal fires).

(If you’re not sure what kind you have, please check the label on the extinguisher)

The recharge date is punched out on the tag.

|  |  |  |
| --- | --- | --- |
| **Location of Fire Extinguishers** | **Type** | **Recharge date** |
| Example: |
| *Room 6800 on West side of north door* | *CO2* | *2/5/00* |
|  |  |  |
|  |  |  |
|       |       |       |

List the materials that require special fire-fighting procedures such as reactive metals or other pyrophoric chemicals. See Section 3 of the LSP for more details.

(Examples: sodium, lithium, potassium, silane gas, ethers, organic peroxides, etc.)

# Section 4 – Electrical Safety

List all rooms used by the PI and the location of the corresponding electrical panel.

Electrical panels (which contain the circuit breakers for the lab) may be located in the lab itself or in a nearby room. Panels will have an ID number matching circuit labels in the lab. A lab may be served by more than one electrical panel. If problems are identified, please notify Facilities Management.

|  |  |  |
| --- | --- | --- |
| **Room(s)** | **Panel ID** | **Panel Location** |
| *Example 211,212* | *J847* | *In hallway, west of room* |
|       |       |       |
|       |       |       |
|       |       |       |

# Section 7 – Chemical Safety

**Check the box(es) for the method(s) your lab uses to access SDSs.**

 Chemical Manufacturer’s SDS web page

 Paper copies maintained by lab:

 UC Merced EH&S website

 Other:

**Check the box(es) for health and safety references that are available to lab personnel.**

 Merck Index

 “Prudent Practices in the Laboratory: Handling and Disposal of Chemicals”

 “CRC Handbook of Laboratory Safety”

 Other

**If any lab operations require prior approval by the PI please describe them below. (**This is a lab-specific decision to be made by the PI. Example: any ether use, any picric acid use, any laser use)

1. 2.)

**Please outline laboratory-specific procedures or Safety Standard Operating Procedures (SOPs) for safety below. Reference the appropriate section of the Lab Safety Plan when necessary (use additional sheets if necessary):**

# Section 8 – Hazardous Materials Storage and Control

Many labs have designated areas for storage of particular materials. Use this table to indicate the **hazard classifications** pertinent to your lab (i.e., acids, bases, organic solvents, radioactive materials, biohazards, hazardous waste, etc.), the **location** of these hazards (i.e., building, room), the **description** of where in your lab the hazards can be found, and the **disposal methods** for hazardous wastes. Additional information on hazardous waste can be found in Section 12 of the LSP.

|  |  |  |  |
| --- | --- | --- | --- |
| **Hazard Classes** | **Storage Location (Bldg., Room)** | **Description** | **Waste Collection Methods** |
| *Examples:* |
| *Organic Solvents* | *Fake Bldg. 2332* | *Underneath Fume Hood* | *Contact EH&S* |
| *Biohazardous Waste* | *Fake Bldg. 2332* | *Near biosafety cabinet* | *Place in red biohazard bags dispose of in biowaste room.* |
| **1.** |  |  |  |
| **2.** |  |  |  |
| **3.** |  |  |  |
| **4.** |  |  |  |
| **5.** |  |  |  |
| **6.** |  |  |  |
| **7.** |  |  |  |
| **8.** |  |  |  |
| **9.** |  |  |  |

# Section 9 – Fume Hood and Other Engineering Controls

List all chemical fume hoods, biosafety cabinets, autoclaves, and any other engineering controls used by this lab:

|  |  |  |  |
| --- | --- | --- | --- |
| **Equipment Description** | **Location (Bldg., Room)** | **Approved Activities for this equipment** | **Certification Date:** |
| *1.* | *Fume Hood* | *Fake Bldg 3442* | *Work requiring ventilation (phenol, chloroform, bleach* | *12/25/00* |
| *2.* | *Autoclave* | *Fake Bldg 3443* | *Waste and sterilization* | *1/1/01* |
| *3.* | *Biosafety Cabinet* | *Fake Bldg 3000* | *Biologicals* | *11/3/00* |
| 1. |       |       |       |       |
| 2. |       |       |       |       |
| 3. |       |       |       |       |
| 4. |       |       |       |       |
| 5. |       |       |       |       |
| 6. |       |       |       |       |

# Section 10– Personal Protective Equipment

Some PPE is stored individually (safety glasses) while other equipment is kept in a common location (gloves). Some PPE is used whenever personnel are in the lab (lab coats), while others is used for specific procedures (face shield used when pouring concentrated acids and bases). Please use the table below to describe PPE use in this lab. See Section 10 of the LSP for more information.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Where PPE is kept** |  | **When PPE is used** |
| **Eye Protection** |  |  |  |
| *Example:**Goggles* | *Drawer under microfuge Rm 232* |  | *Handling of hazardous liquids* |
| * Safety Glasses
 |       |  |       |
| * Goggles
 |       |  |       |
| * Face Shield
 |       |  |       |
| **Protective Clothing** |  |  |
| * Lab Coats
 |       |  |       |
| * Other:
 |       |  |       |
| * Other:
 |       |  |       |
| **Gloves:**  |  |  |  |
| * Nitrile surgical
 |       |  |       |
| * Latex surgical
 |       |  |       |
| * Other:
 |       |  |       |
| * Other:
 |       |  |       |
| **Other** |  |  |  |
| * Respirator
 |       |  |       |
| * Dust Mask
 |       |  |       |
| * Other:
 |       |  |       |

# Section 11 – Handling Chemical Emergencies

All labs with hazardous chemicals must have a spill kit. Standard spill kit contents are included in Section 11 of the LSP and are available through EH&S. Labs should tailor their kits to lab activities if necessary.

* **Location of Spill Kit(s)** (i.e., BSB 1223 in cabinet under spectrophotometer)

|  |  |  |  |
| --- | --- | --- | --- |
| **Equipment Description** | **Location** | **Description** | **Certification Date** |
| *1.* | *EW/DS (Eyewash/Douse showers* | *Fake Bldg 3442* | *In hall outside of main door.* | *12/25/00* |
| *2.* | *EW (Eyewash)* | *Fake Bldg 3443* | *By sink in main lab* | *1/1/01* |
| *3.* | *DS (Douse shower)* | *Fake Bldg 3444* | *By sink in room 3443* | *11/3/00* |
| 1. |       |       |       |       |
| 2. |       |       |       |       |
| 3. |       |       |       |       |
| 4. |       |       |       |       |
| 5. |       |       |       |       |
| 6. |       |       |       |       |
| 7. |       |       |       |       |
|  |  |  |  |  |

# Section 12 – Disposing of Chemical Wastes

All [chemical waste](http://ehs.ucmerced.edu/2.asp?uc=1&lvl2=39&lvl3=39&lvl4=41&contentid=96) must be disposed of through EH&S and should be called if there are any questions concerning hazardous waste generation. Please refer to Sections 8 and 12 of LSP regarding general chemical waste storage and disposal procedures.

# Section 13 – Handling Carcinogens and Reproductive Toxins

Laboratory procedures or safety SOPs for all work with hazardous materials, especially for all work with carcinogens and reproductive toxins should be included in Section 7 of this document.

Labs using carcinogens, especially those listed by Cal OSHA, must maintain an inventory, store carcinogens in designated areas, and restrict their use to areas that are known to all lab personnel. In some cases the deregulated area may include the entire lab.

* Carcinogen and Reproductive Toxin Storage Area(s):

* Designated areas for use of carcinogens and reproductive toxins:

 *Example: fume hood in room 3229 Pacific Hall*

 Decontamination Technique (use the decontamination reference list and indicate all that apply)

 Bench coat  Chemical Decontamination  Other, describe:

**Carcinogen Inventory**

|  |  |  |
| --- | --- | --- |
| Carcinogen Name | Container Size | Storage Area |
|       |       |       |
|       |       |       |
|       |       |       |
|       |       |       |
|       |       |       |
|       |       |       |
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|       |       |       |
|       |       |       |

# Section 18 – Compressed and Hazardous Gases

List **ALL** compressed gases in your lab. This information is necessary for maintaining an accurate inventory and for assessing the overall hazards in your laboratory.

***Compressed Gas Worksheet***

|  |
| --- |
| **Gas** |
| Example :  |
| 1. *95% Carbon dioxide, 5% oxygen*
 |
| 1.
 |
| 1.
 |
| 1.
 |
| 1.
 |
| 1.
 |
| 1.
 |

# Section 19 – Cryogenic Liquids

List all Cryogenic Liquids used by your lab and note where they are stored.

|  |  |  |
| --- | --- | --- |
| **Liquid** | **Storage Location** | **Use** |
| Example:  |
| *Nitrogen* | *Pacific Hall, in cross corridor across from room 3321* | *Freeze cell lines* |
|       |       |       |
|       |       |       |
|       |       |       |

UC Merced Laboratory Self-Assessment Form

**PI: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Inspector: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Rooms:**   **Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Location of Lab Safety documents** (LSP Supplement, Training Sheet, Self-Audit forms):

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Other safety issues for this lab (check all that apply):**

 Carcinogens/Reproductive Toxins  Hazardous Drugs  Controlled Substances

 HF, picric, perchloric acid  Select Agents  Centrifuge Use

 Acid Digestions  Ultra-sonication  Distillation

 Vacuum Systems  Radioisotopes  Infectious Agents

 Lasers  rDNA  Cryogens

 Field work  Nanomaterials

For each item indicate **Y**es – **N**o or **n/a**

### General Safety

* IIPP Training records maintained and current for all lab personnel?
* First aid kit available and checked monthly?
* Exit and assembly points identified?
* Emergency response guide posted in lab?
* No extension cords used as permanent wiring?
* Doors are not propped open to hall.
* Food/drinks are not consumed in the lab.

**Laboratory Safety**

* LSP Supplement Form review date:
* LSP Training records for all lab personnel?
* Eyewash/douse showers unobstructed and checked
* [PPE assessment](http://ehs.ucmerced.edu/sites/ehs/files/public/documents/UCM%20PPE%20Assesment%20tool.pdf) documented in safety binder

**Chemical Safety**

* Lab personnel know how to get chemical safety information, including MSDSs?
* Incompatible chemicals separated?
* Chemical safety information included in safety SOPs?
* No flammables in domestic refrigerators?
* Fume hood uncluttered and checked?
* Protective equipment (at least gloves and safety glasses) available for lab personnel?
* Hazardous waste labeled, closed container, secondary containment, < 90 days old?
* Spill kit available? Indicate if items used.
* Compressed gases secure?

**Comments:**

**Biosafety Highest BSL:\_\_\_\_\_ BUA#**

* Biosafety training records available where applicable?
* Biosafety Cabinet checked in last year?
* Biological waste labeled and covered?

**Radiation Safety RUA#\_\_\_\_\_\_**

* Radiation safety training records available?
* Inventory current?
* Survey meter calibrated?
* Monthly surveys complete?
* Dosimetry records current?
* Adequate shielding?
* Waste labeled and shielded

**Laser Safety LUA#\_\_\_\_\_\_\_**

* Proper goggles are available and worn.
* Interlocks prevent beam access.
* Red light in room indicates when beam is on.
* Personnel know location of MPE and NHZ.
* Doors are labeled with appropriate signage.
* Beam is below eye level.
* Beam stops are used.

**Controlled Substances**

* A logbook is kept. A logbook is kept.
* Material is stored in a locked cabinet.

**Ergonomics**

* Is anyone experiencing any pain/discomfort at the lab bench or computer workstation?
* Would you like an ergonomic evaluation? Contact ehs@ucmerced.edu

**Form 4**

**Laboratory Safety Plan Training Sheet**

All lab workers should complete this form and indicate which sections of the LSP apply to their labs. Each lab member is responsible for maintaining his or her own training records.

# Training Documentation

Sections of the LSP that apply to lab operations should be indicated by the PI and reviewed annually, or as operations change. **Each lab member** **should sign and date his or her own copy of this page** to indicate that he or she has reviewed and understands the Laboratory Safety Plan and Laboratory Safety Plan Supplement.

|  |  |
| --- | --- |
|  | **General Safety (Chapters 1 – 6 apply to all UC Merced spaces)** |
|  | 1. 1. General Safety- I found the first aid kit. (Initial here:)
 |  |
|  | 1. 2. Emergency Preparation I know the emergency evacuation gathering point (Initial here):\_\_\_\_\_
 |  |
|  | 1. 3. Fire Safety I found the fire extinguisher and pull station in my lab (Initial here): \_\_\_\_\_\_
 |  |
|  | 4. Electrical Safety I found my electrical panel. Initial: \_\_\_\_\_ |  |
|  | 1. 5. Ergonomics- I will contact my PI if I experience pain while working. Initial:\_\_\_\_\_
 |  |
|  | 1. 6. Clearance and Relocation I will not remove a green tag or use green tagged equipment. Initial:\_\_\_\_
 |  |
|  | Chemical Safety (Chapters 7 – 12 apply to all labs using chemicals) |
|  | 1. 7. Chemical Safety Basics – I know where to find a SDS and read SOPs. Initial:\_\_\_\_\_\_
 |  |
|  | 1. 8. Chemical Storage - I know where hazardous materials are stored and will keep the inventory current.
2. Initial:\_\_\_\_
 |  |
|  | 1. 9. I found and know how to use my Fume Hoods and Engineering Controls Initial:\_\_\_\_\_
 |  |
|  | 1. 10. Protective Equipment (PPE) –I know where it is stored and when to use it. Initial:\_\_\_\_\_\_
 |  |
|  | 1. 11. Chemical Emergencies – I found my spill kit, eyewash, and shower. Initial:\_\_\_\_\_
 |  |
|  | 1. 12. Chemical Wastes – I will not dump hazardous chemical waste down the drain. Initial: \_\_\_\_\_\_
 |  |
|  Lab Specific Issues (circle number below to indicate each chapter that applies) |
|  | 13. Carcinogens and Reproductive Toxins- I will only use in designated area Initial \_\_\_\_\_14. Controlled Substances – I will follow all safety and security procedures. Initial:\_\_\_\_\_\_15. Hazardous Drugs – I will follow all safety and security procedures. Initial:\_\_\_\_\_\_16. Acutely Hazardous Materials– I will follow all safety and security procedures. Initial:\_\_\_\_\_\_17. Select Agents – I will follow all safety and security procedures. Initial:\_\_\_\_\_\_18. Compressed /Hazardous Gases- If cylinders are not connected to instruments they will be capped.  Initial:\_\_\_\_\_19. Cryogenic Liquids I will wear a face shield and safety glasses or goggles when dispensing cryogens.  Initial:\_\_\_\_20. Operational Hazards – centrifuges, ultrasonicators, quenching, rotary evaporator21. Biosafety – I will work in the biosafety cabinet and not prop open lab doors Initial:\_\_\_\_\_22. Radiation Safety – I will keep a current inventory and wear dosimetry if issued. Initial:\_\_\_\_\_\_\_23. Physical Hazards |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |
| Copy this form for every person in the lab. By signing this form, you indicate you have read and understand all sections that were identified by your PI as applicable. Keep a copy in your lab safety binder. |
| Print Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  |