Department of Animal Science Lab Safety Training Guidelines for Anyone Working in a Laboratory

This guideline provides a framework for a consistent training for all individuals working in the laboratories. This can be used for both an initial training for new individuals and for the annual refresher training required by everyone who continues working in a lab, beyond one year. Additional topics (i.e. specific hazards, SOPs, and dangerous chemicals) that are lab-specific **MUST** be added to this document by the faculty in charge or the lab supervisor or "safety-person". Documentation with signatures, of annual training must be kept in the lab's safety binder, in a clearly labeled section for ease of recovery during inspections. It can also be scanned and kept on the lab computer as long as everyone in the lab can access it. <u>All individuals must have a documented lab-specific safety training not over one year old.</u> The training should be done by the PI, or lab supervisor or assigned "safety-person". Contact your Department Safety Coordinator (Leslie Oberholtzer 530.219.6664 or 530.752.1816 ljoberholtzer@ucdavis.edu) for helping to initially set-up this training and for further questions.

STEP 1. "Training Packet" Review: Individuals must read, understand and know the location of the following documents: (see below) Have the lab safety person compile this material in the lab and have everyone review them, BEFORE the safety training meeting.

The "Training Packet" should include the following, but can be custom-designed to better fit a specific lab and their specific hazards:

a) IIPP and safety PPM 290-15, -50, -65 (in the lab safety notebook(s), or as a link on the desktop, accessible by everyone and a hardcopy in the Animal Science main office).

b) Emergency Action Plan (EAP) - Must be link on everyone's computer desktop, or otherwise accessible to everyone in the lab, a hard copy is in the Main office and Evacuation Map is posted near lab entrance.

c) Chemical Hygiene Plan (CHP) is provided in the UC Davis Laboratory Safety Manual on-line and in the safety section of the Animal Science website and/or as a link on the desktop which is accessible to everyone in the lab.

d) This Training Guideline and the Department of Animal Science Hazard Evaluation and Laboratory Safety Guidelines (separate word files the safety coordinator will provide).

e) Master List of Safety Services Safety Nets (http://safetyservices.ucdavis.edu/safetynet)

f) Safety Services Laboratory Safety Manual (each lab should have the latest version or access to it

http://safetyservices.ucdavis.edu/article/laboratory-safety-manual; includes CHP above.

g) <u>Lab-specific SOPs</u> (these are VERY important, and guidelines for creating lab SOPs are listed under Safety Controls in the Safety Services Laboratory Safety Manual).

h) Post in the lab: Safety Nets <u>#8</u> "Guidelines for the Disposal of Chemical Waste", <u>#13</u> (Guidelines for Chemical Spill Control) and <u>#52</u> Emergency Medical Care.

i) Pandemic SOP: discuss safety guidelines during a pandemic. More information at the following links: <u>https://campusready.ucdavis.edu/</u> and <u>https://safetyservices.ucdavis.edu/coronavirus</u>

STEP 2. Complete Required On-line Trainings: For anyone working in a laboratory with chemicals the on-line "UC Laboratory Safety Fundamentals" training is <u>required.</u> There is a refresher training required every 3 years.

STEP 3. Hold the Laboratory Safety Meeting: General and lab specific items should be discussed during the annual safety training.

STEP 4. Closing Remarks, Training Quiz and Documentation: Remember if it is not documented it did not happen and the safety quiz helps show that material was actually reviewed (by answering questions). After all documents are reviewed in the "training Packet" and the safety quiz and meeting is completed:

1) Have the employee(s) and student(s) sign an individual training form. For "zoom" or other online meetings the "Online Fillable Forms" in the training section.

2) Explain to them that they have been trained and are agreeing to abide by the safety procedures in the work area.

3) Explain that safety is their responsibility and everyone in the lab (and between labs) should police each other (remember peer pressure is the most important method of compliance).

4) Inform the individuals that failure to comply with safety regulations, by an employee or student, can result in disciplinary action or dismissal by the Department and/or UCD.

5) Keep this training document and quiz in the training records binder of the lab.

PANDEMIC INFORMATION OVERVIEW General Information

https://campusready.ucdavis.edu/

NEW Pandemic SOP: Each lab should have a Pandemic SOP.

The purpose of the Pandemic SOP is to offer guidance while working during the COVID-19 pandemic. The SOP includes topics pertaining to Health Considerations, Physical Distancing, Movement around Meyer Hall and Animal Science Facilities, and General Guidelines for Working in a Laboratory. All members of the laboratory must read, understand, and sign the Pandemic SOP. This SOP is fluid, meaning changes may occur at any time depending on the current campus, CDC, Federal and Local guidelines. Lab members will be informed if the SOP is updated or amended.

REQUIRED CAMPUS TRAINING: <u>https://campusready.ucdavis.edu/training</u>

This short, online course provides basic information about reducing the spread of the coronavirus, describes some of the strategies that may be used on campus to reduce the spread of COVID-19 and identifies where to find the latest information regarding the return to normal campus operations. **Sept. 25 is the deadline to complete the course** for employees who are currently working in-person and those who expect to return to campus before January 2021. All other employees, regardless of remote working status, are required to complete the course by Dec. 15 at the latest.

REQUIRED DAILY SYMPTOM SURVEY: <u>https://campusready.ucdavis.edu/daily-symptom-survey</u>

A daily symptom survey is a requirement for all UC Davis-operated facilities anywhere in California and serves as a reminder to pay attention to your symptoms.

CAMPUS REGULATIONS: https://campusready.ucdavis.edu/do-your-part

- 1. FACE COVERING: A face covering is required at all times inside Meyer Hall, and outside if you are within 6 feet of anyone. The only time a face covering is not required is when you are alone in an enclosed room with absolutely no one else around. If one lab member is in 1301 and another in 1303, you both must wear face coverings.
- 2. SOCIAL DISTANCE: you must keep a social physical distance of <u>6 feet</u> with anyone.
- 3. WASH YOUR HANDS: wash your hands frequently, especially after visiting common areas. Use hand sanitizer if available. Avoid touching your face.
- 4. DAILY SYMPTOM SURVEY: you must take the daily symptom survey once a day before entering your first building on campus. If you are sick, stay home! Report positive cases.
- 5. DISINFECT: Disinfect common areas with 70% EtOH (e.g., door handles, light switches, pens, etc.) before and after using the room.
- 6. SIGNS: follow the signs posted around the building regarding one-way traffic, stairwell traffic, elevator occupancy, common room occupancy, restroom occupancy, etc.
- 7. GLOVES: wear gloves as you normally would for laboratory procedures. Do not wear gloves around the building to touch common areas such as door handles. Use a paper towel, your elbow or your sleeve to open doors. If you use your bare hands to touch common areas, do not touch your face and wash your hands immediately.
- 8. COMPLIANCE: do not feel bad asking someone to wear their mask or to keep their distance. We all need to do our part!

FLU VACCINE: https://campusready.ucdavis.edu/flu-vaccination

Employees and students are required to get the flu vaccination **by November 1, 2020**. Please visit the flu vaccination information page for important updates about the flu vaccination requirement as well as the flu clinics offered on campus.

PANDEMIC INFORMATION OVERVIEW Common Laboratory Rooms

https://campusready.ucdavis.edu/

GUIDELINES FOR MEYER HALL COMMON LABORATORY ROOMS

- Bring your own PPE/Mask.
- Bring your own pen.
- Sign in (and out) of the user sheet posted on the door.
- If the door has a Vacant/In Use sign, flip it to the correct occupancy of the room.
- Disinfect the room (whatever you have used as well as common areas such as door handles, light switches, pens, etc.) with 70% Ethanol <u>before and after</u> use. If there is no disinfectant available in the room or it is in low supply, contact DSC Leslie Oberholtzer or bring a disinfectant from your own lab in the meantime. Do not use bleach disinfectants on equipment.
- In smaller common rooms (e.g., 1315, 1419), the rule is one person in the room at a time. If two people are in the room, both must wear masks and keep a distance of 6ft apart. If someone is already in the room, before entering, please ask them if they are comfortable with having another person in the room.



WEAR FACE COVERINGS

MAINTAIN PHYSICAL DISTANCE



WASH YOUR HANDS FREQUENTLY



MONITOR YOUR SYMPTOMS, STAY HOME IF YOU'RE SICK AND REPORT POSITIVE CASES



DISINFECT YOUR PERSONAL AND SHARED SPACES REGULARLY

PANDEMIC INFORMATION OVERVIEW

https://campusready.ucdavis.edu/

MASKS

Type and Intended Use of Face Coverings						
Туре	Cloth Face Covering	Disposable Mask	Medical-Grade Surgical Mask	N95 Respirator		
Description	Home-made or commercially manufactured face coverings that are washable and help contain wearer's respiratory emissions	Commercially manufactured masks that help contain wearer's respiratory emissions	FDA-approved masks to protect the wearer from large droplets and splashes; helps contains wearer's respiratory emissions	Provide effective respiratory protection from airborne particles and aerosols; helps contain wearer's respiratory emissions		
Intended Use	Required for campus community use in non- healthcare settings (office spaces, general research/work settings, shops, community areas where 6-feet physical distancing cannot be consistently maintained. Must be replaced daily. (While likely necessary for ingress and egress, not required when working alone in an office).		These masks are reserved for healthcare workers and other approved areas with task-specific hazards determined by OESO.			

WASHING HANDS

Туре	Soap and Water	Alcohol-Based Hand Sanitizer	
When to Use	 After entering from outside. Before and after eating. After using the restroom. After taking out or touching garbage. After blowing your nose, coughing or sneezing. When your hands are visibly dirty or greasy. 	 After entering a building if a washroom is not immediately available. After coming in contact with high-touch surfaces and/or equipment if a washroom is not immediately available. After blowing your nose, coughing or sneezing. Do not use hand sanitizer if your hands are visibly dirty, wash with soap and water instead. 	
How to Use	 Wet your hands with clean, running water then apply the soap. Lather your hands front and back, between your fingers and under your nails. Scrub for at least 20 seconds. Rinse under running water. Dry using a clean towel or air dry. 	 Make sure it contains at least 60% alcohol. Use enough to cover your hands completely Rub your hands together until they feel dry. Do not rinse or wipe off before it is dry. 	

LAB SAFETY INFORMATION OVERVIEW

Also see https://safetyservices.ucdavis.edu/

IIPP (Injury Illness Prevention Plan): https://animalscience.ucdavis.edu/sites/g/files/dgvnsk446/files/inline-files/animal-science-iipp%2012.26.2019_0.pdf

The purpose of an Injury & Illness Prevention Program is to establish a management framework for reducing the risks associated with workplace injuries and illnesses, and identifying what is required to promote the safety and health, and create an outline of policies and procedures to achieve safety and health goals.

The program must be in writing and include the following elements:

- 1. Management commitment/assignment of responsibilities
- 2. Safety communications system with employees
- 3. System for assuring employee compliance with safe work practices
- 4. Scheduled inspections/evaluation system
- 5. Accident Investigation
- 6. Procedures for correcting unsafe/unhealthy conditions
- 7. Safety and health training and instruction; and
- 8. Recordkeeping and documentation

CHP (Chemical Hygiene Plan): https://safetyservices.ucdavis.edu/article/laboratory-safety-manual

The information provided in the UC Davis Laboratory Safety Manual, which contains the campus Chemical Hygiene Plan (CHP), has been compiled from a variety of sources. These include people and organizations within the University of California, as well as external sources. This lab manual should be read in conjunction with these references, which provide expanded coverage and more specific applications of health and safety concepts that are treated generally here. Many of the supporting sources are referenced electronically, and as such electronic interaction with this manual is preferred. The CHP describes the foundational elements of chemical safety for research laboratory environments.

EAP (Emergency Action Plan): https://animalscience.ucdavis.edu/sites/g/files/dgvnsk446/files/inline-files/animalscience-emergency-action-plan%202020.pdf

https://safetyservices.ucdavis.edu/article/emergency-action-plan-eap

Cal-OSHA regulations require every employer to establish, implement, and maintain an Emergency Action Plan (EAP). The program must be in writing and include the following elements:

- Emergency escape procedures and emergency escape route assignments.
- Procedures to be followed by employees who remain to operate critical plant operations before they evacuate.
- Procedures to account for all employees after an emergency evacuation have been completed.
- Rescue and medical duties for those employees who are to perform them.
- The preferred means of reporting fires and other emergencies.
- Names or regular job titles of persons or departments who can be contacted for further information or explanation of duties under the plan.
- A system to notify employees of an emergency.
- Training for all employees on the EAP.
- The written plan must be kept in the workplace and made available for employee review.

UC Chemicals (Inventory System): https://safetyservices.ucdavis.edu/article/uc-chemicals

UC Chemicals is a web based system that facilitates the collection and storage of information related to chemical types and amounts within campus laboratories and facilities. A chemical inventory for each laboratory is maintained through UC Chemicals via ermsp.ucop.edu

LHAT/PPE (Lab Hazard Assessment Tool/Personal Protective Equipment): <u>https://safetyservices.ucdavis.edu/article/hazard-assessment-tool</u>

The Laboratory Hazard Assessment Tool (LHAT) has been created as part of the University of California's commitment to continuing a culture of safety. LHAT is a web-based system intended to identify and communicate hazards present in a laboratory or research area. Once the hazards are identified, staff can take appropriate Personal Protective Equipment (PPE) training and print a voucher that can be exchanged for PPE. LHAT will be used by all academic appointees, staff, students, and visitors to prevent workplace illnesses and injuries.

New personnel need to be added to LHAT upon starting in the laboratory. Personnel roster needs to be updated as needed. Campus requires each member of the lab be fitted for PPE (Personal Protective Equipment) lab coat and goggles; gloves provided by individual labs. PPE can be re-assigned from one lab member to another if the PPE is compatible in fit and use.

SOPs (Standard Operating Procedures): In white binder on 1301 bookshelf

Cal/OSHA requires that standard operating procedures (SOPs) be established for work with hazardous chemicals. This requirement is stated in <u>8 CCR §5191</u> (Occupational Exposure to Hazardous Chemicals in Laboratories, "Laboratory Standard") under the provisions of the Chemical Hygiene Plan. SOPs document the laboratory-specific procedures for the safe handling, storage, and disposal of hazardous chemicals. Principal investigators and laboratory supervisors are responsible for establishing SOPs relevant to health and safety for laboratory activities involving hazardous chemicals.

- You must read and sign the Working Alone SOP prior to doing ANY work in the lab.
- You must read and sign each chemical SOP prior to use if it applies to the work you will be doing in the laboratory.
- You must read each chemical SDS prior to use if it applies to the work you will be doing in the laboratory.
- You must read and sign the Pandemic SOP.

WASTe (Waste Accumulation Storage Tracking electronically): https://safetyservices.ucdavis.edu/article/waste

WASTe is a web-based system that facilitates regulatory compliant labeling, tracking, collection and disposal of hazardous wastes. This application provides an interface between Principal Investigators/Responsible Persons, lab staff and other generators of regulated wastes and the waste management staff. Labeling, tracking, collection and disposal of hazardous waste.

Glove and lab coat etiquette:

- Never walk anywhere outside the lab with both hands gloved! Even if the glove is clean, common etiquette demands that you only use glove-free hands for common surfaces (including computers!).
- If you walk in common areas (lab side), one hand must be un-gloved in order to open doors, press elevator buttons, etc. If this is not possible then someone needs to walk with you and touch common surfaces for you.
- Lab coats and gloves should not be worn on the office side of Meyer Hall. You should remove these items when you leave the lab and put them back on when you re-enter the lab. You may wear your lab coat in the hallway (lab side) to walk from one lab to another.
- Avoid wearing a lab coat or gloves to the restroom. Do not throw used gloves away in the restrooms.
- Avoid touching your cell phone with gloves!

Proper labeling of items in the lab

- Remember to label everything in the lab even if it is only water! Label the item with your initials, date, item
 name (if it is a chemical, use only approved abbreviated name otherwise it must be spelled out completely),
 any hazardous information such as "wear gloves when handling", "corrosive", "wear goggles", etc. If the item
 will leave the laboratory, then "(your lab name) Lab" must be indicated on that item (for example, storage in
 the walk-in refrigerator or freezer).
- When storing samples in freezer boxes, label the box with your name, lab name, date, and project. It is helpful to place "a sample legend" in the box in the form of a piece of paper in a cover sheet to protect the paper if it gets wet. A disposal date must also be indicated. Improperly labeled samples in freezers are subject to disposal at any time!

SAFETY LINKS for Computer Desktops:

These links must be on your desktop regardless of what computer you are using in the lab.

http://animalscience.ucdavis.edu/resources/safety/index.html RENAME link to say: ANS SAFETY

http://safetyservices.ucdavis.edu/ RENAME link to say: UCD SAFETY SERVICES

http://safetyservices.ucdavis.edu/article/laboratory-safety-manual RENAME link to say: UCD SAFETY MANUAL & CHP

http://safetyservices.ucdavis.edu/article/safety-data-sheets RENAME link to say: SDS LINK

Department Safety Coordinator (DSC): Leslie Oberholtzer Department of Animal Science 1251 Meyer Hall Phone: 530-752-1816 Cell: 530-219-6664 Fax: 530-752-0175

Alternate Safety Coordinator: Janelle Belanger-Sandoval Department of Animal Science 1301 Meyer Hall Phone: 530-752-1046 Cell: 530-304-0148

Department of Animal Science Lab Safety Training for Anyone Working in a Laboratory

A. General Safety Information Available On-Line:

- Individuals must be able to navigate to and within the UCD Safety Services website

(<u>https://safetyservices.ucdavis.edu/</u>). There is a wealth of information on safety, specific training classes that can be attended, and numerous sources of SDS's, to list just a few of the links available. Safety Services SafetyNets (<u>https://safetyservices.ucdavis.edu/safetynet</u>) cover a variety of general safety and laboratory safety topics. They are all available on line and copies relevant to the lab should be in the safety binder and are useful during training. These hard copies should be replaced every couple years as they are continually revised by Safety Services (the most recent revision date is printed at the end of each safety net). Individuals can review the entire master list on-line. For general lab safety, beyond the Department Guidelines, review safety net #8 Guidelines for Disposal of Chemical Waste, and #13 Guidelines for Chemical Spill Control should be reviewed at each training.

- Individuals must be able to navigate to and within the UCD Campus Ready website regarding Pandemic information https://campusready.ucdavis.edu/

<u>B. General Laboratory Safety</u>: Discussion of the importance of safety in the lab for yourself and others working around you.

1) There are many hazards in laboratories: toxins, carcinogens, corrosives, radiation. Focus on your lab's primary hazards.

- 2) Others may be working with hazards around you, keep aware.
- 3) Always wash hands before leaving work and/or eating.
- 4) Electric shock hazards, check cords (https://safetyservices.ucdavis.edu/article/fire-prevention-safetynets)
- 5) Proper lifting procedures (safety net <u>#46</u>).
- 6) Tripping and falling hazards (keep a clutter free lab).
- 7) Earthquake: overhead storage awareness.
- 8) General housekeeping policy (simply means everyone cleans up after themselves).
- 9) Ergonomic issues; pipetting, computer stations (safety net #17, #27, #41).
- 10) Security issues; locking doors, stranger identification.
- 11) No food in chemical labs (UCD policy and OSHA regulations).

C. Safety Data Sheet (now SDS, previously called MSDS):

Know the potential hazards of each chemical you are using. Review the SDS's, which can be located via a web link to a SDS data base. A shortcut icon to the data base should be on a lab computer desk top and accessible to all in the lab. Safety net #<u>45</u> (Glossary of SDS Terms) is useful for first time users.

You can search for SDS's here: http://safetyservices.ucdavis.edu/article/safety-data-sheets

D. Emergency Procedures: Emergencies and FAQs

1) How and when to call 911 or 530-752-1234(Fire)(530-752-1230 Police) (most cell plans are now able to handle campus 911 calls to stay on-campus and not go out to the CHP).

2) Location and use of fire extinguisher and pull stations. (Free fire extinguisher class once a month at the campus fire department). Know the location of your closest extinguisher and pull station.

3) Location and use of first aid kit. (No expired products in first aid kit)

4) Evacuation plan and assembly area for headcount (posted near lab door). Because the actual persons present in the building will vary hour-to-hour, every lab needs to be responsible for their lab and make sure everyone is evacuated, when required. If someone refuses to evacuate, do not try and force them, but contact (depending on who is actually present) either the lab PI, the Department Safety Coordinator, the Department Chair or Vice Chair, or someone on the Department Safety Committee, depending who is available. Also inform one of the above listed, if you know someone

is missing or know something about the emergency (i.e. you pulled the fire alarm) so they can communicate to the emergency responders.

* See evacuation map posted near exit doors.

5) Injury/Illness must be reported to the supervisor and the necessary forms completed ASAP (within 24 hours). The front office personnel have the injury and workers compensation forms for supervisors, the new online form can be completed at: <u>https://ehs.ucop.edu/efr/</u>. The online version is faster and automatically sends notification to everyone that should be notified. Do the online OR hard copy forms, but not both for the same injury.

E. Chemical Use and Handling:

1) Choice and use of PPE (see section G below). Availability and location of safety equipment.

Full length pants (or equivalent) and closed toe/heel shoes must be worn before entering the laboratory. (The area of skin between the pant and shoe must not be exposed).

2) Location and use of spill kit (see section H below, read safety net #13 and it should be posted).

3) Chemical handling; read SDS and follow lab SOP's.

4) Storage of flammables, corrosives, carcinogens (incompatibles keep segregated, safety net #42 and #43).

5) Hazardous waste storage and disposal (who is responsible for completing the label? safety nets #8, #43, #110) *

IMPORTANT: * <u>All hazardous waste containers need a completed label!!!</u> However, if you have a collection container that is collecting a "used" substance, used media for example, this does not require a waste label – you can't call something waste unless it is truly waste (it is waste then it is Hazardous and SAFETY SERVICES must pick it up). If you do not know what should and what shouldn't be called waste, ask!

6) List of Prop 65 chemicals known to cause cancer or reproductive toxicity. <u>https://dtsc.ca.gov/scp/authoritative-lists/</u>

7) Label all prepared reagents/media (everything, even a wash bottle of water).

IMPORTANT:* Label anything you make (even water!) with Full Chemical name and properties (pH, molarity, etc.), your name, and date it was made. Note any hazards on the bottle (i.e., "toxic, must wear gloves").

8) Biohazard labels where needed. Chemical abbreviations can only be used if a list of abbreviations and their full chemical names is posted in a prominent place near said chemicals.

F. Common Areas: PLEASE keep common areas clean!

SAFETY TRAINING AND AUTHORIZATION IS REQUIRED PRIOR TO USING ANY EQUIPMENT IN COMMON ROOMS

1) Label all containers of chemicals (liquid or dry) with lab PI name and date received/opened. Everything needs a label, even if it is plain water!

2) Complete label for all reagents/media (full name of chemicals NOT abbreviations or chemical formulas).

3) Walk-in refrigerator and freezer storage containers must have the lab PI name, date stored, contents identified.

4) Review Pandemic SOP for use of common areas during a pandemic

<u>Common Rooms & Equipment: Contact Leslie Oberholtzer, Janelle Belanger-Sandoval or Barbara Jean Nitta-Oda for</u> <u>access:</u>

1315: UVP, Nanodrop, spectrophotometer, qPCR, shaker, plate centrifuge

1335: Histology (contact Leslie Oberholtzer for training)

1419: Large autoclave; Nanopure water system

1420: ELISA plate reader (contact Dr. Hovey for training and use)

2302: Small autoclave, ice machine

Meyer Hall loading dock: EtOH storage room (see purchasing office for access) and gas cylinder storage (contact Leslie Oberholtzer for information).

G. Personal Protection and First Aid:

1) Wear eye protection (safety goggles or eye glasses) whenever you are working with materials that can injure your eyes (#<u>5</u>)

2) Wear hand protection. Nitrile rubber is recommended when handling corrosives and organics. DO NOT touch non lab surfaces with gloves (door knobs, phones, and elevator buttons). Refer to safety net #50 (Guidelines for the Selection of Chemical-Resistant Gloves) for guidance.

3) Wear a lab coat to protect your clothing and to act as a first barrier. Protective aprons should be worn when handling highly corrosive materials.

4) Open-toed shoes or sandals, or shorts, leggings, capris etc. are not permitted when working with chemicals or entering the lab, even if no work is being done. Pants should be free of holes.

5) Know the location of the nearest emergency eye-wash stations, showers, first aid kit, fire alarm pull-stations, fire extinguishers, and exits. Each room should have at least 2 exits not block by anything. Familiarize yourself with the eye wash and shower operation (for a hands on demonstration contact the Department Safety Coordinator). If you don't know how to use a fire extinguisher, take the free class at UC Davis fire dept which is held every month. 6) PPE should never be worn outside of the lab side, nor in the restroom, lunch areas, etc.

H. Chemical Emergencies to an Individual; First Aid Measures: In a chemical emergency do not hesitate to follow these procedures because a spill or contact seems too trivial. It is better to overreact.

1) For skin contact, flood the affected area with water immediately and continue flooding for at least 15-20 minutes. If a substantial portion of the body is involved, use a safety shower and remove affected clothing and shoes. Ask for help and modesty controls if needed, as an activation of a hallway shower will alert plenty of assistance.

2) For eye contact, flood eyes (while holding them wide open with your fingers) with water and continue flooding at least 15-20 minutes. Contact lenses if worn will probably be washed out, if not remove them. Ask for assistance as holding your eyes open can be difficult and tiring.

If an eye wash or shower is used, and it is a serious injury (or if you are not sure) then call Emergency Medical Services (911 or 530-752-1234 on cell or land lines), SAFETY SERVICES (752-1493), and custodial (530.752.1655) in that order. If not life-threatening and you are an employee, call Occupational Health (752-6051) now located at the Cowell Building (former Cowell Student Health Center) or if you are a student, call the Student Health and Wellness Center (752-2349), if after hours/weekends call Sutter Davis Hospital (756-6440). Custodial must be requested to clean up the water. If someone is using the eye wash or shower, someone else should be getting a copy of the SDS of the chemical(s) involved to provide to emergency personnel.

3) For inhalation or ingestion, follow directions on the product SDS and call the contacts listed above.

I. Chemical Spill Emergencies: Safety Net #13

1) For Liquid Spill volumes greater than 500 ml (1 pint, about the area of an 8 1/2" x 11" sheet of paper) or any amount of extremely toxic substance, evacuate and seal the area. Call the Fire Department (911 or 530-752-1234 on cell or land lines), and SAFETY SERVICES (752-1493), in that order. If you suspect or know the substance is flammable, extinguish or remove all ignition sources before sealing the room. If it's a spill in the stairwell, hallway or elevator, pull the fire alarm to evacuate the building.

2) For spill volumes less than 500 ml and the substance is not extremely toxic, check the container or SDS for special instructions. If no instructions are immediately available, encircle and cover the spill with absorbent material until the liquid is adsorbed. Neutralize strong acids with sodium bicarbonate, sodium carbonate or calcium hydroxide after absorbing. For formaldehyde and mercury spills read safety nets #<u>13</u> and #<u>16</u>, respectively.

3) Solid spills are not usually emergencies. If the spilled material is toxic, use damp cloths or paper towels to transfer the material to plastic bags. Sweeping or brushing dry material may cause airborne dust.

4) Any absorbed spill material must be transferred into double plastic bags, sealed and disposed of as hazardous waste.

J. Radiation Use

1) Explain radiation use in the lab, if applicable. There is mandatory training (SAFETY SERVICES class).

2) Describe the lab's RUA and protocols (including appropriate PPE).

3) Radiation labeling and log book, including date, isotope and amount.

4) Read safety nets #<u>9</u>, #<u>10</u>, #<u>37</u>, #<u>61</u>, #<u>67</u>, #<u>71</u>, #<u>78</u>.

K. Biological Use and Animal Use

1) If you are listed on a BUA or IACUC protocol, you must review the protocol and be trained annually.

2) Specific campus training is also required for these protocols, see Safety Services website for details.

L. Specific Training is Required for Equipment or Procedures which may have Inherent Dangers: Document any equipment-specific or procedure-specific training (you can create your own training document(s) to cover these. Remember, document all training, with signatures and dates.*

M. Discuss Open-Door Policy for Safety Issues:

1) Name of key individuals (lab's safety person, Department safety coordinator, Chair of the Department, can call SAFETY SERVICES or CalOSHA ("whistle blower" laws).

2) Explain that all complaints are addressed and their names are kept confidential.

3) Inform employees of the pregnancy policy at UCD (SAFETY SERVICES monitoring) (#54, #107, #108)

N. Pandemic SOP https://animalscience.ucdavis.edu/about/resources/safety-department

The purpose of the Pandemic SOP is to offer guidance while working during the COVID-19 pandemic. The SOP includes topics pertaining to Health Considerations, Physical Distancing, Movement around Meyer Hall and Animal Science Facilities, and General Guidelines for Working in a Laboratory. All members of the laboratory must read, understand, and sign the Pandemic SOP. This SOP is fluid, meaning changes may occur at any time depending on the current campus, CDC, Federal and Local guidelines. Lab members will be informed if the SOP is updated or amended.

Since CUPA is one of the critical inspections on-campus (and also CALOSHA) the following must be carefully reviewed each year.

<u>CUPA Requirements (read Safety Net #120)</u>: Every three years the county will inspect all chemical laboratories that have hazardous materials, they are specifically looking at waste handling and training documentation. And technically they may inspect any lab at any time. Because of this each lab must conduct an annual <u>CUPA self audit</u> and the following should be reviewed at each initial and refresher training:

- (1) Are chemical hazardous waste containers disposed of through SAFETY SERVICES within 9 months of the date that waste was first placed in the containers, or 90 days if 1 pound or 1 quart of acutely hazardous waste is accumulated? (acutely hazardous chemicals list available on the SAFETY SERVICES website).
- (2) Does each waste container have a completely filled out waste label? (online wastE label)
- (3) Are waste containers kept closed with a secure lid except when adding waste?
- (4) Are waste containers in good condition and compatible with the chemical waste?
- (5) Are waste containers properly managed? (i.e., incompatibles segregated, secondary containment).
- (6) Is an accurate updated (at least annually) chemical inventory submitted to SAFETY SERVICES via the on-line UC Chemicals (chemical inventory system)?
- (7) Are SDS's available for all chemicals?
- (8) Are personnel in the lab trained on procedures for spills? Are spill procedures posted in the lab (safety net #<u>13</u>)?
- Relative to the CUPA Inspections, the following should also be reviewed:
- a) Methods for safe handling of lab-specific hazardous materials should be reviewed.
- b) Based on SDS wear appropriate PPE (safety goggles, gloves, lab coats, closed-toed shoes, etc).
- c) Know the location of the labs SDS's, and chemical spill control kit.
- d) Know the location of the nearest eyewash, shower, and fire alarm.
- e) Know the procedures for evacuation and notification of emergency personnel.
- If it is a spill larger than a piece of paper, evacuate the lab of all individuals, make sure doors are closed and call 911. If it is a large spill that could affect those outside the lab pull the fire alarm to evacuate the building (i.e., a spill of one gallon of formalin in the stairwell, a gallon of phenol in a lab). If you are not sure...pull the fire alarm. f) Meeting site for the Department of Animal Science during an evacuation is the asphalt path north of Meyer Hall.

CUPA (Certified Unified Program Agencies)

The inspectors have been known to ask lab individuals about hazardous materials in the lab. Make sure you can answer the following questions:

Can I see the training documentation for that person? (pointing to someone sitting at a lab bench) *(Know where training records are kept in your lab)*

What hazardous wastes are accumulated in this lab? And where are they?

What would you do if a gallon of nitric acid was spilled on the floor?

Nitric acid spills can be extremely dangerous. If the spill is large (greater than 1 liter of concentrated acid or more than you have materials to handle), evacuate the laboratory, close the doors, and call 911. If the spill is less than 1ml of concentrated acid or 100ml of dilute acid is spilled, the spill can be neutralized by adding soda ash or sodium bicarbonate and rinsing with copious quantities of water. After the spill is soaked up with a dry material, double bag it, put a waste label on it and request disposal through SAFETY SERVICES. In general, when 1 pint or more of a hazardous material or any amount of an extremely toxic substance is spilled or when in doubt, call UC Davis Fire Department (**911 – cell or land line**) or (**530**) **752-1234.** Evacuate the room, close the door, and wait for emergency personnel.

What would you do if 100 mls of 70% ethyl alcohol was spilled on the floor?

For 70% alcohol, soak up with paper towels or a spill pillow and then let it evaporate under a hood, then throw away the towels in the trash. 70% is routinely used to "clean" bench tops and is really not too hazardous, so you could also just throw the towels in the trash as it will evaporate slowly anyway. Up to 24% non-hazardous solutions can go right down the drain.

Where are your lab's spill kit materials?

Some problems that can be cited by CUPA with FINES:

(1) All machines that have liquids being pumped out of bottles, and "waste" or "wash" bottles with tubes going into them (from HPLC's, autoanalyzers, etc) must all have a secure cap or rubber stopper with a drill hole with the tube going through it. <u>PARAFILM</u> is not good enough. Check on this in all your labs and work areas in common rooms. Remember if your "out" containers are true "waste" then they must have a completed waste label.

(2) They are opening cabinets at random, under sinks and throughout the labs, looking for "hidden" wastes or expired chemicals (like ether), or old containers with crystallizing deposits around the cap. Walk through your labs with a critical eye and check those cabinets.

(3) Unlabeled containers of liquid are also being looked for. Make sure there is a <u>legible</u> label of the complete chemical name or if it is a mixture the names and percentages, name of the creator or lab, and also very highly recommended...date made.

EMERGENCY EVACUATION PLAN

Meyer Hall



An Example of a Common Abbreviations posting: Common Chemical Abbreviations Used in This Laboratory

BSA = Bovine Serum Albumin

EDTA = Ethylenediaminetetraacetic acid

EtOH = Ethyl Alcohol

H2O = Water

NaCl = Sodium Chloride

NaOH = Sodium Hydroxide

NF H_2O = Nuclease-Free Water

PBS = Phosphate Buffered Saline

Prot K = Proteinase K

SB = Sodium Borate

TAE = Tris Acetate EDTA

TAQ = Taq Polymerase

TB = Tris Borate

TBE = Tris Borate EDTA

TEK = Teknova DNA buffer (Tris-HCl + EDTA)

TRIS = Tris(hydroxymethyl)aminomethane

Tris-HCl = Tris-Hydrochloride