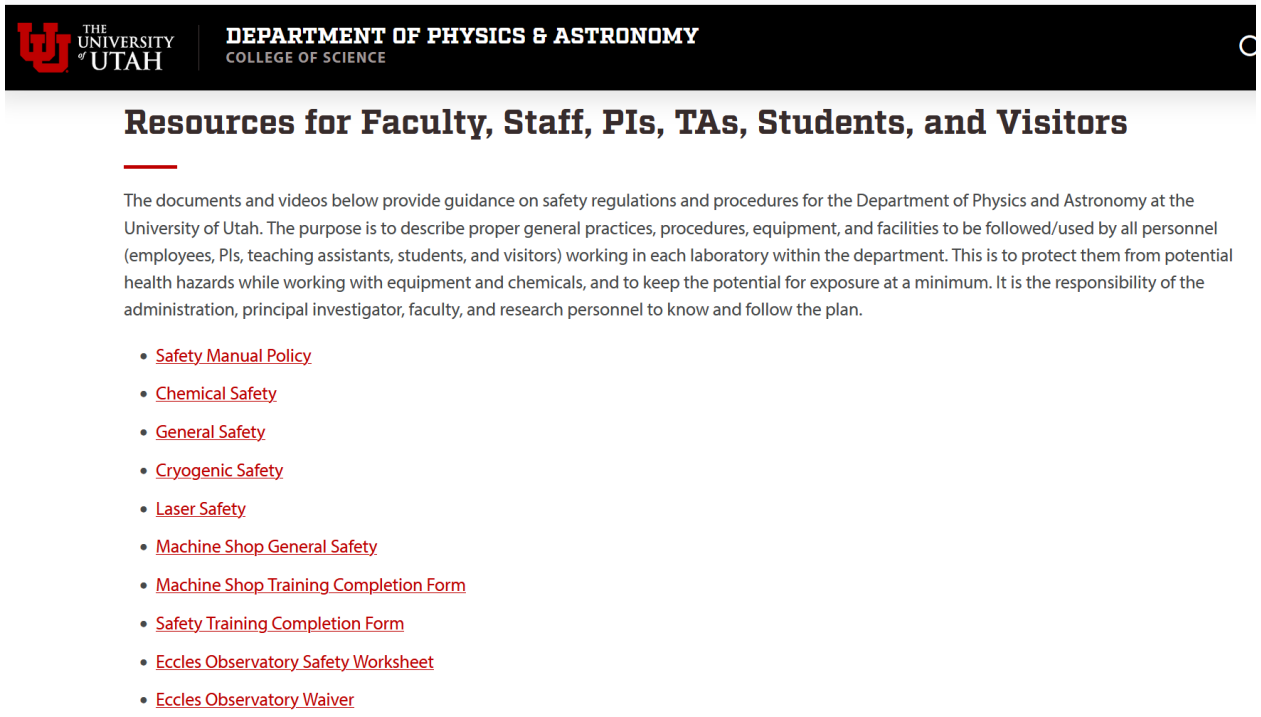
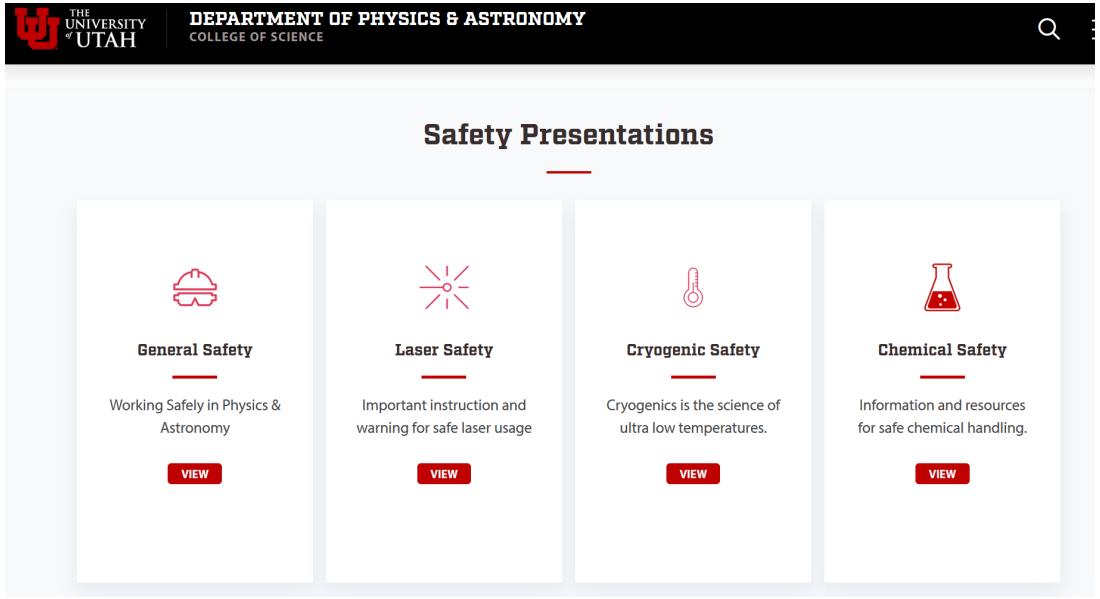
Physics and Astronomy (and ATMOS?) safety training day (2026.09.11)

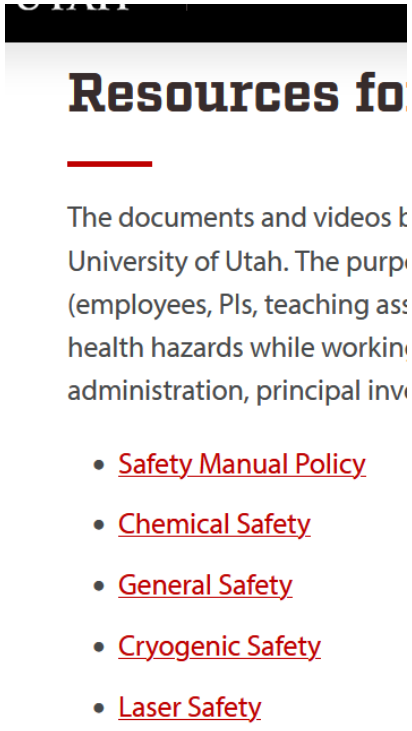
1) Goals and status of safety presentations: General Safety covers mostly what is needed; Chemical, Laser and Cryogenic are more generic and need to be followed up at the level of the groups.
2) New building – modification of our safety rules and practices is almost complete.

https://www.physics.utah.edu/safety/ your resource of information



Links to Safety videos. They will stay the same





Categories

1) Department Chair: Oversees safety
2) Safety committee: Safety Day. Investigate Accidents. Safety Documents. Assist Office of EHS (environmental health and safety), other small tasks.
3) **Supervisors** (lab directors, teaching lab instructors, facilities directors and supervisors, section supervisors (e.g. Valerie Smith is a supervisor for the front desk office),
   Huge range of responsibilities. Check the manual.

special category: course instructors, TAs and LAs (limited responsibilities)

4) Group safety officers.
5) Personnel:

Group A: graduate students, undergraduate students involved in research
Group B: graduate and undergraduate students, faculty and staff members not involved in lab activities in the department labs and facilities (e.g. astronomers, theorists, TAs, LAs,) Responsibilities in short: know, understand and follow all *general* safety rules and regulations.

Bookkeeping

Personnel Group B

Personnel Group A,
Supervisors of labs, facilities

Off – cycle safety training:
Supervisors must arrange safety training for new students joining labs, new staff members, new TAs and LAs. In most of the cases this should as simple as: safety videos, discussion, signing the form.

Department safety completion form

Department of Physics and Astronomy, University of Utah

General Safety and Chemical Hygiene Plan Completion Form

I, _____
(print full first and last name)

have read, and/or attended the safety training sessions and agree to follow all of the safety rules described in the Department General Safety and Chemical Hygiene Plan and in the Safety Presentations. I realize that I must obey these rules to insure my own safety, and the safety of those around me.

I realize that I must also complete the lab specific training outlined by my supervisor before beginning work in my laboratory.

I am aware that any violation of this contract that results in unsafe conduct in the laboratory or irresponsible behavior on my part, may result in dismissal from the laboratory and more serious consequences may result.

My supervisor/professor is _____

General safety
Signature:_____ Date: _____

PI/ safety committee rep Signature: _____Date:_____

Chemical safety:
Signature:_____ Date: _____

PI/ safety committee rep Signature: _____Date:_____

Laser safety:
Signature:_____ Date: _____

PI/ safety committee rep Signature: _____Date:_____

Cryogenic safety:
Signature:_____ Date: _____

PI/ safety committee rep Signature: _____Date:_____

Lab specific training: (….

Signature:_____ Date: _____

PI/ _____Date:_____

(Committee recommends that the participant keep one copy of this form, the other copy should be collected and kept by a supervisor or by the safety committee. In the later case the scanned copy of the form will be sent to the supervisor)

Emergency Evacuation Plan and Assembly Points. Fire, Earthquake, Chemical Spill
Building numbers: LSSB (Skaggs Applied Science) #18, ST (Stewart) #6

A Captain = Alex Munoz

B Captain = John Cornell

C Captain = Calvin Dittmore

All Personnel

When you hear an alarm sound, or receive an emergency alert, leave and assemble at the designate EAP (at least 50 ft away from the buildings) and await further instructions.
Emergency Alert: Sign up via link in https://alert.utah.edu/

Class instructors, TAs, LAs: evacuate your classes.

Floor captains:

1st floor Stewart: Calvin Dittmore
2nd floor Stewart: Alex Munoz
B1,B2 LSSB: Eric Montoya, Andrey Rogachev
1st floor LSSB: James Norwood
2nd floor LSSB: Valerie Smith, Kevin Davenport, Tino Nyawelo, Kelby Hahn
3rd floor LSSB: Sally Benson
4th floor LSSB: Paul Ricketts

Direct people to assembly points. Check if everybody has evacuated from the designated area.

Secure-in-Place. Active aggressor/violent activity

Instructions by UU: https://publicsafety.utah.edu/active-threat-preparedness
We are still in the process of developing our complete response plan.
An introductory training video is **required for all university employees**. This 8-1/2 minute video provides an overview of the basic elements of preventing, preparing for, and responding to active threats. Staff and faculty should access the training via Learning Hub or University of Utah Health's LMS system. Students can access the introductory training on the Department of Public Safety's website (**refer to video below**). It will also be integrated into student Community Standards Courses for Fall 2026 enrollment.

Basics:

Run: The second you think you hear gunshot, look for the nearest exit and run away from the sound. Help other to get out. When you clear from the building and in a safe place call 911.
Hide: If you cannot safely evacuate, hide. You may also receive an instruction to shelter in place through the University Alert System. Lock or barricade the door, turn off the lights, close the curtains or blinds, silence phones and other electronic devices, and remain quiet and out of sight, away from doors and windows. Experimental laboratories may provide suitable shelter because many have lockable doors and few or no windows—for example, the Cosmic Ray Laboratory and Nick Boris's laboratories on the second floor of LSSB.
Fight: (instructions collected by John Cornell). When you have no options left, fight. Fight dirty – throw stuff as hard as you can. Tackle the shooter high and low. Subdue the gun. Gouge the eyes. Plan and work together.
Help: When you are safe, help other around you. This might be helping to stop bleeding or helping others get to safety

Be aware that carrying a firearm is permitted on the University of Utah campus. If you carry one, we strongly discourage using it in self-defense, as there will likely be many people nearby, including others who may also be armed and acting in self-defense.

Message to instructors, TAs, and LAs: If possible, help your class evacuate or move to a safe location. However, you are not required to do so as part of your job duties.

Panic button: locations: break rooms, Wilkes center; big lecture half, front office (hidden under tables)
When pressed, a panic button silently alerts University dispatch and police; no audible alarm will sound. University Police are expected to arrive within 2–3 minutes. Use the button if you are confronted by a dangerous or threatening person.

Lockdown Buttons: **Locations:** Same as the panic buttons Lockdown buttons are clearly visible. When a lockdown button is pressed: An audible alarm will sound. The exterior doors will lock automatically. People may exit the building but cannot enter. Police will still be able to enter.

Activate the lockdown if a dangerous person is inside the building or if you receive a University alert indicating an active threat on campus. In the latter case, call University Police and explain why you activated the lockdown: **911** or **801-585-COPS (2677)**.
If you hear the lockdown alarm, quickly assess the situation and follow the appropriate response: **run if you can; otherwise, hide and secure your location.**

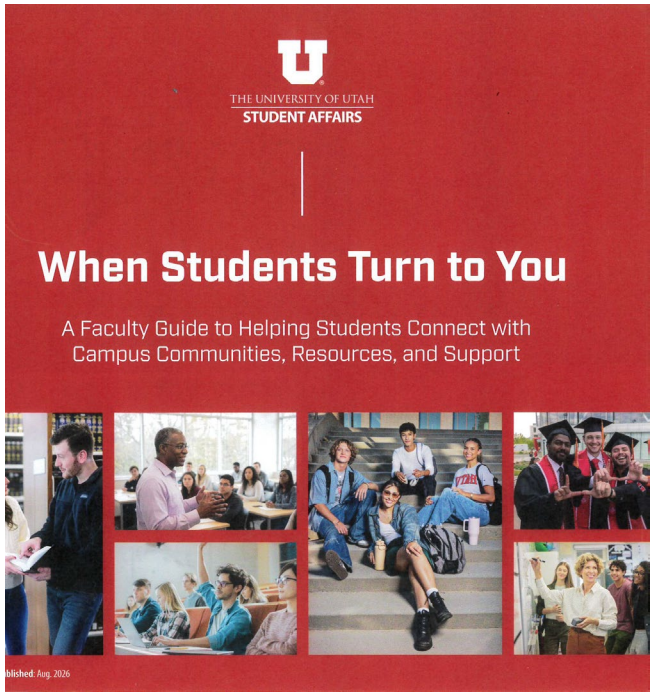
Mental health crisis

Recommendations/instructions for instructors, TA, LA.

- If you believe that a student's behavior poses a danger to you or your class, stop instruction, evacuate the classroom, and call 911, report the accident.
- Non-threatening mental health emergency: Getting help: Utah Crisis Line — 988 or 801-587-3000: Free, confidential, 24/7 help for mental-health, substance use, or suicidal crises. You may try this line: "I'm concerned about you and would like to help. Would you be willing to call 988 with me? We can make the call together and speak with a trained crisis counselor."

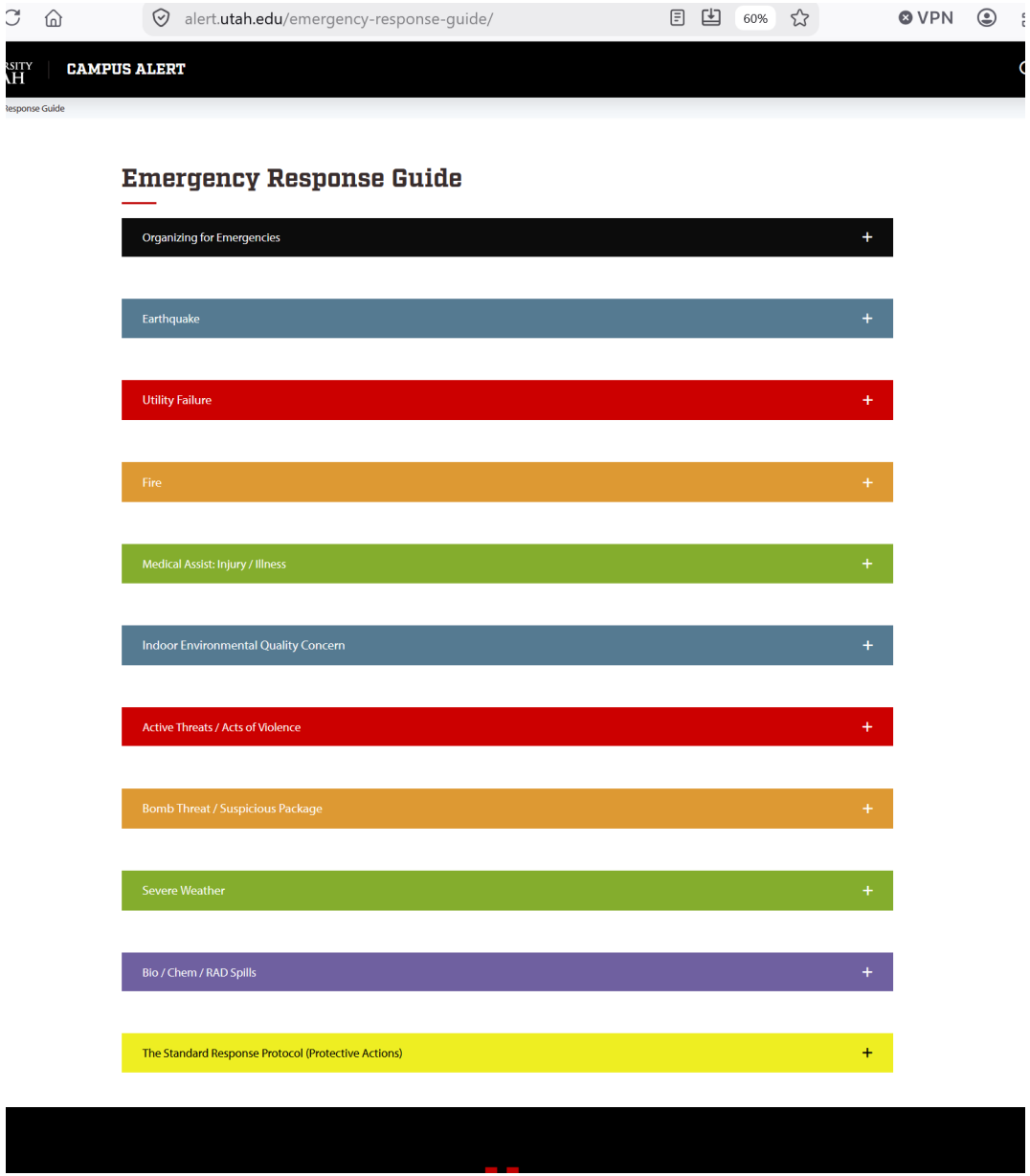
Non-emergency resources.

- Utah Warm Line — 801-587-1055 or 833-SPEAKUT (773-2588): Non-crisis emotional support from certified peer specialists; daily, 8 a.m.–11 p.m.
- 988 Chat and Text: Text 988 or use 988lifeline.org to communicate with a trained crisis counselor 24/7.
- SafeUT — app or 833-3-SAFEUT (833-372-3388): Free, confidential, 24/7 crisis chat and reporting of campus or school safety concerns.
- Mental Health First Responders (MH1) — 385-321-5356: Free, mobile, after-hours crisis support for University of Utah students on campus. Hours vary by semester; this number does not receive texts.
- Mental Health Crisis Care Center: Free, 24/7 walk-in assessment and stabilization for adults, with stays of up to 23 hours; no appointment required. Located at 955 West 3300 South, South Salt Lake.



Get consultation from Prof. Claudia De Grandi and/or the leaflet

Emergencies: https://alert.utah.edu/emergency-response-guide/



As a part of the safety training you have an obligation to open each tab and inspect/learn its content.
Some important (and unexpected notes)

1) Incidence of injures must be reported to OEHS within 8 hours. E-1 form needs to be completed with your supervisor.

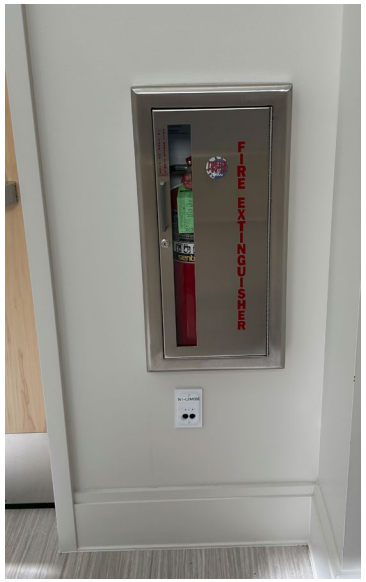
2) All fires, even small extinguished fires, must be reported to the University Fire Marshal 801-581-6590

3) Should workplace violence occur: Immediately notify your supervisor and University Police, 801-585-2677.

For students exhibiting concerning, disruptive or threatening behaviors:
In an emergency contact University Police by dialing 911.
In a non-emergency call the Behavioral Intervention Team at 801-581-7066. For more information visit: http://deanofstudents.utah.edu

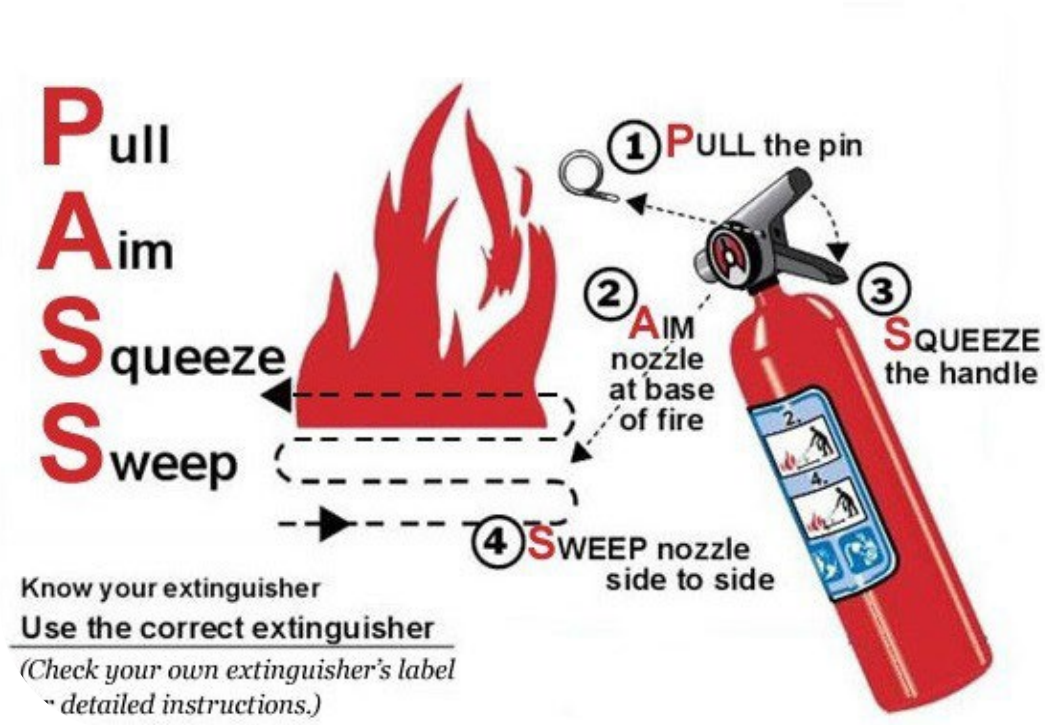
Large Fire

- Alert people in the area
- (Activate fire alarm pull station, we do not have this in our buildings) ?!
- Close doors to confine fire
- Evacuate to assembly point
- Call 911
- Do not use elevators
- Have a person knowledgeable about the incident meet emergency response personnel
- Do not re-enter building unless notified by University Police or Fire response personnel



Small Fire

(trash can size or smaller)
If fire is verified, call 911
Alert people in the area
If trained, use fire extinguisher
Always maintain an exit path
Avoid smoke or fumes
Never attempt to extinguish a fire on your own, have a buddy



Bio / Chem / RAD Spills +

Minor Chemical/Biological Spill

Alert people in immediate area of the spill
Deny entry to spill area
Avoid vapors
Wear appropriate protective equipment
Use appropriate spill kit to properly clean up spill – if necessary contact EHS for guidance
Place cleanup materials in appropriate container and submit EHS disposal request

In the event of a major spill in the B2 or other labs basement labs, use the chemical spill alarm system available in your labs. Leave the basement/building in you hear the alarm!

Major Chemical/Biological Spill

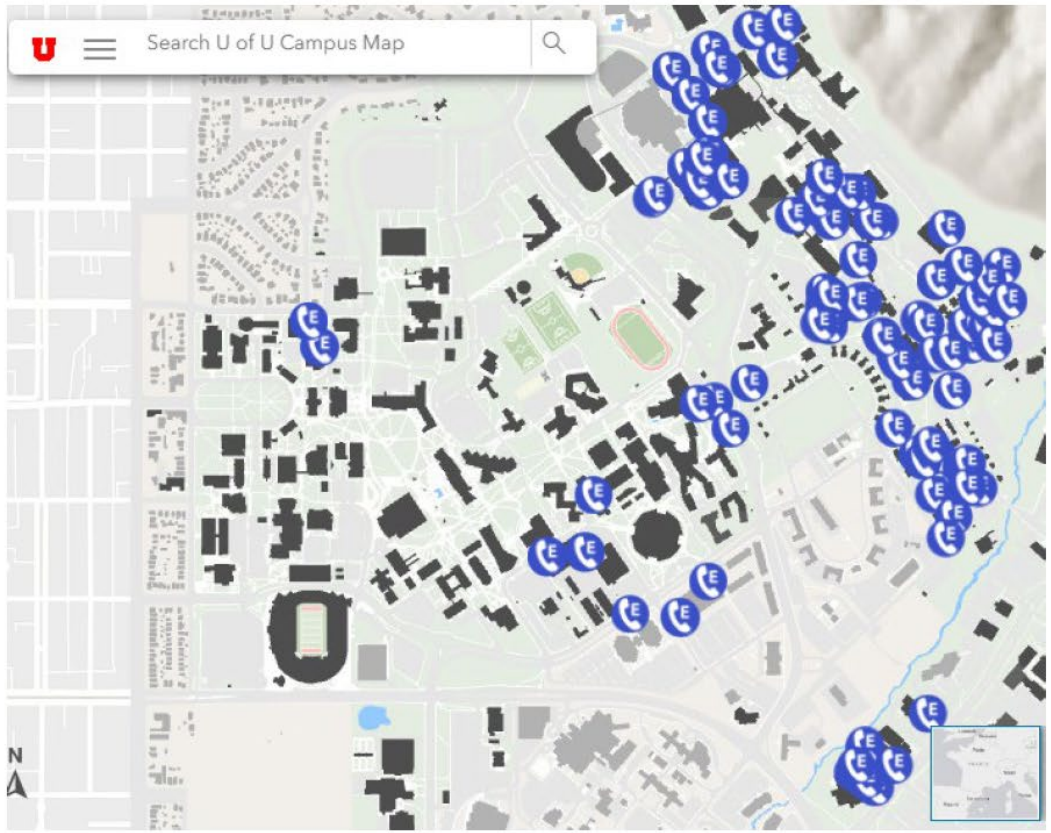
This instruction assume that you yourself have not been hurt.
Attend to injured personnel and remove them from area.
Alert people in area to evacuate.
Close doors to confine fire/spill.
Immediately contact OEHS 801-581-6590.
After hours contact University Police 801-585-2677 (5-COPS).
Close doors and deny entry to affected area(s).
Have a person knowledgeable about the incident meet emergency response personnel

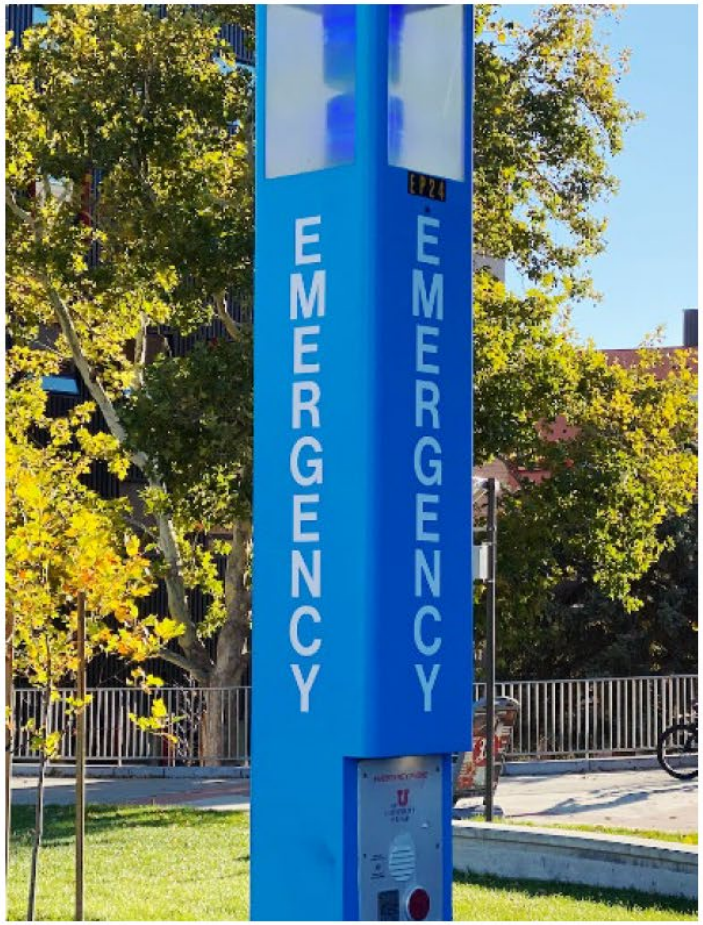
Emergency Phones

- Emergency (E-)phones are located at each of the three elevators (one in ST, two in LSSB) at every floor **except on the first**.
- If you have an emergency, including a laboratory accident, go to one of these and push the button to connect to an emergency dispatcher
- Labs in LSSB are no longer required to have a land-line. These E-Phones will now fill that role as well as providing public safety access

Emergency Phones (continued)

- Similar to E-phones found over campus. See https://emergency.utah.edu/e-phones/





Major (Life-Threatening) Injury / Illness

Activate Emergency Medical Services by calling 911

Minor Injury / Illness

Apply First Aid, if trained
Obtain medical attention if necessary (see below)
Consult https://alert.utah.edu/emergency-response-guide/ to see if you need to report your injury.

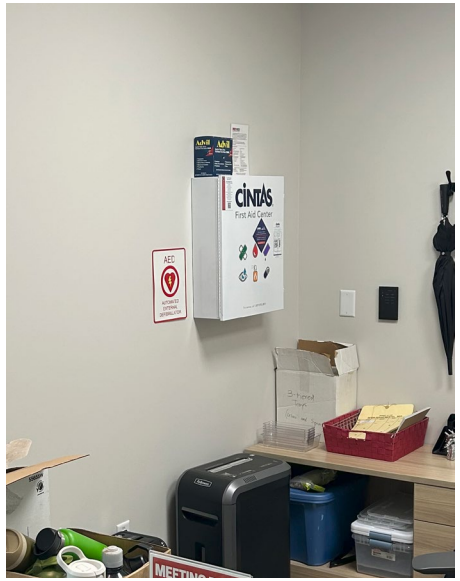
To obtain medical attention for minor injuries contact:

Students: Student Health Center at the Madsen Health Center
555 South Foothill Blvd SLC, UT 84112 (801) 581-6431

Faculty and Staff: RedMed Employee Health clinic (Union Bldg)
200 South Central Campus Drive, Suite 156, SLC, UT 84112 801-213-3303
RedMed@utah.edu

- First aid supplies are available in main office and every lab (as directed by the Chair)
  - Must be “self administered”
  - You can’t legally put a Band aid on someone else unless you have taken the “Blood borne pathogen training”
  - Extended hours. You may check with Cosmic Ray group. They have First aid supply cabinet, Their working hours 8:30-6:00, the door to the lab is open, and Charlie and/or John are typically around.
- Eye wash and showers are on LSSB floors with lab B2, e.g. W0210, W0214, W2272, W3264

First aid cabinet in the front office



AED: Automated External Defibrillator

Location: The AED is located on the left side of the main staircase in the Stewart Building.

- Instructions commence on your opening of the device.
- On YouTube https://www.youtube.com/watch?v=lL3EmNRjlvE. Above video includes **CPR. CPR** stands for **cardiopulmonary resuscitation**. It is an emergency procedure—primarily chest compressions, sometimes combined with rescue breaths—used when a person is not breathing normally and their heart has stopped beating effectively. Call **911**, begin CPR, and use an **AED** as soon as one is available.
- https://www.ehs.utah.edu/guidelines/automated-external-defibrillators (more extended instructions)

Electrical and RF Safety

- Electrocution
  - The current passing through the chest area causes electrocution. Contact is usually made with one arm, the current passing through to the other arm or to a leg. The amount of current passed, not the voltage involved, is critical.
  - It is primarily skin resistance that (combined with the applied voltage) determines the current passed through the body. There have been electrocutions with a 22 volt source when the skin resistance was lowered by abrasion.
  - Currents over 10 mA can cause violent involuntary muscle contraction. Such contractions can result in bodily damage and/or equipment damage.
- Burned Out Electronics
  - Your electrical accident may destroy your electronics.

    It takes less than 50 volts to cause major damage in some CMOS circuits, so it is clear that 110 Vac is again a major hazard.

Electrical and RF safety Instructions and Recommendations

For groups A and B personnel (not involved in lab activity). All this is also much relevant to the lab safety!

•Do not alter or modify any electrical system—or any other infrastructure—that is part of the building. Contact the facilities manager, John Cornell, if modifications or repairs are needed.
•Do not use damaged electrical equipment, plugs, or power cords.
•Extension cords must not be used as permanent wiring. When temporary use is necessary, use an appropriately rated cord and remove it after use.
•Plug high-power equipment directly into a permanent wall outlet.
•Do not overload outlets or daisy-chain power strips or extension cords.
•Keep electrical cords secured and away from walkways, doors, water, heat sources, and sharp edges.
•Do not open electrical panels.
•Report electrical shocks, burns, damaged equipment, unusual heating, sparking, or suspected RF exposure immediately to your supervisor and EHS.

For group A:

Before servicing laboratory equipment, disconnect all power sources and follow the appropriate lockout/tagout procedure.

Specialized electrical and RF training must be done as a part of lab specific training: High power, high voltage, batteries, sources with open contacts, ect. …

- **High pressure gas cylinders**
  - Always use a regulator
  - Needs to be chained secured
  - During transportation, Bonnet (the cap) must be on and a special cart must be used.

GOOD

BAD

High pressure gas cylinder with valve broken off has passed through one cinder block wall and into a second one.
Adam Beehler has the video.
Fun to watch!

Do not enter an elevator containing cryogenic dewars or high-pressure gas cylinders, whether or not they are accompanied by personnel. Wait for the next elevator.

TYPES OF CRYOGENIC DEWARS

Truly Random Stuff!

- Keep halls free of clutter
  - Ladders, tables, packing boxes, LHe dewars, etc
- No smoking anywhere on campus
- No eating or drinking in labs with chemicals or radioactive sources
- Wear eye protection when soldering, handling chemicals, glassware, cryogenics, mixing cement, AND in the machine shops.
- No bare feet, flip-flops or sandals in labs or shops
- No roller-skates, -blades, skate boards or bicycles to be operated in buildings.
- No running in the halls
- Unwanted University property must go to Surplus. Contact John Cornell
- Always be cognizant of what you need to do to always work safely.

This training does not cover every possible situation.

Use good judgment. Before beginning any activity, consider what could go wrong and how you would respond. **Plan ahead and be prepared.**

Summary of the safety policy

1) Safety training needs to be provided once a year. In general, this is supervisor responsibility. Supervisor determines content and keeps the records.

a) Option A: Safety day plus a safety review specific to each lab.

b) Option B: Supervisor can provide independent training. Videos plus other info will be available on the dep. website.

c) Guest, visitors, undergraduate students must complete the training before working in a lab.

2) SOP: Special operational procedures need to be developed and documented if needed.

3) All chemicals need to be labeled and inventoried . For each chemical, a group need to have MSDS (material safety data sheet). Chemicals and chemical wastes need to be properly stored.

4) If required, the potentially “dangerous” equipment (fume hoods, hoists, lasers ..) need to be certified.

PI, supervisors, personnel must follow safety practice.

To a participant: You do not have to sign the form if you think that you are not properly trained! You might want to review our safety manual, take safety class in Chem. Department, look up material available at the OEHS website.

Bookkeeping

Personnel Group B

Staff members, theorists, astronomers, and others: Your supervisors are the department chair or the front-office managers.

TAs and LAs: Your supervisors are the instructors of the courses to which you are assigned. (Kevin Davenport, Claudia De Grandi, etc.).

Course instructors: If any of your TAs or LAs could not attend this session, please have them watch the training video, provide an opportunity for them to ask questions, and have them sign the safety completion form. Please scan the signed form and send it to me and keep it for your records

Department safety completion form

Department of Physics and Astronomy, University of Utah

General Safety and Chemical Hygiene Plan Completion Form

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(print full first and last name)

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My supervisor/professor is _____

General safety
Signature:_____ Date: _____

PI/ safety committee rep Signature: _____Date:_____

Chemical safety:
Signature:_____ Date: _____

PI/ safety committee rep Signature: _____Date:_____

Laser safety:
Signature:_____ Date: _____

PI/ safety committee rep Signature: _____Date:_____

Cryogenic safety:
Signature:_____ Date: _____

PI/ safety committee rep Signature: _____Date:_____

Lab specific training: (….

Signature:_____ Date: _____

PI/ _____Date:_____

(Committee recommends that the participant keep one copy of this form, the other copy should be collected and kept by a supervisor or by the safety committee. In the later case the scanned copy of the form will be sent to the supervisor)