

Rock Preparation Lab Policies (LFG 109)

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Mission Statement

The purpose of the Rock Preparation Laboratory is to facilitate the research and education mission of the Department of Geoscience by enabling the physical processing of solid (rock, mineral and glass) specimens. Specifically, the lab provides facilities for cutting, breaking, crushing, and pulverizing rocks; sieving, melting and pelletizing, rock/soil powders; as well as gravity separation, thin sectioning, and specimen polishing.

Management Structure

The management philosophy is one of shared responsibility and ownership. Users of the lab are responsible for maintenance and cleaning of the equipment and the facility. Users will also shape lab policies, participate in training and supervision of new users and assist with ordering and restocking of supplies. All users are expected to participate in lab maintenance or administration (e.g. training new users).

Lab Access

All faculty and students in the Department of Geoscience are eligible to use the lab for university research and course-related projects free of charge. Unsupervised access to the lab will be granted to individuals who have completed the required *UNLV lab safety training* and *signed the user agreement*. Access to the lab will be denied to individuals who violate lab policies. Reservations for lab use must be made using the lab calendar and approved by the lab manager beforehand. The Rock Prep lab calendar access will be shared with you upon completion of this user agreement. The lab reservation must include the instruments to be used, the name of the user and the name of the safety buddy if lab use occurs during hours when the building is unoccupied.

Equipment Ownership & Use

All equipment and supplies in the Rock Preparation Lab belong to or are on loan to the Department of Geoscience. Their use is governed by lab policies. Damage due to wear and tear, accidents and occasional inappropriate use is to be expected. Equipment that does not belong to the Department or cannot be replaced or repaired by the Department should not be located in the laboratory. Equipment, supplies and tools in the laboratory may not be removed from the laboratory unless they have been checked out. Check out policies and procedures are set by the lab director and handled by the Department staff.

Specimen Storage

Short term specimen storage in the lab is available for lab users. However, specimens must be stored in the user's designated space. Specimens should be cleared out as soon as they have been processed. Undergraduate storage must be cleared out at the end of each semester or at the end of their term of employment. The contents of graduate storage spaces and undergraduate workers will be placed in the supervising faculty's mail box or office one month after the student leaves the department. **Unidentified samples left in common spaces will be disposed of immediately.**

Rock Preparation Lab Safety Information

The following hazards are present in the rock prep lab. Even if you are not checked out on a particular piece of equipment you need to be aware of hazards related to their use.

1. Sharp objects (razors, broken glass)
 - A. treat with respect
 - B. dispose of in sharps waste container and not in the trash
 - C. when using a razorblade to cut something, cut away from, rather than towards yourself, your hand or your fingers

2. Hot Objects (hot plates, ovens, and furnaces)
 - A. Touching hot objects (glowing or not) can give you severe burns. Assume the equipment is on and hot before you grab it.
 - B. If you have heated samples above ~100 F, have an appropriate tool (tongs, tweezers) to take things off the surface.
 - C. Do not leave anything flammable on the counter around the hot plates, furnaces or ovens.
 - D. Be cautious when approaching objects around the furnaces (e.g. crucibles).
 - E. Do not use the furnaces without authorization.

3. Spinning/moving hazards:
 - A. Rock crushing equipment can pinch fingers and crush bones - don't stick your hands inside during operation
 - B. The shaft on a saw and disc mill rotates rapidly. Hair, necklaces and strings on clothing can wrap around spindles and do horrific damage to the individual connected to them. Tie back long hair securely and remove jewelry and loose clothing before using machines with spinning parts.

4. Electrical hazards:
 - A. Much of the equipment in the rock prep lab depends on electricity and uses lots of water. Standing in a puddle of water, you can become the fastest path to ground. Keep the floor dry, do not touch electrical equipment when standing in a puddle.
 - B. Be aware of wires with loose or frayed insulation. If you can see the copper in an electrical cord, don't use it. If it is plugged in, get help to unplug it and notify the lab manager.

5. Heavy objects:
 - A. Bend your knees when lifting heavy objects (e.g. boxes of rocks, equipment). Get help if lifting an object requires you to strain.

6. Respiratory hazards:

- A. Your lungs are not well adapted to inhaling rock flour. Even minerals that we think of as harmless, like quartz can cause serious diseases if you get enough of it in your lungs. The lab is equipped with an air handling system to remove rock flour from the air in the rock crushing room. It should be turned on whenever anyone is grinding and pulverizing rocks using the badger, chipmunk, cone crusher or disk mill.
- B. You are encouraged to wear a dust mask if you are working in the crushing room while the equipment is in use. You may also choose to wear a respirator. If you would like to wear a respirator, the lab has them available but you must participate in the “voluntary respirator” program. This is to ensure that you are physically fit enough to endure the strain on your body caused by wearing the respirator.
- C. Under no circumstances should you use the rock crushing and pulverizing equipment to process rocks containing asbestos or ores of toxic elements like mercury, arsenic, or uranium. The air handling system is not sufficient to protect you from the dangers posed by these fibers and hazardous dust particles.

7. Hazardous chemicals:

- A. Know the hazards associated with any chemical that you are using.
- B. Review the Material Data Safety Sheet which contains information about the chemical and physical properties and workplace hazards. The MSDS can be obtained on-line and should come with any chemicals that you purchase.
- C. There is a hood in the lab to protect you from inhalation hazards – use it.
- D. You should wear safety glasses and gloves if you are handling corrosive liquids or acids.

8. Flying objects:

- A. Safety glasses should be worn if you are using, or are in the immediate vicinity of someone using, the rock saws, crushing equipment, or pellet press.

9. Ignorance:

- A. There is no such thing as a stupid question. If you are unsure of anything, ask for help.
- B. The following equipment in the rock prep lab can only be used by completing a checkout exam with an experienced user: i. Large rock saw ii. Small rock saws iii. Thin section cutoff saw and grinder iv. Wilfley table v. Chipmunk rock crusher vi. Badger rock crusher vii. Disk mill viii. Cone crusher ix. Rotap sieve shaker x. Shatter box xi. Furnaces xii. Pellet press

Rock Preparation Lab Personal Protection Equipment



Lab Coat



Gloves



Eye Protection



Face Shield



Long Pants



Closed-Toe Shoes

Long pants and closed-toe shoes required for working in the rock prep lab, regardless of work being performed. Lab PPE are in adequate supply and will be provided by the Lab Manager. Lab coat, safety glasses, gloves, and other PPE are required based on the work being performed and are specified in the lab Standard Operating Procedure (SOP) or protocol. Use of the following equipment requires additional PPE:

Equipment	PPE	Equipment	PPE
Chipmunk rock crusher	dust mask, safety glasses, hearing protection	Tile saw	Face shield or safety glasses, apron, hearing protection
Badger rock crusher	dust mask, safety glasses, hearing protection	Chip saw	Face shield or safety glasses, hearing protection
Disk mill	dust mask, safety glasses, hearing protection	Drying oven	Thermal mitts/tongs
High precision balance	Nitrile gloves	High Temperature furnace	Thermal mitts safety glasses and leather shoes
Rotap & sieves	dust mask, safety glasses, hearing protection	Oil saw	Safety glasses, apron

PPE will be available in the PPE storage drawers and hanging against the west wall (behind the safety shower). Reusable face shields, goggles, safety glasses and tongs must be sterilized by wiping down all surfaces before and after each use. PPE should not be shared or re-used unless it is designed to be reusable. All lab users are encouraged to provide their own reusable PPE. Lab access will be suspended if adequate supplies of PPE are not available.

Rock Preparation Lab Rules

Principal Investigators (PIs), researchers, staff, students, and visitors are reminded of the following laboratory policies when working in UNLV laboratories. Failure to comply with the policies outlined in this document will result in lab personnel being asked to resolve the violation or to leave the laboratory. Subsequent policy violations will result in laboratory suspension of the offending individual until retraining to laboratory safety policies has been completed. Chronic disregard to laboratory safety policies will result in the individual's loss of access to the research laboratory.

1. All lab users must complete *UNLV lab safety training* (<https://www.unlv.edu/rms/safety-training/online>) and sign the *Rock Preparation Lab User Agreement*.
2. The Lab Manager has the authority to revoke key-card access. Access to the lab is a privilege and you must maintain a professional attitude when working in the lab.
3. Enforcement of the lab use policies will be guided by weekly checks of key-card entry logs. Violations will result in the loss of key-card access. Failure to follow these SOPs as determined by the lab manager will warrant exclusion from the lab and revocation of key card access to the lab.
4. The door to the hall must be propped open when you are working in the lab alone so that others may hear you call for help if you are injured.
5. You must swipe your key-card when entering the lab, even if the door is already open.
6. If you open the exterior door, you must close and lock it when you leave the room. Remember that if you allow unauthorized users into the lab via this door you will be held responsible for their conduct.
7. If you are using a piece of equipment that has a user log you must sign the log before using that piece of equipment.
8. It is mandatory that you clean up after yourself every day that you use the day. A good rule of thumb is to leave the lab cleaner than how you found it.
9. You must wear Personal Protective Equipment (PPE) (safety glasses, hearing protection, dust masks, hot mitts) when using equipment for which it is required.
10. You must wear PPE if you are assisting someone who is required to wear PPE.
11. Do not talk to or distract anyone who is using any equipment unless you are attempting to alert them of a safety issue. Distracting someone who needs to focus on their task could cause serious injury.

12. Proper clothing must be worn when working in the lab. Various pieces of equipment have additional restrictions.
13. Alcoholic beverages are not permitted in the lab. You may not work in the lab when you are impaired by alcohol, prescription medications or any other substance.
14. Rocks containing asbestos may not be cut, ground, crushed or pulverized in the lab. You must discuss your work with the lab manager if the rocks you are working on contain significant amounts of any hazardous element such as Hg, U, As or Pb.
15. If you witness another user doing something that you feel is unsafe or otherwise a violation of the lab rules and policies, you are required to clearly tell the other user to stop what they are doing. If the other user does not respond appropriately, you are required to report the problem to the lab manager and remove yourself from harm's way.
16. Flammables must be stowed in the flammables cabinet. Propane tanks may not be stored in the lab.
17. If you observe that a trash can is full, please empty it in the dumpster on the south side of the Radiation Protection Laboratory by TEC. Custodians will not empty trash cans from LFG 109.
18. No Food/Drink may be consumed, stored, or disposed (including empty containers) in the laboratory. No use, storage, or disposal of smoking or tobacco or vape products is permitted. Cosmetics (including lip balm) may not be applied in the laboratory.



Rock Preparation Lab User Agreement

Name (Print): _____

Email: _____

Last 6 digits of key-Card: _____

Please read and initial the following:

_____ I have read the “Rock Preparation Lab Policies” document and agree to abide by those lab policies. I acknowledge that if I violate lab policies, I may lose my user access to this room.

_____ I have read over the “Rock Preparation Personal Protection Equipment” and “Rock Preparation Lab Rules” and I understand the material in the documents and agree to conduct myself in a safe and responsible fashion when using this lab.

_____ I am aware of the voluntary respirator program.

_____ In exchange for the privilege of using the Rock Preparation Lab, I understand that I will be asked to participate in the maintenance and operation of the lab. This may include training other users, assisting with equipment repairs, and participating in general cleaning sessions.

_____ I have been checked out on the following pieces of equipment and have read over the operating instructions and safety information for each one. I agree to not use the other pieces of equipment on this list until I am checked out. Schedule training with student’s PI or rock prep lab manager.

Equipment	Initials
Large Rock Saw	
Small Rock Saw	
Thin section saw and grinder	
Wifley table	
Chipmunk & Badger rock crusher	
Cone crusher & Disk Mill	
Shatter box	
Rotap sieve shaker	
Vibrolap	
Furnaces	
Pellet Presses	
Air shaker	

Signature: _____ Date: _____