

Laboratory Guidance to Prevent the Spread of COVID-19

This guidance is provided to assist lab students and personnel with preparations for bringing their teaching laboratories back online after the shutdown and implementing procedures for the safe continuity of teaching laboratories in the Fall semester. Please contact (ATU contact) with any questions or concerns related to the information provided.

Questions to Consider:

1. How can we prepare for the full return of classes and laboratories while maintaining social distancing and other CDC guidelines to prevent the spread of COVID-19?
2. What lessons did we learn from the last laboratory shutdown and how can we improve the process if operations are suspended again?

Laboratory Reopen Checklist

1. Initial Re-Entry into the Laboratory

It is recommended to do a preliminary inspection of the laboratory as soon as possible when campus operations resume. It is important to check that supplies are intact and equipment is functioning properly so any problems can be addressed well before classes and teaching activities begin.

Use caution when entering the laboratory for the first time after the shutdown. Think about any potential hazards in the space (escaped gas, time-sensitive chemicals, etc.) and listen for audible alarms? Plan ahead, what will you do if there is a problem in the area?

If you discover a hazardous condition that poses a threat to yourself or to others, isolate the hazard (i.e. stop the leak if safe to do so, close the lab door), notify other occupants, activate the alarm if needed, and exit the building. Contact (ATU contact) to clean up any spills that cannot be easily handled by laboratory personnel.

- Campus Public Safety 911 or non-Emergency 479-968-0222
- ATU Contact XXX-XXX-XXXX
- Facilities Management 479-968-0261

If the area appears safe to continue, then conduct a thorough inspection to check for broken or leaking chemical containers, old waste, refrigerator/freezer functionality, and equipment failure, as outlined below.

2. Resuming Laboratory Operations

Equipment Functionality

- Review start-up procedures for energized equipment, compressed gas cylinders, and/or gas distribution systems. Start-up the equipment to ensure it is functioning properly and monitor the area. If equipment damage has occurred due to the closure, please contact ATU Facilities Management within 24 hours of discovering the loss.
- Conduct leak testing for gas distribution systems.
- Confirm chemical fume hoods, local ventilation systems, and biosafety cabinets are operating properly. Do not use the equipment if it isn't functioning and contact ATU Facilities Management
- Check laboratory utilities (i.e. gas, vacuum, air lines) to ensure functionality.
- Flush eyewash station to remove sediment and stagnant water and document on inspection log. Report any problems to ATU Facilities Management. ATU Facilities Management will flush the safety showers.
- Pour water down dry traps/floor drains to mitigate sewer gas smells that are often confused with natural gas leaks. Flush the sinks with running water and check for leaks.

Chemical Safety

- Conduct a hazardous material inventory to ensure no loss of material.
- Check chemical containers to ensure they are intact, securely closed, and properly labeled.
- Carefully inspect time-sensitive chemicals that may have become unstable during the shut-down (i.e. peroxide formers) and manage accordingly. Do not touch any containers that appear to be bulging or damaged in any way. Contact ATU Facilities Management for disposal.
- Put away any chemicals left out during the shutdown.
- Check for expired supplies and dispose of accordingly.

Biological Safety

- Conduct a biological inventory to ensure no loss of material.
- Dispose of full sharps containers and autoclave any biological waste.
- Manage any regulated medical waste appropriately.

Cleaning/Disinfection

- Cleanup and put away any chemicals, glassware, supplies, equipment, and other items left out during the shutdown. Benchtops and other surfaces must be kept uncluttered and organized to ensure proper cleaning and disinfecting procedures are in place.
- Determine an appropriate lab cleaning protocol to disinfect surfaces regularly (benchtops, equipment, door handles, etc.). Minimize the amount of glassware in use, remove trash, and keep areas clear. Identify laboratories that are not cleaned by FM Housekeeping and establish cleaning procedures and responsibilities accordingly.
- Establish disinfecting procedures for shared laboratories and equipment. Maintain a supply of sanitizing wipes/sprays to disinfect equipment before and after use.
- Ensure there is an adequate supply of soap and paper towels for handwashing in all laboratory areas.

General Considerations

- Establish a working schedule to ensure social distancing can be maintained when working in the laboratory. As always, avoid working alone with hazardous materials and equipment.
- Establish a schedule for using equipment in a shared equipment space to maintain distancing.
- Establish procedures for entering and exiting the lab (i.e. handwashing, wearing face mask, removing PPE, etc.).
- Expect delays with purchasing supplies and plan accordingly.
- Consider ways to mitigate congestion in the hallways when students are between classes. If possible, adjust meeting times, or implement directional flow of foot traffic.
- Consider shared spaces such as break rooms, food prep areas, computer work stations and schedule usage when possible.
- Employ good hygiene practices (i.e. frequent hand washing), wearing appropriate personal protective equipment (PPE), and face coverings when distancing is not possible.
- Employ a sign-in/out activity log to document laboratory usage (i.e. class attendance or working shifts). This will be used for contact tracing should an individual test positive for COVID-19.
- Document laboratory procedures to prevent the spread of COVID-19 using an SOP Template: Resuming Laboratory Operations available on the webpage. (EEG recommends creating a webpage.

Personal Protective Equipment: Assess stock of PPE (disposable gloves, masks, safety glasses, lab coats, etc.) and ensure there is an adequate supply for each person working in the laboratory.

- **Do NOT share PPE.** There should be an adequate supply so all personnel can have their own lab coat (if required), safety glasses, reusable gloves, etc. When sharing PPE is the only option (i.e. welding face shields), ensure there is a supply of sanitizing wipes to properly disinfect the items before and after use.
- Designate a space in the lab for the proper storage of PPE to ensure that it is separated for each person and kept clean. Use labeled Ziploc bags or containers to keep it free of contamination. Sanitizing wipes should be available for cleaning reusable PPE.
- Ensure that personnel are trained on how to properly put on and remove PPE to prevent contamination spread.
- Do not plan to start work for which you no longer have an adequate supply of PPE.

Facemasks in the Laboratory

Facemasks should be worn while working in the laboratory when other people are present and distancing is not possible. There may be concerns that this poses a risk of trapping chemicals absorbed by the mask against the face or by having a combustible material against the face when working with flammables. These concerns stress the importance of conducting a risk assessment of the tasks being performed and evaluating the work practices.

- The laboratory procedure or task to be performed should be evaluated by the supervisor (TA, Teaching Lab Coordinator, etc.) to ensure that wearing a mask does not pose an additional risk.
- It is imperative to stress best lab practices and ensure the use of engineering controls (i.e. fume hoods, local ventilation, biosafety cabinets) and administrative controls (i.e. proper training) to prevent chemical vapors or other contaminants from escaping into the room. When best practices are followed, the potential for hazardous exposure is eliminated or reduced to a safe level. If there is a concern about the masks absorbing chemicals, then it is important to ask the question of why chemicals are present in the breathing zone and adjust work practices accordingly.
- Ensure safe chemical management. Keep all chemical containers closed. Work in a fume hood when handling volatile chemicals. Use shielding when handling reactive or highly flammable chemicals in a fume hood.
- Work in a Biosafety Cabinet when handling infectious agents.
- Always wash hands before and after removing the facemask.

- It is recommended to use masks made of natural fibers (i.e. cotton) and avoid synthetics in a lab, especially in a location where flammable solvents are used/stored. Consider a material similar to what is used for a lab coat. If the lab situation already warrants use of a flame-resistant lab coat, then a similar mask material shouldn't pose an additional hazard.
- Ensure an adequate supply of masks so they can be changed if they do become contaminated inside the lab.
- To prevent the spread of contamination from the lab activity to outside areas, always remove the mask and other PPE before leaving the lab. Use another clean mask for areas outside the lab.
- Store reusable lab-use masks inside the lab in a clean area and labeled for each person's use.

Laboratory Shutdown Procedure

In the event that campus operations have to be reduced, please consider the following guidelines to ensure safety and security during the suspension of laboratory operations:

- Develop a list of laboratories that will remain operational and include the personnel who will still be working onsite. Identify the responsible person for the lab and a backup person if that individual is unavailable.
- Establish a schedule for personnel working onsite. Ensure no one is working alone with hazardous equipment or materials. Employ a check-in, check-out procedure.
- Develop a list of laboratories that will be shut down completely and include any areas that will need periodic inspection (i.e. check refrigerator/freezer).
- Shut down equipment that is safe to do so.
- Remove chemicals and supplies from the chemical fume hood, turn off the light, and close sash.
- Identify any equipment that remains operational and requires periodic inspection or preventative maintenance during the closure.
- Put away chemicals, glassware, supplies, and equipment. Clean the benchtops.
- Check chemical storage areas to ensure bottles are intact, sealed, and labeled. Identify time-sensitive chemicals and send for disposal if expiration date is approaching.
- Send chemical waste bottles for disposal. Autoclave biological waste & dispose of appropriately.
- Dispose of trash and full sharps containers.
- Ensure utilities are turned off (gas, vacuum, air lines) and check faucets for leaks.
- Cancel any orders for non-essential supplies.
- Secure the lab, close windows, and lock the door(s).

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