**Laboratory Shutdown Guidelines – COVID-19**

Each laboratory should develop a plan to protect laboratory equipment, materials, and research from loss and to prevent hazardous conditions. **This should be your top priority for the next day or two.**

For the purposes of this document, “critical activities” means activities that if paused (1) would be impossible to restart, (2) could not be restarted without a significant amount of time, (3) would incur significant financial cost to be restarted, or (4) are directly related to COVID-19.

# Preparing

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| **ITEM** | **COMPLETE** | **N/A** | **NOTES** |
| Identify all noncritical activities that can be ramped down,  curtailed, suspended, or delayed. |  |  |  |
| Identify personnel who are able to safely perform essential activities. |  |  |  |

**Communications**

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| **ITEM** | **COMPLETE** | **N/A** | **NOTES** |
| Create a contact list, including all lab personnel, principal investigators, administrative lab managers, safety representatives, and lab staff.  Include home and cell phone numbers. |  |  |  |
| Ensure the contact list is saved where it can be remotely accessed  by everyone in the lab. |  |  |  |
| Test your phone tree or email group to facilitate emergency communication among lab researchers and staff. |  |  |  |
| Update [laboratory door signage](https://ehs.umich.edu/forms/research-and-clinical/) with current lab hazards and emergency contacts. |  |  |  |
| Regularly monitor email inbox for messages from university leadership |  |  |  |
| Ensure laboratory staff have key contact information for the campus:   * Report emergencies to DPSS (911 or 734-763-1131) * EHS (734)647-1143 * ULAM (734)764-0277 * IRBMED (734)-763-4768 * IRB-HSBS (734) 936-0933 |  |  |  |

**Shipping/Receiving**

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| **ITEM** | **COMPLETE** | **N/A** | **NOTES** |
| Do not order any new research materials except for items needed to support minimal critical functions.  Cancel orders for nonessential research materials if they have not yet shipped. |  |  |  |
| Note that ULAM has placed a temporary halt on all new orders and will be cancelling existing animal orders. |  |  |  |

**Research Processes and Material**

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| **ITEM** | **COMPLETE** | **N/A** | **NOTES** |
| Be prepared to terminate ongoing experiments. |  |  |  |
| Postpone starting any new experiments, including all involving animal subjects, and limit laboratory work to critical activities. |  |  |  |
| Freeze down any biological stock material for long-term storage.  Consolidate storage of valuable  perishable items within storage units that have backup systems whenever possible. |  |  |  |

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| Fill dewars and cryogen containers for sample storage and critical equipment.  Ensure that personnel will be available to receive deliveries. |  |  |  |
| Consult with ULAM about current animal care recommendations, including coordination of **all** PI-managed daily care.  Cease breeding (separate breeders) for all commercially-available species/strains/stocks.  Identify any critical populations/animals to ULAM (no more than 20% of colony). |  |  |  |
| if any animal activities are occurring in the laboratory, they should be completed by the end of the day with no live animals remaining in the laboratory overnight. Should it be necessary to maintain animals overnight, it is essential to notify ULAM |  |  |  |
| Properly secure all hazardous materials in long-term storage.  Contact EHS for assistance. |  |  |  |
| Secure infectious material and toxins in appropriate storage units that are marked with a biohazard sticker or sign. Disinfect any potentially contaminated surfaces and properly dispose of biohazard waste. |  |  |  |
| Ensure all flammables are stored in flammable storage cabinets. |  |  |  |
| Ensure that all items are labeled appropriately.  All working stocks of materials must be labeled with the full name of its contents and include hazards. |  |  |  |
| Remove all chemicals and glassware from benchtops and fume hoods, and store in cabinets or appropriate shelving. |  |  |  |
| Remove all items from biosafety cabinets.  Empty the aspirator flasks. Disconnect gas and/or vacuum connections. Shut off UV light and close sash. |  |  |  |
| Ensure appropriate storage for condition-sensitive materials. For example, store water-reactive materials so that they are unlikely to become wet in case of flooding or sprinkler activation. |  |  |  |
| Verify that any safety sensors (e.g. toxic gas alarms, low oxygen sensors, required security alarms) are operating within specifications. |  |  |  |
| Ensure that all water sources are turned off (e.g. circulating water baths, aspirators, etc.). |  |  |  |
| Contact EHS for pick-up of hazardous waste. |  |  |  |
| Collect contents of any acid/base baths and request waste pickup. |  |  |  |
| Confirm inventory of controlled substances and document in a logbook.  All controlled substances must be securely stored in a locked, substantially constructed safe, drawer, or cabinet (or as previously approved by your Controlled Substance Monitor) |  |  |  |

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| Secure physical hazards such as sharp objects (needles/syringes/razor blades/scalpels etc.) |  |  |  |
| Ensure all radioactive materials are locked/secured inside a refrigerator, freezer, or lockbox.  Contact EHS with any questions. |  |  |  |

**Physical Hazards**

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| **ITEM** | **COMPLETE** | **N/A** | **NOTES** |
| Turn off heat-generating equipment (e.g., hot plates, stir plates, ovens, water baths, and computers) and nonessential electrical devices.  Unplug equipment if possible. |  |  |  |
| Ensure that gas tanks are secured in an upright position. Close valves and, if possible, remove regulators and place screw caps on tanks. |  |  |  |

**Equipment**

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| **ITEM** | **COMPLETE** | **N/A** | **NOTES** |
| Identify equipment that requires special procedures to restart.  Procedures for restarting this equipment should be readily available to the laboratory staff. |  |  |  |
| Check that refrigerator, freezer, and incubator doors are tightly closed. |  |  |  |
| Biosafety cabinets: surface decontaminate the inside work area. |  |  |  |
| Fume hoods: Clear the hood of all hazards and shut the sash. |  |  |  |
| Review proper shutdown procedures and measures to prevent surging. |  |  |  |
| Shut down and unplug sensitive electric equipment. |  |  |  |
| If necessary, elevate equipment, supplies, electrical wires, and chemicals off of the floor to protect against flooding from broken pipes. |  |  |  |

**Decontamination**

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| **ITEM** | **COMPLETE** | **N/A** | **NOTES** |
| Decontaminate areas of the lab as you would do routinely at the end of the day.  Do not forget shared spaces. |  |  |  |
| Decontaminate and clean any reusable materials that may be contaminated with biological  material. |  |  |  |

**Waste Management**

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| ITEM | COMPLETE | N/A | NOTES |
| Contact [EHS Hazardous Materials Management](https://ehs.umich.edu/haz-waste/request-collection-and-supplies/) for pickup of hazardous waste |  |  |  |

**Security**

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| **ITEM** | **COMPLETE** | **N/A** | **NOTES** |
| Close all doors, including cabinets, storage areas and offices. Lock all exterior lab doors. |  |  |  |
| Ensure key personnel who will support critical functions have appropriate access. |  |  |  |
| Back up data and turn off nonessential/noncritical computers. Consider saving digital copies in multiple locations.  Store lab notebooks and computers in areas that will not be impacted by possible broken water pipes. Secure laptops and other easy-to-remove electronic devices. |  |  |  |
| Ensure that any necessary VPN software is installed on remote computers. |  |  |  |
| Ensure that any data requiring remote access are placed in MBox or another accessible server or cloud storage system |  |  |  |

**General Area**

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| **ITEM** | **COMPLETE** | **N/A** | **NOTES** |
| Remove all perishable and open  food items from lab break areas and other spaces. |  |  |  |

There may be other laboratory-specific actions that need to be taken. Please think about anything that may be unique to your research.

Please contact EHS at 734-647-1143 with any questions about how to secure hazards or safely suspend research operations in your laboratory.