**Research Lab Operations Plan during COVID-19**

This template is for use by PIs and facility directors who oversee on-campus research laboratories. Faculty should complete this for their own labs. Facility directors should answer this on behalf of their operations (e.g., NMR facility, clean room).

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| --- | --- |
| **Principal Investigator or Facility Director** | [PRINCIPAL INVESTIGATOR / FACILITY DIRECTOR] |
|  | **Laboratory or Facility Name** | [LAB/FACILITY NAME] |
|  | **Academic Unit/Facility** | **Last Revised Date** |
|  | [UNIT NAME] | [DATE] |
|  |  |  |
| Department Chair/Institute Director Approval |  | [DATE] |
| Dean for Research Approval |  | [DATE] |

**PURPOSE**

This Research Lab Operations Plan will document how each lab will perform research operations during the COVID-19 pandemic. Operation levels, from fully operational to completely shut down, will be laid out in detail to enable transitions between levels as needed. Some of this information was requested in the Research Essential Operations Plan in March. PIs may wish to use that document as an important source in filling out this template.

Given the uncertain course of the COVID-19 pandemic, PIs must plan in ways that minimize the impact of disruption to their research activity overall. PIs must consider scenarios such as what happens if a lab member tests positive or lab members are asked to quarantine for two weeks. These possibilities require careful planning and readiness to shift from one level of research operations to another. It is possible for different laboratories to be at different levels at any given time depending on lab-specific conditions. These same issues apply to core facilities and research services upon which a laboratory depends.

*Princeton researchers consistently report that communications from their PI have more influence on their plans and actions than communications from anyone else in authority. Please recognize the impact you have on how your research team operates throughout the COVID pandemic.*

If you have lab space in multiple departments, you must share this completed plan with each of the relevant chairs or directors. A copy of the version approved by the department chair or institute director must be uploaded in SHIELD, the research health and safety management system (<https://princeton.bioraft.com/>), for review and final approval by the Office of the Dean for Research. The plan below should be shared with members of the laboratory.

1. **Leadership Succession**

List people who can make operational decisions, in order of succession, if the head of the lab/unit is unable to do so:

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| --- | --- | --- | --- | --- |
|  | **Name** | **Title** | **Phone Number** | **Alt Phone Number** |
| **Principal Investigator/Facility Director** | [NAME] | [TITLE] | [NUMBER] | [ALT. NUMBER] |
| **Successor 1** | [NAME] | [TITLE] | [NUMBER] | [ALT. NUMBER] |
| **Successor 2** | [NAME] | [TITLE] | [NUMBER] | [ALT. NUMBER] |

1. **Emergency Communication Systems**

To communicate rapidly with your group in an emergency, and to stay in touch during an extended disruption, we encourage all research groups to prepare and maintain contact information in paper and electronic formats, including alternative email and phone numbers.

[ ]  Yes, contact information for my lab is up-to-date and available in paper and electronically.

Document the communication methods that the group will use to communicate with members during an extended disruption. Potential communications tools include phone, email/listserv, text message, social media, group messaging platforms, etc.

[DESCRIBE COMMUNICATIONS METHODS HERE]

Describe who is designated to communicate with group members regarding lab operations. Designate those responsible for updating contact information and establish a specific schedule for updating.

[DESCRIBE WHO IS DESIGNATED TO COMMUNICATE HERE]

1. **Research Lab Operations Level Descriptions**

The four levels listed below describe the range of research operations that may be implemented during the COVID-19 pandemic, either in large scale across the University or individually in laboratories as needed. For research operations at levels 2, 3, and 4, including experiments or critical maintenance and monitoring, the plan must be reviewed and accepted by the academic chair or director and receive final approval by the Office of the Dean for Research.

**Level 1 – Normal Operations**

At this level of research, labs conduct research activities within the following parameters, without the need for written plans and approval.

* Normal research operations.
* All personnel adhere to hygiene, health and safety protocols as prescribed by Environmental Health and Safety (EHS).
* Undergraduates allowed in laboratories.

**Level 2 – Phased Resumption**

* Department chairs or institute directors, working closely with academic managers and, where applicable, building managers (e.g., Engineering Quadrangle) must submit a Research Infrastructure Plan for resumption of research activities. This plan must include identification of critical dependencies (e.g., utilities, loading docks, procurement), a plan for re-opening core facilities, a plan for enforcing social distancing and best practices for cleaning common areas, PPE use, and circulation patterns in common areas. Research Infrastructure Plans must be approved by the Office of the Dean for Research.
* PIs must submit Research Lab Operations Plans (this completed template) detailing how labs will comply with EHS-prescribed campus metrics, enact social distancing, and enforce hygiene practices (e.g., PPE, cleaning). The plan must be reviewed by the department chair or institute director and approved by the Office of the Dean for Research.
* Experimental work resumes within the parameters reviewed and approved by the department chair or institute director and the Office of the Dean for Research.
* Research that requires core facilities or services commences after consultation with the facility director (e.g., LAR for animal research, clean room).
* All personnel must adhere to hygiene, health and safety protocols, including protective equipment, established by EHS to ensure safety.
* Undergraduate students are not allowed in laboratories until further notification by the University.
* All research buildings are set to card access “weekend” schedule.
* Remote work is required for non-laboratory activities.

**Level 3 – Essential Operations**

* PIs must submit Research Lab Operations Plans (this completed template) detailing shut-down procedures or requesting maintenance or essential research activities. Plans must be reviewed by the department chair or institute director and approved by the Office of the Dean for Research.
* Essential and COVID-19-related research must be approved by the Office of the Dean for Research.
* Maintenance of key resources—animals, cell lines, liquid N2, sensitive equipment, etc.—must be approved by the Office of the Dean for Research.
* In labs approved for critical maintenance, essential research, or COVID-19 work, one to three lab members (including the PI) must be identified in the plan and approved for building access. Any additional personnel, such as lab member(s) needed during hazardous operations, or persons with critical maintenance expertise, require approval by the Office of the Dean for Research.
* Approved research work commences only with acknowledgment from relevant departments and institutes confirming that required services and facilities are in operation or can be brought online.
* All personnel must adhere to hygiene, health and safety protocols as prescribed by EHS.
* Undergraduate students are not allowed in the lab.
* All research buildings are set to card access “weekend” schedule.
* Remote work is required for non-laboratory activities.

**Level 4 – Operations Suspended**

* Research Lab Operations Plans (this completed template), including critical monitoring and maintenance, are reviewed and approved by the Office of the Dean for Research.
* All experiments are stopped, except for COVID-19 research specifically approved by the Office of the Dean for Research.
* Key resource maintenance is allowed only for irreplaceable animals (e.g., transgenic mice, zebrafish, Drosophila), cell lines that cannot be cryopreserved, and equipment that cannot be shutdown. Activities must be approved by the Office of the Dean for Research.
* Vertebrate animal management is allowed only by Laboratory Animal Resources (LAR), with access to animal facilities by research personnel as required and with the express approval of LAR.
* At most, one person per lab is allowed on campus at any given time for critical maintenance functions only and these functions must not include activities that fall under “hazardous operations.”’
* All personnel must adhere to hygiene, health and safety protocols as prescribed by EHS.
* Undergraduate students are not allowed in the lab.
* Only designated critical staff are granted building access.
* Remote work is required for all activities not specifically listed above.
1. **Research Lab Operations Plans**

**Key Transition Activities for All Levels**

Briefly describe the key activities necessary for an orderly transition between levels of research, whether resuming research or scaling it down. Consider what needs to be accomplished in sequence and by whom. Please review these checklists for laboratory [ramp-down](https://research.princeton.edu/sites/research/files/princeton_university_discontinuing_lab_activities-checklist_3-17.pdf) or [ramp-up](https://ehs.princeton.edu/sites/ehs/files/Princeton%20University%20Research%20Resumption%20Checklist.pdf), which spell out a variety of important activities to conduct during transitions.

**Transition to level 2** – phased resumption of research

[ADD DESCRIPTION HERE]

**Transition to level 3** – essential operations

[ADD DESCRIPTION HERE]

**Transition to level 4** – suspension of operations

[ADD DESCRIPTION HERE]

**Level 2 – Phased Resumption**

In this section, detail how the lab will enact strict social distancing requirements and comply with EHS-prescribed density and hygiene metrics and practices. All work that can be done remotely must continue to be done remotely. When devising the plans, consider the laboratory space as well as spaces that researchers use between experimental procedures (e.g., cold room, dark room, prep room, grad office space, break rooms). Because laboratories differ with regard to the types of experiments, equipment and staff, laboratories will need to develop plans customized to their particular situations. Describe the plan in sufficient detail for the academic chair or director to conduct a meaningful evaluation of your proposal.

Review the EHS [Guidelines for Safe Research during COVID-19 Pandemic](https://ehs.princeton.edu/health-safety-the-campus-community/covid-19-information-and-resources/research-plan-ehs-guidelines#Safe%20Research) in developing your plans.

**Occupancy Plans:** Describe how staffing and scheduling will be organized to meet the occupancy metrics. A variety of models can be considered, such as daily shifts, rotations of days on and off, or cohorts. List the parameters for the number of people in the lab or in particular rooms at any one time. If a staffing rotation is necessary, describe the nature of the rotation and how the schedule will be maintained for all lab members.

[Describe the occupancy plan, including tables or schedules as needed]

**Space Utilization:** Describe how the facilities and work spaces will be managed to support physical distancing. What work areas will be designated for use or restricted (tape on floor, bench, or chair). Describe any adaptations (e.g., plexiglass barrier) that must be in place prior to working in a space.

[Describe the space utlization plan]

**Sanitizing Plan**: Building services will sanitize common areas within buildings, but researchers will be responsible for sanitizing lab space and research equipment. Describe the specific laboratory items that will require regular sanitizing, along with the appropriate sanitizing agents, frequency, and responsible individuals.

[Describe the sanitizing plan]

**Special Considerations:** List any activity that requires special attention or a unique management plan with regard to implementing the EHS-prescribed campus hygiene and safety practices (e.g., new procedure training, two-person operations). List each activity with the plan for adequate safety and hygiene. Consultation with EHS is available for developing individual plans. Request a consultation by emailing ehs@princeton.edu or through the [Princeton Service Portal](https://princeton.service-now.com/service?id=csm_sc_cat_item&sys_id=a16a145bdbaec4901d6982891396197c).

[Describe the Hygiene and safety plan]

**Level 3 – Essential Operations**

During the research ramp-down in March, 2020, PIs submitted plans for this level of operations. Please provide the information again here, including any relevant revisions or modifications you would have made based on the experience of the last several weeks.

In the event of a building or University closure, the goal is to reduce the load of activity and people on campus to allow all resources to be focused on critical functions. During such a time, no routine activities should proceed.

If your lab needed to shut down for a certain period of time, could you close your lab and walk away fully or are there critical activities that would need to be maintained on a regular schedule (daily, weekly, etc.)?

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| **Check all that apply.** | **Selection** |
|[ ]  I will close my lab and walk away for the duration of the closure. (Leave the rest of this section blank and continue to Level 4.) |
|[ ]  I must conduct critical maintenance and monitoring of equipment or organisms that would otherwise be irreversibly lost. |
|[ ]  I have essential experiments that could not otherwise be replaced or repeated, even at great inconvenience, or COVID-19 research that must continue. |

For those components that could not be suspended without unreasonable loss of data, organisms, reagents or finances, we ask that you describe a plan to maintain them using the minimum possible number of personnel, and the shortest amount of time on campus. Include activities/equipment that would be unsafe, irreversibly damaged, or detrimentally impacted if left unmonitored.

List a small number of lab group members (one to three persons, including the PI) who would need to have access to the building to continue to provide all essential operations listed in the tables below. *The list should not exceed 3 people total, including the PI.*

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| **Research Personnel** | **PUID#***9-digit number* | **Position/Status***Faculty, research staff, postdoc, graduate student* |
| 1. [FULL NAME]
 | [PUID] | [POSITION/STATUS] |
| 1. [FULL NAME]
 | [PUID] | [POSITION/STATUS] |
| 1. [FULL NAME]
 | [PUID] | [POSITION/STATUS] |

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| --- | --- | --- | --- |
| **Critical maintenance and monitoring**List each activity.  | **Responsible Person***Indicate who from the list above is responsible for each function.*  | **Location***List building and room numbers to which each person needs access.* | **Frequency and Time Period***List frequency, time of day, and duration.* |
| [DESCRIPTION OF CRITICAL FUNCTION] | [RESPONSIBLE PERSON] | [LOCATION] | [FREQUENCY AND TIME] |
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| **Essential Experiments, COVID-19 research**Provide description and justification of essential research or COVID-19 research. *Use appendix space for longer descriptions or justification.* | **Responsible Person***Indicate who from the list above is responsible for each function.* | **Location***List building and room numbers to which each person needs access.* | **Frequency and Time Period***List frequency, time of day, and duration.* |
| [DESCRIPTION OF ESSENTIAL FUNCTION] | [RESPONSIBLE PERSON] | [LOCATION] | [FREQUENCY AND TIME] |
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**Level 4 – Operations Suspended**

In the event of a catastrophic impact from COVID-19, it could be necessary to suspend activity in order to manage an outbreak. During such a time, no routine activities would proceed. A few key differences make level 4 different from level 3: equipment is shut down rather than idled; cell lines are cryopreserved rather than maintained; and only irreplaceable organisms (e.g., transgenic mice, zebrafish, Drosophila) are maintained. Vertebrate animal management will be handled only by LAR. Only designated critical staff will be granted access to buildings to manage irreplaceable resources or COVID-19 research.

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| **Critical maintenance and monitoring**List each activity, with brief justification as to why it requires maintenance or monitoring at Level 4.  | **Responsible Person***Indicate who from the list above in Level 3 is responsible for each function.*  | **Location***List building and room numbers to which each person needs access.* | **Frequency and Time Period***List frequency, time of day, and duration.* |
| [DESCRIPTION OF CRITICAL FUNCTION] | [RESPONSIBLE PERSON] | [LOCATION] | [FREQUENCY AND TIME] |
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| **COVID-19 Research**Provide description and justification of COVID-19 research. *Use appendix for longer descriptions or justification.* | **Responsible Person***Indicate who from the list above is responsible for each function.* | **Location***List building and room numbers to which each person needs access.* | **Frequency and Time Period***List frequency, time of day, and duration.* |
| [DESCRIPTION OF ESSENTIAL FUNCTION] | [RESPONSIBLE PERSON] | [LOCATION] | [FREQUENCY AND TIME] |
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1. **Core Facilities and Support Services**

List research support facilities or services within your department/institute, another department/institute, or provided centrally, upon which your lab depends during level 2, 3 or 4 research operations. Recognize that each core facility or research service faces the possibility of curtailing or suspending services temporarily due to COVID-19, even if activity proceeds in other parts of the department or campus. The purpose of preparing this list is to facilitate consultations with the core facilities or service providers about their operational status during different levels of research. Do not list the services upon which all University labs reply, such as the Energy Plant, OIT (for internet, e-mail and central servers), or Procurement.

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| **Research core facility or support service:** | **Research levels in which service or facility would be needed** | **Department/institute in which facility or service is managed** |
| [NAME OF CORE FACILITY OR SUPPORT SERVICE] | [Level 2, 3, and/or 4] | [NAME OF DEPARTMENT/INSTITUTE] |
| e.g., Clean room | 2 | PRISM |
| e.g., Glass washing facility | 2 | Molecular Biology |
| e.g., Loading dock | 2, 3, 4 | Physics |
| e.g., Schultz Animal Facility | 2, 3, 4 | Laboratory Animal Resources |
| e.g., Stock room | 2 | Academic Unit Name |
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Appendix:

[PROVIDE ADDITIONAL INFORMATION RELATED TO PLANS HERE. FOR EXAMPLE, STAFFING SCHEDULES, FLOOR PLANS, ESSENTIAL RESEARCH OR COVID-19 PROJECT DESCRIPTION AND JUSTIFICATION HERE]