# Guidelines for UCM Research Ramp-Up

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# Guidelines for UCM Research Ramp-Up

## Introduction

This living document provides a set of principles and guidelines for a stepwise process to ramp up research at UCM in coordinated phases; changes may be made as ramp-up progresses. The recommendations below were developed by a committee[[1]](#footnote-1) appointed by Interim Chancellor Nathan Brostrom and use of some information shared by other UC campuses. They are intended for campus leadership, faculty, staff, and students. The main body of the document outlines campus-wide policies and requirements for ramping up research at UCM; the appendices discuss policies and requirements for different campus sectors (e.g., those involved with lab-based research, performance, field research, or requiring access to Special Collections), including method-appropriate templates for the operational plans needed to resume on-campus activities. This document complements UC Merced’s [Interim Policy on Universal Requirements for Physical Mitigation and Reduction of the Transmission of COVID-19](http://policies.ucmerced.edu/sites/policies.ucmerced.edu/files/documents/policies/interim_policy_on_physical_mitigation_and_reduction.pdf). A separate FAQ document helps clarify implementation.

The practices recommended in this document have been approved for implementation by the Chancellor and the Executive Vice Chancellor and Provost, this has been done in consultation with the Chair of the Committee on Research and

The goal is to enable all UCM research to resume as soon as possible while mitigating risks to personal safety and maintaining public health requirements. While we are not specifying a start date or the basis for transition from one phase to another, we suggest initiating Phase 2 as soon as possible after Merced County and California State Stay at Home orders have been eased or lifted. For the foreseeable future, safety considerations for on-campus research should follow similar considerations as those for a hazardous workplace until COVID-19 restrictions are fully removed by public health authorities. However, the risks posed by COVID-19 can be mitigated if everyone follows safe practices. If county or state health officials provide limiting/restrictive guidance, research efforts may need to drop back to a lower phase as appropriate and be ramped up again when guidance changes. Campus communications will be distributed through postings on UCM’s [Emergency Preparedness](https://emergency.ucmerced.edu/coronavirus) coronavirus website. Guidelines will be continually updated for all phases as necessary by leveraging experiences during the initial ramp-up phases. Positive tests for COVID-19 may require ramp down of research in some labs, buildings, or a section of campus as determined by the [Emergency Operations Center (EOC)](https://emergency.ucmerced.edu/emergency-operations-center).

This document refers primarily to research conducted in university research and office spaces, such as the physical campus, field stations, agricultural lands, and field operations at non-university-owned facilities or research requiring direct contact with individuals (human subjects). On-campus research includes physical presence in campus laboratories, centers, libraries, archives, studios, and theaters to access any university material that cannot be accessed remotely, as well as performance and creative work that must be done on campus. This document also covers UCM personnel doing research at non-UCM sites. Teaching on-campus and event planning (e.g., workshops, conferences, social gatherings) will need to be integrated into an overall on-campus implementation plan since they are all interconnected. The main body of the document covers campus-wide policies and issues. Method- and discipline-specific information is presented in the appendices.

Resource availability, procurement management, funding responsibilities, and other related issues are important, but not covered in this document. Issues related to human resource policies and funding of research also are not included in this document.

## Guiding Principles and General Policies

Research at UCM will resume in stages, under three basic operating principles. The campus research enterprise must:

### PRINCIPLE #1: Follow local, state, and national public health authority directives to Stay at Home and maintain physical distancing.

* Decisions on when UCM will begin to ramp up research (or if needed, to ramp down research), and at which phase research can be conducted (phases described below), are guided by the state governor and the county public health officer and may include specific agreements negotiated by UCM with those entities. The Chancellor and Executive Vice Chancellor and Provost (EVCP) will make the final decision on any UCM-wide action to initiate or restrict phased resumption of campus research operations. Research-related ramp-up information will be communicated to the campus through the Vice Chancellor for Research and Economic Development (VCR).
* Some research projects have safely and successfully transitioned to being fully remote, requiring infrequent or no access to university spaces. While challenges exist for faculty working at home (see equity, diversity, and inclusivity (EDI) considerations below), priority for work on campus for the foreseeable future should be given to those projects that are dependent on campus facilities. While the Merced County Stay at Home order does not prohibit travel outside the county, on April 7, 2020, UC suspended all nonessential university-related international and domestic travel, while strongly discouraging personal international and domestic travel. All requests to resume research involving travel should be carefully considered and need to follow the field work protocols outlined below.

### PRINCIPLE #2: Protect the mental and physical health and safety of the entire research workforce, and human research subjects.

* No one should feel they are being compelled to work on campus or in the field during periods of Stay at Home directives. There should be consideration of disability accommodations and flexibility for individuals who are unable to return to campus even after the Stay at Home directive is discontinued. This is addressed in the campus policy of COVID-19 related leaves.
* Our standards for safety and safe work practices must be rigorously and equitably maintained, with adequate access to personal protective equipment (PPE) specific to routine research hazards, as well as enhanced PPE required to reduce the spread of COVID-19, and for everyone working on campus. If the required PPE cannot be provided at any point, not only can research not be ramped up to the next level, but it may also have to be ramped down, until required PPE is available.
* Considerations and accommodations need to be made for individuals in high-risk groups who are particularly vulnerable to COVID-19.
* Since the resurgence of COVID-19 is a very real possibility, our ability to gradually and sustainably return research and scholarly activities to ‘normal’ will depend on everyone’s commitment to physical distancing and other safety measures at work and in our personal lives.
* All individuals must participate in the campus personal health screening process (tbd) and facility access screening, including any required symptomatic or asymptomatic testing, in order to enter UC Merced facilities and physical spaces

**PRINCIPLE #3: Ramp-up research activities in such a way as to mitigate the risks of contracting COVID-19 for all employees in compliance with public health guidelines.**

* Everyone must complete the UCM Health Check self-screening process each day before coming to campus. (insert here).
* The number of people in a workspace must be limited. To maximize the utility of workspaces, staggered work shifts, wherever feasible and allowable, shall be encouraged and implemented. All decisions about staffing necessary to support new building schedules (e.g., facilities, security, campus police, janitorial services, delivery and stocking services) will need to be done in consultation with UCM Labor Relations and follow union regulations.
* If a worker feels any signs of illness, no matter how mild, they must not perform work of any kind on campus. People should not come to work if someone in their household becomes ill with COVID-19 symptoms. They should follow the [instructions](https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/index.html) provided by the Centers for Disease Control and Prevention (CDC), self-quarantine, and seek and follow medical advice.
* All personnel must wear face coverings at all times when on campus, except when located alone in a private office, or when outside and located more than six feet away from any other individual. Researchers may use their own face coverings provided they follow campus guidelines (insert link here), or the campus will have face coverings to distribute while supplies last.
* While physical distancing and low occupancy are critical, the safety of all personnel must be considered, and appropriate mitigation measures implemented. Follow best practices when it is necessary to work in small groups.
* If the required PPE is not available and physical distancing cannot be maintained, the research cannot ramp up.

## Campus Decision-Making Authority

After the chancellor and EVCP have made the decision to initiate resumption of campus research activities, chairs and deans have the final approval responsibility during the ramp-up for research activities within their units, subject to oversight by the VCR and EVC/Provost. Prior to resuming research activities that have previously been ramped down, operational plans for each independent research program must be submitted to the appropriate department chair/director for provisional written approval and submission to the dean (or the dean’s designee) prior to submission to the VCR and EVC/Provost for final written approval. The Chair of the Senate Committee on Research should be involved in all such discussions. Approval from EH&S may also be required depending on the nature of the research (see the appendices for more information, including a template). If more than one dean/school is involved, consultation and approval should be sought from each unit. Changes to operational plans (for example, changes that impact operations, personnel, and density) require resubmission through the aforementioned process. Approved operational plans (see Appendix 7) will be accessible to department chairs, deans, the Office of the Vice Chancellor for Research, and EH&S personnel. Appeals will be handled in an escalating process. In the event of a subsequent ramp-down phase, authority on research activities returns to the VCR.

## Impact on Equity, Diversity, and Inclusion (EDI)

In light of the disproportionate impact of COVID-19 on researchers who have children living at home, who support other people in their homes (whether parents, relatives, or sick members of their family), who belong to a high-risk group and/or are themselves concerned about health risks, who do not have a support network or family nearby, and/or who are at early stages of their career, campus leadership is urged to consider EDI issues when making decisions (see further [systemwide EDI guidelines](https://diversity.universityofcalifornia.edu/policies-guidelines/covid-19.html)). Differential impacts on research productivity have already been documented along gender lines.[[2]](#footnote-2) Early career faculty/staff, postdocs, and graduate students are more likely to have young children at home (and lack daycare during the COVID-19 crisis), potentially making both working from home and returning to campus nearly impossible. Researchers should not be penalized and, where possible, flexible accommodations should be considered, including adjusted work schedules and service duties.

Even with the ramping up of remote access and digitization, certain kinds of research may not be able to move forward until travel restrictions are lifted and/or effective treatments are found (e.g. on-site research, field work, archival visits, community-engaged research, health disparities research, communal arts-making). Research with and on underserved and/or vulnerable communities will be disproportionately affected, as these communities have been hardest hit by the virus. New resources may be needed to sustain research projects that have been disproportionately affected. To support research that cannot resume on or off campus, new research infrastructures and experimental approaches will need to be developed. These should be aligned with the foundational values of the public research university in advancing knowledge for the public good. At the same time, resources will be needed to facilitate greater and equitable digital access to some research materials and research support, especially through the Library’s increased digitization efforts. Since the implications for career development and research equity are significant, campus leadership is encouraged to recognize, and where possible mitigate, these extenuating circumstances when deciding about research ramp-up prioritization, resource allocation, infrastructure investments, and tenure/promotion.

## Building Management

The campus may restrict the opening of certain campus buildings for research activities until specific conditions are met, including, but not limited to, the allowance and availability of custodial and security personnel. Deans may choose to appoint a representative for their school to negotiate building discussions across departments and schools. Building planning should begin immediately and consider the following:

1. Managing physical distancing in buildings will be more difficult when multiple academic units occupy the space and the building has multi-use spaces.
2. Research ramp-up decisions must be integrated with on-campus teaching when they both require space in the same building.
3. Space management must consider private, common, and shared spaces, including:
   1. Access and layout for individual labs, cubicles, and administrative and faculty offices.
   2. Common areas include conference rooms, break rooms, bathrooms, and any gathering areas. Consideration should be given to the number of individuals who can be in the common areas at the same time while maintaining physical distancing.
   3. Shared circulation spaces such as hallways, stairwells, elevators, and entries/exits that must be able to serve everyone in a building without causing bottlenecks that create unsafe situations. Whenever physical distancing cannot be maintained, corridors and stairwells should be labeled for one-way use except in case of emergency.
4. Operational plans for research that involve pod-style labs and shared-equipment rooms should be coordinated across all principal investigators (PIs) working in those facilities.[[3]](#footnote-3) Each PI should submit an individual operational plan that acknowledges shared lab coordination.
5. All building re-configurations and modifications must meet accessibility requirements and be approved by the UCM Fire Marshal. Non-UCM personnel (e.g., vendors) may be required on-site to assist with such modifications; however, such visits should be limited to only those that are essential, noting that vendors are obligated to follow all UCM requirements for physical distancing and face covering use, as appropriate.
6. Coordination with Facilities Management, building security, janitorial services, campus mail services, and the UC Police Department, among other services under the Vice Chancellor for Physical Planning, Operations and Development is critical to ensuring safer use of space as buildings are re-populated and densities increase.

## Phases of Research Ramp-Up

During Phases 1 through 3, only personnel with a need to access physical locations to conduct research should be on-site, and those personnel should minimize time on campus. Each research space will have to maintain a log/calendar of research personnel as they enter and depart each space at the beginning and the end of each research shift., with name, time, and building/room number. Additionally, everyone must card swipe to enter the building and room if it has a card reader. ***Each person must swipe for themselves and not allow another person to enter on their card swipe*.** Written logs or other means will also be deployed for research personnel to check in and out of research spaces on campus. This is critical for any contact tracing that may be required in the event of illness. All other personnel must remain off-site during the research ramp-up, unless otherwise instructed. Meetings and workshops are to be conducted remotely. The UCM Chancellor and the EVC will have the decision-making authority to move from one phase to another.

### PHASE 1: ‘Stay At Home’ state

Only those essential experiments and activities approved by deans and the VCR may continue, including:

1. Research that must be maintained for the health and safety of human and animal subjects.
2. Research for which discontinuation would cause effectively irreplaceable data and sample loss.
3. Maintenance of critical equipment and a safe standby mode of laboratories.
4. Maintenance of critical animal populations and/or ensuring the ethical care and conduct of research with animal subjects.
5. Generation-driven animal and plant experimentation that must be carried out or the value of the animal colony or plant varieties for research will be lost.
6. Human, animal, plant, and microbial longitudinal research studies that entail regular follow up of well-characterized cohorts, delays in which may lead to data loss or a failed study.
7. COVID-19 research with a timeline relevant to the current pandemic.
8. Core facilities that stay at a level of operational status appropriate for the ongoing research activities in this phase.

### PHASE 2: Ultra-low density research activities (~15-25% of normal density at any given time)

Prioritization is for research that cannot be conducted remotely and can be adjusted to function in an ultra-low density format as defined below.

1. Ultra-low density can be approximated as one person per 250 square feet of lab or research space, one person per bay, and a minimum of six feet of distance maintained between researchers at any given time, including in public/shared/common spaces.[[4]](#footnote-4)
2. This phase requires ultra-low density research activities with little or no overlap with neighboring labs/research spaces/offices and restricted contact in common spaces.
3. Limited visits to individual offices (for instance, to retrieve materials) may occur during this phase with the approval of the department chair, adherence to physical distancing guidelines, and completion of the UCM Health Check self-screening.
4. Regular office visits by faculty and others are discouraged in this phase and are only allowable as part of an approved research operational plan that specifies why the work cannot be performed remotely. Faculty may spend time in their offices if they are also monitoring the activity of their research personnel in their research spaces.
5. Laboratory research may be conducted in compliance with approved plans (see Appendix 2). Faculty must coordinate schedules of shared laboratory space in these plans. Plans must be approved by the department chair, school dean, VCR, and EVC/Provost.
6. Considerations for prioritization include:
   1. Seasonal data collection such as time-sensitive field work or human subject research studies, experiments close to completion, or deadline-driven research whose pause or deferral would lead to long delays, loss of research results, or potential loss of funding.
   2. Short-term research or projects that could be quickly ramped down in the event of a return to Phase 1.
   3. Lab, studio, and/or office access for students and postdocs close to completing their degree/term of appointment.
   4. In-person clinical and human subjects research where risk can be mitigated to a minimal level even if there is no potential for direct benefit to the participant.
   5. Individuals who seek a disability accommodation that includes on-premise activities.
   6. EDI and accommodations for early-career researchers and those researchers disproportionately affected by the campus closure.
7. All researchers should wear face coverings at all times when they are in the presence of another person. COVID-19 related face coverings, sanitation and cleaning supplies will be provided by the campus. PIs and their teams should plan for supply chain issues that may delay the resumption of research, and coordinate with EH&S and the central procurement team. PIs will be responsible for providing research specific PPE not related to COVID-19 restrictions.
8. Necessary core facilities, service centers, and support functions should be staffed and operational to accommodate only the ongoing research activities during this phase. Research activities dependent on core facilities may thus have a gradual ramp-up during this phase. Prior to reopening, core facility managers must adhere to the ultra-low density requirement and must develop operational plans that include provision of PPE and physical distancing strategies. (See Appendix 6).
9. Non-university personnel and other visitors may not be invited into UCM research facilities until allowed expressly by the VCR’s office and in accordance with guidelines provided by the Merced County Department of Public Health.

### PHASE 3: Low-density research activities (~25-50% of normal density onsite at any given time)

With the exception of the increased personnel densities and the reevaluation of the one person per 250 square feet limitation, policies and guidelines are expected to remain largely unchanged relative to Phase 2, but relaxation of certain policies may be possible if approved by campus leadership. Phase 3 will include:

1. Continued expansion of all research activities and re-occupation of office space while following established campus requirements for physical distancing and health monitoring. (See appendices for additional guidelines.)
2. In-person human subject research where physical distancing can be maintained or risk mitigated to a minimal risk level. In general, this research can begin when clinical care settings open up and follow similar procedures.
3. Field research can be resumed adhering to the relevant requirements and local guidelines including resolution of complicating issues such as lodging and travel.
4. Core research and fabrication facilities such as machine/glass shops, imaging facilities, nanofabrication lines, recording and filming studios, stages, rehearsal rooms, design studios, and arts production labs could expand their operations.
5. Theaters, the library, centers, and research institutes can begin a phased process to open to researchers and staff so long as appropriate sanitization procedures and other risk mitigation measures are in place before allowing access to collections, equipment, spaces, and services.
6. Limited performance- and other group-based, creative activities can gradually restart with appropriate physical distancing and risk mitigation plans in place. (See Appendix 4 for specific guidelines.)

### PHASE 4: Restart a return to full research operations (a gradual ramp up toward normal density onsite at any given time)

The return to the new normalcy may be gradual and, in some cases, it may require additional sub-phases, which can be locally defined under the guidance of deans and directors.

## Guidelines for the Submission of Research Ramp-Up Operational Plans

Research personnel may not be authorized for access unless an operational plan (see appendices for more detail) has been defined, approved, and can be produced upon request by the chairs, deans, VCR and EVC. Those research personnel approved for access to campus under Phase 1, Essential Researcher Designations, may continue their existing activities but of the sake of maintain an accurate census of all individuals on campus the PIs operating under this designation will be expected to turn in an updated research plan. Various units of campus may elect to introduce and enforce stricter guidelines, depending on the risk level of activities proposed. Guidelines stated here have to be adopted as the minimum level of compliance.

1. These guidelines may not be sufficient for persons currently identified as being in [high-risk groups](https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/groups-at-higher-risk.html).
2. Ramping up research projects that are distributed over multiple sites, involve multiple partners/centers, or depend on international collaborations will be challenging and will require additional coordination.
3. PIs currently working on campus after being granted a research exception under Phase 1 still need to complete and submit an operational plan for Phase 2.

In the development of operational plans, all campus policies must be followed including:

1. Specific requirements regarding building access and security.
2. Requirements for daily completion of the UCM Health Check self-screening for everyone working on campus.
3. Environment, Health & Safety (EH&S) requirements including the right to request modifications to approved operational plans for any and all research activities within university spaces.
4. Labor relations requirements for any covered personnel.
5. Completion of any conditions required by UC or UCM for all personnel returning to work.
6. Any policies implemented by the campus following approval of the return to research activities must be followed.

## Monitoring and Enforcement

The burden for compliance with research ramp-up operational plans is on PIs. ORED staff will conduct spot checks to confirm appropriate density, distancing, and protective measures. Maximum occupational densities will be posted on each research space in each building. These will be based on large common areas in a laboratory and not include associated anti rooms. Departmental and division leadership should also monitor compliance. Researchers must be informed of their right to report noncompliance problems to the PI. If appropriate action is not taken, the reporter must be empowered to take their concerns to the department chair who is obligated to follow up with the PI and report to the dean.[[5]](#footnote-5) Non-compliance with existing safety policies and principles could lead to the shutdown of on-campus research in the non-compliant lab or research space, and may require review by a faculty committee providing research oversight. Non-compliance could also result in discipline under applicable UC or UCM policies. Complaints regarding non-compliance may be submitted to UC Merced Emergency Management at [emergency.mgmt@ucmerced.edu](mailto:emergency.mgmt@ucmerced.edu) .

COVID-19 testing is available to all UCM employees through existing county public health programs; for appointments contact [www.lhi.care/covidtesting](https://www.lhi.care/covidtesting) or by phone at 1-888-634-1123.

## Research Ramp-Down

In the event of any applicable local, state, or federal orders to resume Safer at Home sheltering, or circumstances such as a lab- or building-specific outbreak dictate an immediate campus response, research activities may need to rapidly ramp down again. Personnel must have a plan in place to implement a ramp-down upon short notice. (See Appendix 8 for ramp-down instructions.)

## APPENDIX 1: Policies and Practical Considerations for Ramping Up Laboratory Research

Laboratory research activities must be phased in gradually so that population densities and safe practices can be monitored to ensure staff health and safety. Resumption of work from the current ramped down phase (Phase 1; see below) will therefore occur slowly. In Phase 2 (ultra-low density), a small number of researchers (approximately 15-25% of normal density) are permitted in campus buildings and research laboratories at the same time according to the space specifications detailed below. Following an evaluation of the success of Phase 2, including the degree of compliance with Phase 2 policies, and depending on the trajectory of the pandemic and on evolving state, county, and campus policies, the next phase of increased density (Phase 3, low-density laboratory research with approximately 25-50% of normal density) may occur. Phase 4, a return to near-normal activities, is possible but unlikely in the foreseeable future. Conversely, an undesirable trajectory of the pandemic, the appearance of COVID-19 in research personnel, and/or evidence of significant non-compliance with the directives outlined below (thereby putting the entire community at risk), could lead to a return to Phase 1.

### PHASE 1: Safer-at-Home

Only those essential experiments and activities approved by chairs, deans, the VCR and the EVC may continue, as detailed in the main document.

### PHASE 2: Ultra-Low Density Laboratory Research Phase (~15-25% of normal density)

Phase 2 will begin with extreme caution to allow the restart of the research enterprise at a measured pace. Work that can be performed remotely should remain remote to minimize personnel densities in research buildings and prioritize activities that depend on university facilities. For work that requires on campus activities, each faculty member with an independent research program must complete a research operational plan. (See Appendix 7 for more information.) The completed form must be formally approved by the department chair, school dean, VCR, and EVC/Provost before on-campus research in each laboratory can begin. The forms will be accessible to department chairs, deans, the Office of the Vice Chancellor for Research, and EH&S personnel.

Although UCM research laboratories have diverse physical designs, an overall target during Phase 2 is 15-25% of normal personnel density. Ultra-low density is defined as one worker per 250 sq. ft., with the ability to maintain at least a six-foot separation from all other personnel at all times, **including** in shared/public/common spaces. Occupancy limits for each research laboratory (not including adjacent anti-rooms) will be calculated based on the total square footage of that space and the 250 sq. ft per person space requirement. These occupancy limits will be posted on the entrance of each laboratory space and the must be adhered to at all times. Rooms smaller than 250 sq ft. may not exceed single occupancy without explicit permission and additional protective measures. For laboratories with traditional bays, no more than one lab worker per bay will be permitted. In the animal facility, no more than one person per animal holding or procedure room is allowed. Shifts can be scheduled to allow multiple people to work on a staggered schedule. Researchers should communicate by email and/or text to ensure that a researcher in one shift departs before the next researcher arrives.

Faculty should carefully consider the spirit of the policy and keep the health of UCM trainees and staff as their top priority. Please resist the tendency to stretch the rules to squeeze in one more person: think instead about the health of that person and the health of the community. Lab personnel should follow all EH&S safety and health guidelines including maintaining physical distance of six feet and wearing face coverings. Each PI is responsible for ensuring compliance with these policies by their laboratory personnel and therefore must maintain a regular (daily) physical presence in the lab. Any PIs with documented underlying health conditions will be accommodated; in such cases, the academic department should coordinate with the PI to appoint another faculty member to be in the lab regularly to provide oversight. ORED staff will conduct spot checks to identify laboratories where there is inappropriate density or lack of distancing and protective measures. Non-compliance with policies may result in the shutdown of on-campus research in the non-compliant lab, in accordance with the already established general [EH&S safety policies and principles](https://ehs.ucmerced.edu/researchers-labs). Non-compliance could also result in discipline under applicable UC or UCM policies.

The following additional details of the Phase 2 policy address specific circumstances:

* This directive and the density targets noted above also apply to labs performing approved essential experiments, including COVID-19 research. These labs cannot add more personnel if the resulting total density will exceed the targets stated above or those previously approved by the VCR.
* Shared office spaces can be used only if a distance of at least six feet between individuals can be maintained at all times. In addition, work in shared office spaces should be kept to a minimum, with computer/office work performed remotely whenever possible.
* If a faculty member has < 250 sq. ft. space adjacent to other laboratories, then she/he should negotiate with researchers in neighboring labs to work out a solution involving space sharing and shift work.
* Many lab staff work in space that does not involve conventional bays and benches. These labs are allowed one person in a minimum laboratory space of 250 sq. ft. Accessory space where experiments are generally not performed (e.g., equipment rooms) does not count toward this density calculation.
* The use of shared facilities (e.g., equipment rooms, cell culture spaces, animal rooms) should be coordinated and scheduled between members of participating labs to avoid overlap/unnecessary contact. Researchers using shared/common space and/or equipment should sanitize their work area directly upon completion of their work.
* Personnel who spend all of their time away from a central lab (e.g., in animal facilities, cell culture rooms, or other auxiliary spaces) do not count toward the density of the central lab and must follow the same density policies in auxiliary spaces as above: one person per room (if smaller than 250 sq. ft.) or per 250 sq. ft., one person per bay or aisle, and the ability to maintain six feet of separation from all other workers. These individuals must coordinate their schedules with other workers (see next section).
* Complex experiments and training may require teamwork between at least two people and are allowed when necessary, but should be minimized whenever possible. In any instance, physical distancing protocols need to be observed.
* Laboratory safety must remain a high priority during times of low staff density. Those working with hazardous chemicals or materials should not work alone or during off hours when fewer people are present. Researchers must establish a buddy system with someone in a neighboring space or lab, or use check in/check out by phone or text with the PI or another laboratory member.
* Face coverings cannot be used to substitute for other required PPE, such as flame-resistant face masks when working with flammable or pyrophoric materials. Experiments must be performed using PPE appropriate for the required Biosafety Containment Level according to existing laboratory protocols.

#### Scheduling and Coordination of Work Hours

To allow multiple people to sequentially occupy the allotted space, labs should develop calendar systems to schedule work shifts throughout the day and on weekends, bearing in mind that safety is a concern for people working late at night. The structure of these schedules and the length of shifts can be flexible, depending on the type of experiment and the needs of each lab, as long as labs coordinate with neighboring labs to ensure compliance with personnel density in each building. Another option is for specific people to reserve certain days of the week. Lab staff should understand that their time in the lab is limited and they have to make the most of it. Furthermore:

* Lab members should communicate openly and often (by text or other messaging systems) to coordinate and adjust schedules as necessary and to be sure that they avoid each other. Everyone should complete work within their shift and not work during others’ shifts. It is strongly recommended that lab members also communicate frequently with adjacent labs.
* Lab members should plan ahead to maximize the use of their limited bench time, and they should do the majority of desktop activities when they return home.
* Lab members should be encouraged to help their labmates by doing minor tasks and experiments that will reduce the need for others to come to the lab.
* Where possible, each lab member’s bench and desk space should be considered private and not be used by other lab members; all workspaces should be disinfected before and after use. Major scheduling overlaps between laboratories, especially those that may compromise researcher safety, should be brought to the attention of the department chair and escalated further to the Dean, if necessary.
* PIs may enter the lab briefly with appropriate face covering for purposes of monitoring personnel without this counting as a work shift.

The purpose of achieving a state of ultra-low personnel density is not simply to promote physical distancing between people while they work at their benches, but also to minimize density in our buildings and on campus. The ultra-low density in Phase 2 may have a significant impact on the population density of our buildings, not just in labs but in hallways, elevators, equipment rooms, and other shared spaces. Research groups with laboratories organized in close vicinity to each other and on floors with common equipment rooms, break areas, and entryways are strongly encouraged to discuss their restart plans as a group to optimize plans for use of space while minimizing social interactions in common areas and hallways. If density becomes an issue, a shift schedule may be needed for each building to spread out researchers from multiple labs over time, in order to reduce encounters in common equipment areas, hallways, and other locations.

#### Choice of Lab Members Who Return to Work

Each PI must think carefully about which lab members will be allowed to return to work initially:

* Trainees (PhD students and postdocs) will often be given priority due to the need to complete their research projects in a timely fashion.
* Consider the well-being of trainees and staff who are feeling isolated and will benefit greatly from the ability to come to work.
* Consider the urgency of the work: students or postdocs should be given high priority if they need to complete experiments to meet a thesis deadline, a paper submission or revision, or a degree or funding/scholarship requirement.
* Undergraduate students are allowed in labs on a case-by-case basis, provided they are part of the PI’s approved research operational plan.
* Consider occasional replacement of personnel in the schedule with new people, to allow as many lab staff as possible to make progress with their projects. (As this rotation of personnel may increase the health risk by exposing more people to the same high-touch areas, additional cleaning and sanitizing will need to be coordinated.)

#### Support Staff, Core Facilities, and Delivery of Supplies

The reopening of laboratory research will require additional staff to support research, including those operating core facilities, and in shipping and receiving. As the resumption of work begins, we can expect delays in the reactivation of core facilities (detailed in Appendix 6) as they adjust to the new demands, and there are likely to be delays in ramping up some supply lines. Furthermore, these added services will lead to increased population density and social interactions. The numbers of support staff should be kept to the minimum wherever possible.

#### Additional Safety Considerations

* Avoid social interactions and surface contamination during commutes, building entry and exit, elevator rides, movement in stairways, and bathroom breaks. Avoid common areas for lunch or coffee breaks unless you are alone or seated at distant tables; otherwise find an isolated location in lobby areas or outside the building.
* To reduce viral transmission between shifts, labs will be provided sanitation and disinfection supplies to clean bench surfaces, doorknobs, and equipment surfaces at the beginning and end of a shift, and during as needed.
* To reduce viral transmission between shifts, and dependent on the type of space, research staff may wish to leave the space empty for a period of time to allow air circulation in between shifts.
* All researchers should wash hands with soap regularly throughout the day, especially after removing gloves. Gloves should be removed before leaving the lab. Gloves should not be worn in hallways, elevators, or offices.
* Minimize elevator usage and use appropriate physical distancing within the elevator.
* Appropriate physical distancing needs to be followed in bathrooms and in all common areas.
* All meetings that include more than two or three properly distanced researchers should continue to be held remotely. Conference rooms and other group meeting spaces should not be used by more than one or two individuals at a time; in these cases, individuals should maintain a physical distance of six feet and wear face coverings.
* Maintain compliance with physical distancing directives provided in UC Merced’s [Interim Policy on Universal Requirements for Physical Mitigation and Reduction of the Transmission of COVID-19](http://policies.ucmerced.edu/sites/policies.ucmerced.edu/files/documents/policies/interim_policy_on_physical_mitigation_and_reduction.pdf). When physical distancing is not possible (lab or office spaces with corridors less than six feet wide), seek an alternate route or make your presence known verbally from six feet away.
* In shared office or laboratory space, where possible erect plexiglass or other physical barriers between desks and coordinate use of shared instruments, refrigerators, etc. to maintain physical distance.

### PHASE 3: Low-Density Laboratory Research Phase (~25-50% of normal density)

As described above, a desirable trajectory of the pandemic, along with a relaxing of state, county, and campus policies, and evidence of consistent compliance with Phase 2 policies, may allow an increase in personnel densities to 25-50% of normal levels. With the exception of increased personnel densities, policies and guidelines are expected to remain largely unchanged relative to Phase 2, but relaxation of certain policies may be possible if approved by campus leadership. For example, undergraduate volunteers and other researchers may be permitted to participate in research and lab maintenance activities in Phase 3. Additional stipulations may arise as facilities begin to be used for multiple purposes (eg, instruction as well as research).

### PHASE 4: Near-Normal Research Phase (50-100% of normal activity)

A return to full personnel densities and full research activities, including in-person meetings with multiple individuals, may not occur for several months or longer and will likely be dependent on evidence that a future resurgence of the SARS-CoV-2 pandemic is unlikely. This is likely to coincide with the availability of a successful vaccine, or novel and highly successful COVID-19 therapies.

## APPENDIX 2: Policies and Practical Considerations for Ramping Up Human Subjects Research

Human subjects research (HSR) activities must also be phased in gradually so that population densities and safe practices can be monitored to minimize risk and to ensure faculty investigator, staff and research participant health and safety. In addition to COVID-related HSR requirements established by the Institutional Review Board, all general UCM health guiding principles and general policies must be adhered to. Throughout the phased expansion of HSR activities, risk and potential benefit to participants must be balanced, while implementing appropriate risk mitigation strategies. Any researchers seeking to conduct human subjects research during COVID-19 restrictions must receive IRB (re)approval of any change to their risk mitigation strategies, in addition to getting approval for their research operation plan (see Appendix 7). Any resumption and/or expansion of work from the current ramped down phase will necessarily occur slowly and will be a balancing act between ensuring access to human subject research with the potential for direct benefit to participants and ensuring the health and safety of all involved.

**Phase 1: Stay at Home state –** *Very low onsite density*

During Phase 1, the current remote research phase, only the below type of research can take place:

* Human subjects research that **can be conducted remotely** regardless of potential for direct benefit.

**Phase 2: Minimal additional onsite research allowed -** *Low onsite density (15-25% of normal onsite personnel levels)*

During Phase 2, in addition to the human subjects research allowed in Phase 1, two additional forms of research are allowed. They are:

* In person research **where risk can be mitigated** to a minimal risk level if there is potential for direct benefit
* In person research **where risk can be mitigated** to a minimal risk level if there is no potential for direct benefit

All human subjects research conducted in Phase 2 must be performed in a manner which minimizes risk to participants and research personnel. This includes:

* Adherence to UC Merced screening protocols for all on-site research personnel and screening of study participants for COVID-19 symptoms in advance of visit and upon arrival. *Note: Screening of remote study participants is not required.*
* Adherence to physical distancing and the use of appropriate face coverings as needed.
* Cleaning of all surfaces that either the participant or research personnel had contact with in between participant visits and at the end of the day.
* All human subjects research activities that can be performed remotely must be performed remotely.

Adherence to the risk mitigation strategies will be challenging and require detailed planning and effort on behalf of research personnel. On-site research personnel is still limited in Phase 2 primarily to those directly conducting participant-facing study activities for the allowable study types that cannot be performed remotely.

Plans should be implemented to limit the number of research personnel and participants onsite at any given time to ensure that appropriate physical distancing and other risk mitigation factors are achievable, not only in offices or other workspaces but in common spaces such as elevators, hallways, restrooms, and break rooms. Spot checks by staff will still occur.

**Phase 3: Additional onsite research personnel allowed** –*Low-medium onsite density (~25-50% of normal onsite personnel levels)*

During Phase 3, the same forms of human subjects research allowed in Phase 2, may continue, however, minimal additional research personnel in non-participant facing roles are allowed to return onsite. Plans must be developed and approved to ensure onsite research personnel does not exceed maximum allowable capacity or the maximum capacity where appropriate risk mitigation strategies can be implemented. To allow multiple people to occupy onsite workspace, units should think carefully about which individuals will be allowed to return to work initially and which should continue to work remotely. Priority to return to work should be given to those whose duties are more difficult to accomplish remotely as well as to considerations of the well-being of research personnel who may feel isolated and will benefit greatly from the ability to come to work. Systems may be developed to rotate onsite and remote research personnel provided shared workspaces are disinfected between use and appropriate physical distancing can be maintained. As in previous phases, the risk mitigation strategies as previously described must continue to be adhered to, not only in offices and other workspaces but in common spaces such as elevators, hallways, restrooms, and break rooms.

**Phase 4: Near-normal research phase** –*Medium-normal onsite density (~50-100% of normal onsite personnel levels)*

Phase 4 represents a return to full human subjects research activities and ability to have full personnel densities, including in-person meetings with multiple individuals. In Phase 4, all forms of human subjects research is allowed, including the following form which was not previously allowed:

* In person research in which **risk cannot be mitigated** to minimal risk levels and no potential for direct benefit

While in Phase 4, full density is allowable, provided all remaining state, local and institutional risk mitigation policies are complied with, units are encouraged to maintain a balance between onsite and remote work. UC Merced appreciates that recovery from the SARS-COV-2 pandemic may lead to a new normal that still may require more vigilance than pre-pandemic. These guidelines will be updated to reflect the new normal when more information is available.

**Summary of Human Subjects Research Ramp-up Process:**

In summary, restoration of human subjects research will occur in a step wise fashion in accordance with the overarching principles and phases as provided in the overall guidance provided by the Vice Chancellor for Research (VCR). The following table summarizes the types of human subjects research that are allowable during each of the four Phases of ramp up.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **For these study designs** | **Research Business Operations Phase** | | | |
|  | **Phase 1** | **Phase 2**  Gradual restart of research where risk can be minimized | **Phase 3**  Gradual restart of research where risk can be minimized | **Phase 4**  Return to full research operations |
| On Site Research Staffing | <10% | 15-25% | 25-50% | 50-100% |
| Human subjects research that **can be conducted remotely** regardless of potential for direct benefit | Allowed | Allowed | Allowed | Allowed |
| In-person research **where risk can be mitigated** to a minimal risk level regardless of potential for direct benefit | Not Allowed | Allowed | Allowed | Allowed |
| In-person research in which **risk cannot be mitigated** to minimal risk levels and no potential for direct benefit | Not Allowed | Not Allowed | Not Allowed | Allowed |

## APPENDIX 3: Policies and Practical Considerations for Reopening Libraries, Archives, and Reading Rooms

Off-campus access to online collections, digital books, and research tools is available through VPN and on the various digital platforms the library offers. Through the UCM Library's partnership with the HathiTrust, UCM students, staff, and faculty have temporary access to digital versions of millions of volumes currently in copyright and not available electronically held by libraries across the University of California system and those kept in UC's two off-site library storage facilities. The HathiTrust is providing emergency temporary access to member institutions, including UCM, during the COVID-19 pandemic. This emergency access may be reduced or terminated when the UCM Library reopens and access to the print collections is restored. Therefore, a significant amount of planning and staffing will be required to reopen the Library. This has long-term implications to the campus plans for remote research and teaching.

In addition to digital access to e-books and articles, Library staff currently offer librarian virtual office hours, remote consultation, remote workshops, research tutorials, tutorials on teaching with primary sources, copyright and open access consultation, for researchers. Our digital special collections are all available online on the Calisphere platform through the California Digital Library.

Reopening the Library aligns with the four basic campus phases of research ramp-up.

### PHASE 1: Campus operations suspended, all Library facilities closed and not physically staffed

1. Online activities (online access to collections, reference services, consultation, and workshops/tutorials) continue, and library staff are adding online tutorials frequently in response to queries from students and faculty.
2. Library instruction support of online education and undergraduate research continues via zoom.
3. Remote services for the data management and curation support (consultation and workshops/training) are provided.
4. As a response to the coronavirus, some publishers and vendors have temporarily provided expanded access to online resources to facilitate online instruction and research including the JoVE Archive and HathiTrust ETAS.
5. Loan periods for print materials currently in circulation have been relaxed and will continue if necessary.
6. Interlibrary loan services for articles and other resources that can be delivered as a digital copy continue, and due dates for materials have been extended.
7. Physical ILL operations have come to a stop since no libraries are lending their materials during the CoVID-19 Crisis.
8. On-demand digitization for the Supplemental Course Resources (SCR) is continuing to support teaching.

### PHASE 2: Time-sensitive research resumes, small number of Library staff (15-25% density) return to campus

1. Library buildings remain closed to all users.
2. Limited staff access to special collections and digitization facilities.
3. All other services remain remote.

In light of increased demand for digital access to materials through the Supplemental Course Resources (SCR) program, additional resources may be needed for Phase 2, including staff, media transfer technologies, servers, backup storage, etc. to meet demand.

**PHASE 3: Partial reopening of some Library spaces**

### KL 155 or KL 255 of Kolligian open limited hours with staff providing limited paging services so long as remote access for HathiTrust materials can be continued.

* + - 1. Limited ILL service may be provided depending on the availability of materials from other campuses/institutions and the availability of courier services. Items will have a no contact period based on campus quarantine period after being returned or before being made available to patrons. Items will be paged by Library Services staff or students and delivered to the appropriate service point, either KL 155 or KL 255, depending on the level of Library operation. Items will be available for pick-up between 9am and 5pm or, if applicable, building hours or be sent through intercampus mail if possible.
      2. Microfilm and other Library-Use-Only items will not be available due to the need for on-site viewing, complicated training and handling requirements. There might be limited opportunities to digitize some of these materials. Some items may still not be available through Interlibrary Loan.
      3. Sanitizing strategies for materials must be developed and enforced. At minimum, media must sit for three days in a dry, well-ventilated area before being handled by staff or a subsequent user.
      4. All other services remain remote.

### PHASE 4: Return to quasi-normal operations

1. Library facilities gradually reopen with some areas available for study while others remain unavailable because physical distancing cannot be assured (i.e., use of the group study rooms, will likely not be available for use until campus clearances are given). Open hours will be limited initially.
2. The number of occupants of the library may be limited based on the number of seats available.
3. Considerations for opening buildings assume full security measures, access requirements, appropriate health screenings, and ability to do contact tracing as determined by the campus.
4. Additional custodial care including frequent disinfecting of common areas and equipment as well as placement of hand sanitizers and disinfecting wipes in public areas, stairwells, and elevators.
5. Access to the stacks may be restricted to staff or limited numbers of people at one time. If necessary, it may be possible to make materials available for pickup at the Library if access is restricted.
6. Considerations for resuming quasi-normal operations may include the following:
   1. Use of face coverings and implementation of other risk mitigation measures for library staff who work with the public.
   2. Availability of CSOs or other staff to control access to the buildings and use of some areas in the buildings as appropriate.
   3. Installation of protective shields at service desks.
   4. Removal of seating or limitations on access to some areas.
   5. Possible need for 72-hour quarantine of books that have been checked out or used in-house.
7. Conferences, seminars and other gatherings in the library facilities may continue to be suspended. Members of the public will only be allowed after authorization by the university and in accordance with guidelines provided by the Merced County Department of Public Health.
8. Exhibit areas will require extra monitoring and cleaning.
9. The Lantern may not reopen for some time.
10. Remote services will continue in support of remote teaching and research.

SpARC is an essential service for UC Merced research for the following reasons:

* 1. Supports in-process grant-funded faculty research projects.
  2. Over sixty UC Merced faculty currently use SpARC services.
  3. Supports in-process administrative projects, such as the initiative to map the Merced Vernal Pools and Grassland Reserve.
  4. SpARC should be treated as a core research facility. For criteria and requirements for core research facilities for reopening, please see Appendix 6.

SpARC Reopening Plan (Phase 3 & 4):

* NO CatCard entry by non-SpARC Staff
* Workstations six feet apart, workstations in between will be used for virtualization and be blocked off from use (remove monitor/keyboard or post note)
* No collaborative work in groups allowed
* No TA access for office hours allowed unless SpARC staff on-site, PPE required if TA’s meet with student(s) in SpARC
* Consultations by virtual appointment only for technical and instructional support
* Doors in the lab will remain closed, no drop-in’s allowed
* Physical SpARC access by appointment only on specific days (TBA) – access only for graduate research and UROC students
* Online services will continue to be available, such as consultation and workshop offerings.

## APPENDIX 4: Policies and Practical Considerations for Ramping Up Performance- and Studio-based Research

Performance and studio-based research, broadly considered, is highly responsive to shared experience, the ethical dimensions and sociocultural circumstances of our lives, to sensory modalities, and to new technologies and strategies that reveal the extraordinary within the ordinary. As a result, such research, most often found in the arts or those working with artistic methods, evolves within diverse contexts and spaces in its different stages of development and public presentation.

Depending upon the medium, research engagement and creative work occur in individual or shared studios, labs, workshops, on ensemble stages, dance studios, or film/video set locations, among others. Foundational or continued research of individuals working in these fields may involve particular communities and populations (including students), sites and locations, archives and collections, travel and fieldwork as well as specialized equipment such as cameras, lighting, sensors, large-scale displays, and 3-D printers. Much research finds its way to theaters, galleries and museums, as well as non-traditional and public spaces, for public exhibition and experience, often at various stages in its iterative development.

**Performance- and studio-based research includes the following:**

* Work done individually or collaboratively, with students or professionals, in purpose-built facilities associated with the School of Social Sciences, Humanities and Arts, UCM Arts Presents programming, and the various on-campus and off-campus facilities, museums, and studios in downtown Merced. Policy may apply to other spaces such as public parks on an as-needed basis.
* Field research undertaken individually or collaboratively, involving travel and accommodations. See Appendix 5 on field-based research.
* Community-engaged research with local organizations, prison communities, K-12 schools, and other populations as participants and collaborators (not only audiences)
* Rehearsal and public presentations in theaters, galleries, museums, as well as non-traditional spaces
* Researchers working on their own or in groups off-campus

In fields with professional organizations (e.g., guilds, unions), best practices from these organizations should be reviewed and taken into account for the above type of work in each phase below.

**PHASE 1: Safer-At-Home**

All performance and studio facilities closed.

**PHASE 2: Ultra-low density research and creative activities (~15-25% of normal density)**

Prioritization is for research and creative activities that cannot be conducted remotely and can be adjusted to function in an ultra-low-density format as defined below. For work that requires on campus activities and facilities, individuals or research units/ensembles must first complete a research operational plan (See Appendix 7 for submission details). The completed form must be formally approved by the department chair/director and dean before on-campus research activities can begin. The forms will be accessible to department chairs, directors, deans, the Office of the Vice Chancellor for Research and Creative Activities, and EH&S personnel.

Although UCM performance- and studio-based research spaces have diverse physical designs, an overall target during Phase 2 is 15-25% of normal personnel density. Ultra-low density is defined as the ability to maintain at least a six-foot separation from all other personnel at all times, including in shared/public/common spaces.

In this phase, the following guidelines will be in place:

1. Individual research activities and physical layout of spaces will dictate allowable personnel density, which may deviate from the general on-campus research/use of facilities guidelines that permit one person per 250 sq. ft. of space (e.g., use of low- or zero-latency data connections may allow coordination of creative work while maintaining the mandated level of distancing).
2. Solo researchers (e.g., composers, musicians, writers, actors, choreographers, dancers, designers) may work in privately assigned rehearsal studios on campus. This provision includes faculty, staff, graduate and undergraduate students, provided they are part of an approved research operational plan.
3. No members of the public allowed.
4. Individual use of ceramic, photography, sculpture, painting, recording studios, workshops, maker-spaces, and editing bays is allowable with approval of the chair/director or dean.
5. Use of specialized shared lab environments, e.g., rapid fabrication or plotting, where equipment can be controlled remotely and proper distance/sanitization requirements can be maintained.
6. For rotation of studios, stages, rehearsal spaces, practice rooms, workshops, and shared lab environments, occupancy and use can occur only after comprehensive cleaning after each use and approval of the chair/director or dean who has discretion over who can use these spaces.
7. Where appropriate, core facility managers and lab staff must be present. All must adhere to the ultra-low-density requirement and must develop or be included in operational plans prior to reopening.

**PHASE 3: Low-density research activities (~25-50% of normal research density)**

With the exception of the increased personnel densities (appropriately spaced small groups), policies and guidelines are expected to remain largely unchanged relative to Phase 2, but relaxation of certain policies may be possible if approved by campus leadership. These include:

1. Continued expansion of all research and creative activities, including re-occupation of office space while following established campus requirements for physical distancing and safety.
2. Field research undertaken by ethnographers, musicologists, ethno-musicologists, performance, film and dance studies scholars, architects, filmmakers, theater makers and other creative artists whose work involves individual and collaborative field research, production, and travel can be resumed adhering to the relevant requirements and local guidelines including resolution of complicating issues such as lodging and travel. For more information about field research see Appendix 5.
3. Research and fabrication facilities such as machine and printing shops, recording and filming studios, stages, rehearsal rooms, architecture and design studios, workshops and maker-spaces, and arts production labs, etc. could expand their operations.
4. Museums, libraries, centers, practice rooms, and research institutes can begin a phased process to open so long as appropriate sanitization procedures and risk mitigation measures are in place before allowing access to collections, spaces, and services, including controlled public access subject to leadership approval and in accordance with guidelines provided by the Merced County Department of Public Health.
5. Because several art forms require person-to-person engagement with movement in space, sight, breath, sound and shared construction, much research and creative activity will either need to be adapted or delayed. While small groups of researchers who are spaced appropriately and with appropriate PPE may be allowed, additional safety precautions will need to be followed, such as employing movable plexiglass gobos/barriers. Vocal performance and theater production, for instance, cannot resume without such safety precautions. Face-to-face singing and projected theatrical performance will not be allowed. Members of the public may not enter into these spaces without approval of the Dean.

### PHASE 4: Restart a return to full research operations.

Limited public programming with appropriate health and safety precautions in accordance with guidelines provided by the Merced County Department of Public Health. Given the potential risks for face-to-face singing, certain instrument classes, and singing/projected theatrical speaking (both Western and non-Western), additional restrictions and layers of review will be needed for such practices and performances.

## APPENDIX 5: Policies and Practical Considerations for Ramping Up Field Research[[6]](#footnote-6)

Due to travel restrictions and greater potential for exposure to risks, the timing for the resumption of field research may be different from that of the other phases of research ramp-up. The policies and practical considerations below are meant to serve as guidelines for researchers, deans, and chairs when submitting and reviewing research operational plans that include travel for field research. (See Appendix 7.) A copy of the research operational plan should also be submitted to the UCM EH&S as necessary.

1. The approved field research operational plan must be reviewed by all research participants.
   1. The field research plan must spell out potential risks to both personnel and research participants, and must spell out potential safeguards the PI and the personnel can take.
   2. Research personnel must be given a departmental or university officer to contact if they feel that safety considerations have not been sufficiently addressed or if they feel compelled to participate in the research against their wishes.
2. Personnel must not be compelled to engage in travel or field activities with which they are not comfortable. The faculty researcher will inform personnel about their rights, responsibilities, and potential consequences with regard to engaging or refusing to engage in activities that could expose them to the public. Faculty researchers must obtain positive consent from personnel of their willingness to assume the risks involved for each field trip.
   1. Positive consent must be obtained in writing, either on paper or via email.
3. Field research operational plans must include:
   1. List of all personnel, their contact information, and an emergency contact.
   2. Location of field work and travel plans for all personnel.
   3. Description of lodging and meal plans for personnel staying more than a day. (See also guidelines listed in #16 below)
   4. Justification as to why delaying the research will have a detrimental impact on the research project or progression towards degree for relevant personnel.
   5. Description of the research activities and what precautions are being undertaken to limit potential disease transmission (e.g., personal protective equipment, physical distancing).
      1. For research personnel
      2. For study populations
   6. Plan for care/treatment if one or more research personnel becomes sick in the field. (See requirements listed in #17 below)
   7. Contingency plan for carrying on research if one or more personnel becomes sick or is no longer willing or able to participate in research activities.
   8. Contingency plan for medical treatment and potential medical evacuation if an individual of the research team becomes sick.
4. Research being conducted at non-UCM sites must have written permission for the field work to proceed from those that control access to the field site and the funding agency, if applicable.
5. If IRB approval for the research is required because the research involves human subjects, the PI has to obtain an updated IRB approval that factors in the potential risk to the study participants of being exposed to COVID-19 from being involved in the research.
6. If non-UCM agencies or research partners are actively engaged in the research, the research should be engaged using the guidelines that are the most stringent unless expressly permitted by the partner agencies.
7. Before conducting research each day, all UCM personnel working at the field location must measure their body temperatures. Personnel must also keep a daily log of COVID-19-related symptoms.
8. No one may participate in any field work if they are feeling ill, have a temperature of >100°F, or if any members of their household are experiencing flu-like symptoms. No one over the age of 65 or any field research who has serious underlying medical conditions should participate in any field research.[[7]](#footnote-7)
9. A log of each day’s activities should be recorded in a shared folder (e.g., within the onsite network, UCM Box, a shared Google Drive, Microsoft Teams).
   1. This log will include locations sampled, public or private venues accessed or visited, personnel in attendance, and any operational anomalies that may have occurred requiring assistance from persons outside the field crew (e.g., mechanical issues).
   2. The log should also include, to the best of the research team’s ability, the name and contact information of individuals contacted during the research or daily activities, and of participants in the research study.
10. If traveling out of state, express permission must be granted by the supervising dean. A 14-day quarantine may be required upon return and before returning to work on campus.
    1. If permitted to travel, register your travel plans
    2. If traveling long distances, stops should only be made for fuel and restrooms; sanitize hands after these activities.
11. No more than two people may occupy a vehicle to, from, and at the work site. Face coverings are to be worn in vehicles when there are two people. If possible, travel with windows open. High touch areas (e.g., vehicle keys, door handles, steering wheel) must be disinfected before and after the field day.
12. When boats are used, each boat needs to have a maximum number of total personnel allowed on the vessel at any time. Outboard vessels that are 21 feet or less will be limited to crews of two. Vessels over 21 feet but less than 27 feet will be limited to a crew of three. Vessels larger than 27 feet should make determination of crew density based on size and research scope.
13. During field tasks, unless precluded by environmental conditions (e.g., high altitude, extreme heat), it is recommended that face coverings be worn at all times. Face coverings, however, are required when conducting tasks involving personal interactions at less than six feet distance (e.g., when getting into a boat or other situations in which six feet cannot be maintained at all times).
    1. The level and timing of disinfecting equipment between uses should be determined by the crew. For some, it may make sense to clean after each use; for other crews, it may be understood that the risk of exposure is a daily risk not an individual encounter risk.
14. For day trips, all crew members should bring ample food and fluids for themselves in their own cooler. No sharing of food or drinks is allowed.
15. Upon completion of the research at the end of each day, all equipment must be disinfected.
16. Additional guidelines for remote work that requires lodging and/or long-term stays:
    1. Remote field work changes the risks of exposure to COVID-19 in positive and negative ways. Traveling to a remote work site often brings individuals from multiple locations to the same location, enhancing risk when people arrive, but limits external exposure after arrival.
    2. Personnel planning to participate in remote work should self-quarantine as much as possible (ideally 14 days), or as much as required by prevailing travel regulations in the origin and destination location, before and after traveling to the remote site.
    3. Field crews should establish protocols to physically isolate individuals, pairs, and groups in a hierarchical fashion. For example, if individuals have to share sleeping quarters, other daily activities should be arranged to maximize these interactions such as scheduled eating times, riding in vehicles, etc.
    4. Purchasing of food and supplies, and contact with society outside the field crew, should be limited to as few individual interactions as possible. It is recommended to disinfect supplies before storage and use for research or other activities.
17. If a member of the field crew presents flu-like symptoms the following steps are required:
    1. The individual must cease field work and self-quarantine. Contingency funds for a separate hotel room or other measures must be considered by the PI before research begins.
    2. Seek COVID-19 testing as soon as possible.
    3. Call the infectious disease hotline for additional instructions.
    4. The remainder of the crew may continue their work, but must make extra efforts to isolate themselves from external sources. If possible, everyone in the local research team should be tested. The research team has to adhere to local testing requirements and contact tracing policies.
    5. The symptomatic individual must follow the return-to-work guidance offered by the Merced County Public Health Department.[[8]](#footnote-8) Currently, their recommendations are to stay home or isolated until at least ten days have passed from the onset of symptoms AND at least three days since recovery. Recovery means no fever for at least 72 hours without the use of fever-reducing medications, and respiratory symptoms (e.g. cough, shortness of breath) have improved.

Diving & Boating:

Additional information specific to Diving and Boating can be found at the Website of the UC Dive & Boat Safety Consortium, of which UCM is a member:  <https://www.ehs.ucsb.edu/ucdiveboatsafety>

## APPENDIX 6: Policies and Practical Considerations for Ramping Up Core Facilities[[9]](#footnote-9)

Core facilities are ideally positioned to provide low-contact, high-impact support to the research community and may serve as pilot locations for health surveillance programs as they are developed in the coming weeks. Core facilities must follow density recommendations for research lab spaces as described earlier in this document for Phases 1-4.

Eligible cores:

* the core location must be a discrete physical space that is separated from other labs or common areas,
* access to the physical site or instruments must be under core control (either physically or electronically)
* the core must be able to track access if contact tracing becomes necessary.

Scope of permitted work:

* activities as approved by the relevant dean in individual researcher operational plans,
* analysis of samples and live animals that already exist at the core and/or are generated under approved critical projects, and
* processing of time-sensitive samples (in terms of the sample itself and/or the ongoing research) and live animals that can be transferred to core and retrieved (if needed) with no contact.

Staffing to ensure physical distancing:

* Only core staff or trained users who are both certified with the facility and approved to return to campus are permitted in the core facility space.
* Participation will be voluntary: no staff member will be compelled or coerced to work onsite.
* Staffing levels will be low density and appropriate for core physical dimensions and layout as dictated by each Phase of research ramp-up.
* Scheduling via software or other means that are easily accessible for core staff and user should be used to ensure that allowed personnel density in the core facility is not exceeded at any time.
* Time onsite will be minimized to essential tasks.
* Core facility directors may consider repossessing any keys loaned to researchers in order to manage access.
* Use of common areas outside the laboratory will be limited or key card access will be restricted according to the same general building guidance applied across campus during the different ramp-up phases.

Core facility access review and oversight process:

* The director of each core facility will develop an operational plan that addresses needs for physical distancing, disinfection, and safe-working-alone processes (if applicable) in adherence with campus guidelines.
* Phase 2 operational plans for both the core facility and core users will be reviewed and approved by the relevant dean or director.
* Researchers planning to use core facilities must submit current proof of Phase-dependent operational plan approval to the core facility director. Cores are encouraged to maintain a current list of all researchers who have been granted privileges to use the core.
* Availability of core services does not imply or confer authorization for researchers to resume lab-based activities without an approved operational plan.
* Core services will be denied to those researchers who abuse access privileges, for example, by exceeding the volume and/or duration of their approved research as performed in the core facility.

## APPENDIX 7: COVID-19 Campus Research Operational Plan Template

Each faculty member who oversees a research space on campus, and would like to resume research activities in this space, must submit operational plans to their department chairs for provisional written approval and submission to the dean, VCR, and Provost for final written approval. Instructions for submitting operational plans will be posted on the VCR’s website, along with links to complete and submit the plans through InfoReady. It is recommended that operational plans be written in advance, and the information transferred to the InfoReady at the point of submission. Appeals will be handled on a case-by-case basis through the VCR. In the event of a subsequent ramp-down phase, authority on research activities returns to the VCR.

Prompts for writing operational plans are below. Guidelines can be found throughout this Research Ramp-Up document, including guidelines for labs, studios, library research, human subjects research in the corresponding appendices.

PI name:

Research location (building and room number):

Phase II maximum room occupancy (see X):

Phase II research personnel (who plan to conduct research on campus):

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Email | Cell Phone # | Paid/Unpaid/ Course Credit | Undergrad/  Grad/Postdoc/  Staff/Faculty |
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Provide a detailed work shift-plan on how you and your research personnel will be scheduled throughout the day and the week to maintain compliance with the campus [Interim Policy on Universal Requirements for Physical Mitigation and Reduction of the Transmission of COVID-19](http://policies.ucmerced.edu/sites/policies.ucmerced.edu/files/documents/policies/interim_policy_on_physical_mitigation_and_reduction.pdf):

How will your research space be configured to maintain physical distancing if required (include pictures or diagrams if helpful):

If your research needs cannot readily comply with the interim campus policy on campus [Interim Policy on Universal Requirements for Physical Mitigation and Reduction of the Transmission of COVID-19](http://policies.ucmerced.edu/sites/policies.ucmerced.edu/files/documents/policies/interim_policy_on_physical_mitigation_and_reduction.pdf), please indicate how research activities will be conducted to maintain physical distancing, including human subjects research if applicable:

If research space is shared with other research groups:

List PI(s) and their school academic chairs and deans:

How will space be scheduled and coordinated between groups to stay within maximum occupancy and maintain social distancing?

Plan for monitoring compliance with this COVID-19 research operational plan:

**PI Attestation**

**As the research lead responsible for this plan, I will:**

* 1. Ensure physical distancing.
  2. Ensure that personal protective equipment (PPE) and/or face coverings and other health mitigation measures are available as required and appropriate for proposed research activities.
  3. Ensure proper utilization of PPE and/or face coverings.
  4. Ensure disinfection protocols.
  5. Provide instructions for personnel working directly with study participants or in hazardous environments. These instructions must state how risk of contagion from COVID-19 can be minimized for research subjects.
  6. Provide instructions on other hygiene issues as appropriate within the research environment.

PI Signature and Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Signatures for Approval**

School Dean: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Vice Chancellor for Research: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Provost / EVC: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Approved operational plans will be accessible to department chairs, deans, the Office of the Vice Chancellor for Research, and EH&S personnel. PIs are responsible for sharing the plan with all research personnel, directors of required core facilities and/or shared resources, and any PIs with research activities operating in close proximity and/or with personnel using shared common spaces. COVID-19 operational plans are supplements to any existing lab safety plans, not replacements. These plans can be activated only when COVID-19 building and campus safety measures are in place.

The following Research Personnel Attestation must be signed by all research personnel, printed, and kept on file in the research space.

**Research Personnel Attestation**

1. I have read and will follow UC Merced’s [Interim Policy on Universal Requirements for Physical Mitigation and Reduction of the Transmission of COVID-19](http://policies.ucmerced.edu/sites/policies.ucmerced.edu/files/documents/policies/interim_policy_on_physical_mitigation_and_reduction.pdf).
2. I will participate in research activities *only* if I:
   1. Complete theUC Merced Health Check self-screening each day before reporting to work on campus.
   2. Have been cleared to work after completing the UCM Health Check self-screening.
   3. Have completed all required COVID-19 training.
   4. Wear a face covering whenever other personnel are present in the research space and always when in public spaces.
   5. Have a body temperature less than 100.4°F (38°C).
   6. Have had no COVID-19 symptoms in the past seven days (e.g., fever, headache, cough, shortness of breath, difficulty breathing, chills, repeated shaking with chills, muscle pain, sore throat, loss of smell or taste).
   7. Have had no contact w/ positive or suspected positive COVID-19 victims in the past 14 days.
   8. Have not been ordered to quarantine or self-isolate by physician or government.
3. I will seek immediate medical attention for myself or any research participants with trouble breathing, persistent pain or pressure in the chest, abnormal confusion, bluish lips or face, or other symptoms associated with COVID-19.
4. I will follow UC Merced Reporting Guidelines related to COVID-19 infections.

**Signed and Dated**:

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## APPENDIX 8: Ramp-Down Directive

March 20, 2020

Dear Colleagues,

Yesterday, in response to the COVID-19 pandemic, CA Governor Gavin Newsom issued a statewide stay at home order for all residents. Through consultation with Deans, faculty, and leaders across campus, we have determined that:

* All Principal Investigators shall work with their local administrators to begin a campus-wide UC Merced Research Facilities Shutdown. Research must be drawn down as soon and as safely as possible, and a plan enacted for on-campus research to cease by noon Sunday, March 22, 2020 until further notice. People conducting this shutdown effort for each group should be kept at an absolute minimum between now and noon on Sunday.
* Under no conditions is laboratory equipment, chemicals, biologics, materials, etc., be taken off-campus. Laptops and other mobile storage devices can be taken off-campus. All human subjects research requiring face-to-face, in person interaction shall cease immediately.

Please use the [UC Merced Ramp Down Checklist](https://news.ucmerced.edu/sites/news.ucmerced.edu/files/documents/uc_merced_laboratory_ramp-down_checklist.pdf) to assist in your shutdown planning.

Expect the shutdown to last several weeks to months. Only remote research, defined as that which can be done remotely and does not require laboratory equipment and supplies, should be performed in this period without further permission.

If a Principal Investigator requires ongoing research to take place at a campus site during a shutdown, they will be required to fill out an Essential Research Request form in the InfoReady system. Requests to allow COVID-19 studies or the continuation of ongoing essential experiments must be submitted via the request form linked below. These requests will be reviewed by the relevant academic chairs and deans together with the Vice Chancellor for Research and faculty representatives. Expect very few exceptions to be granted. Please note that this permission is only required for those activities which must be conducted on campus (the campus proper or other UC Merced facilities).

[Essential Research Request Form](https://ucmerced.infoready4.com/#competitionDetail/1810633)

Details on Essential Research: Essential research functions are any functions that are necessary to maintain baseline research or scholarly operations and projects (e.g. vivarium management, clean room management, etc.), that if not continued will result in irreparable damage to instruments, samples or research programs. Any disruption to an “essential research function” could jeopardize the completion of sponsored projects (even if delayed), the reputation of faculty and the institution with sponsors, the prospects of future funding, and even the research capability itself housed at the institution.

We note that there are other important creative research programs on campus (music, dance, practice rooms, etc.) that will also need to be stopped on campus.

Note that students and trainees (including graduate students and postdoctoral scholars) are not mandated to serve as essential personnel. The decision to report to campus lies with the student worker. Consenting to serve in this capacity will require the signature of the graduate student or postdoc as well as the signature of a third-party individual (a School Dean or their designee). Please use our [Essential Research Trainee Certification](https://emergency.ucmerced.edu/sites/emergency.ucmerced.edu/files/documents/trainee_certfication_form_032020.docx) form as a template.

No personnel should “rush” to campus or campus locations prior to March 22 to complete work. All efforts in the next days should be focused on shutting on-campus research down and transition to off-site research where possible.

Mitigating Impact On Our Researchers: The shutdown of on-campus research will create unanticipated delays, which can be cause for significant anxiety for many, and especially junior researchers. While there is no way to escape the loss of time, every effort is being made to assure that these actions will not damage careers or lead to excessive financial hardship. [The Office of Research is working remote but fully operational and continuously updating its](https://em-ui.constantcontact.com/em-ui/em/frame/previewtest/611faa19-fec7-49aa-a804-42618301e781?previewTestJSVersion=0.1.226&previewTestJSHash=bdac8b0d43f4bbfe8cb5) [COVID19 website](https://emergency.ucmerced.edu/covid19-faculty-information) with agency guidance regarding research funding.

This is a difficult time for all of us and we do not take the cessation of research on campus lightly. Your sacrifices will help save lives. This is one of the most challenging times in modern history. Together, we can make a difference. We know the facts. We have a responsibility to take the lead.

Sincerely,

Samuel J. Traina

Vice Chancellor for Research

UC Merced

Gregg Camfield

Executive Vice Chancellor and Provost

UC Merced

## APPENDIX 9: Ramp-Up Committee

Samuel Traina, Vice Chancellor for Research and Economic Development, Committee Chair

Marjorie Zatz, Vice Provost and Graduate Dean

Michael Schiebner, Professor of Physics and Chair of Senate Committee on Research

Chris Kello, Professor of Cognitive Science and Associate Graduate Dean

Deborah Motton, Associate Vice Chancellor for Research

Josh Viers, Professor of Civil and Environmental Engineering, Associate Dean for Research for Engineering

EHS Director

**APPENDIX 10: UCM Research Ramp-Up Plan: Summary of Roles and Responsibilities**

|  |  |  |  |
| --- | --- | --- | --- |
| **Department and Position** | **Roles and Responsibilities** | **Guidance Document Reference** | **Measure of Performance** |
| University Chancellor | 1. Responsibility for ensuring a safe and hazard free workplace and delegating authority to University Departments to ensure implementation and monitoring, 2. Responsibility for decision to ramp up University laboratory operations in accordance with the phased schedule and measured performance of standards outlined in the Guidelines (P2, Guiding Principles and General Policies, 1st Bullet item) | 1. University IIPP (CCR Title 8, Section 3203, IIPP), 2. Guidelines Phases of Research Ramp Up | 1. UCM revised and approved IIPP and 2. Signed and dated UCM directive to proceed to the next phase of research ramp up |
| University EVC/Provost | 1. With VCR, review and approve individual research laboratory’s Operational Readines Plan and authority to ramp up research activities. |  |  |
| VCR, Office of Research and Economic Development (ORED) | 1. With EVC/Provost, VCR to review and approve individual research laboratory’s Operational Readines Plan and authority to ramp up research activities. 2. Communication to University stake holders and affected groups concerning research laboratory, phased operational ramp up of activities (P2, Guiding Principles and General Policies, 1st Bullet Item), 2. Compliance monitoring and measurement and enforcement of research laboratory compliance with lab design density, personnel spacing, self-distancing and control measures to prevent the infectious spread of COVID-19 during lab operations (P15), 3. ORED to monitor and manage the access of members of the general public to UCM Research Laboratories (P8, Phase 3, #7) | 1. UCM Research Ramp Up Guidelines | Signed and dated compliance monitoring reports |
| University Deans of Research Schools | 1. Review and approve individual research laboratory's Operational Readiness Plan. | 1. Guidelines Appendix 7, page 29 | 1. Signed and dated permission letter to UCM PI to resume research in accordance with the terms and conditions of the phased ramp up schedule |
| Academic Chairs | 1. Review and, if amenable, approval of written operational readiness plans to restart laboratory research activity and subsequent signed approval letter to the School Dean for subsequent review and approval | UCM Guidelines for Research Ramp Up Document | 1. Signed and dated approval letter of Lab PI's Operational Readiness Plan for restarting or ramping up laboratory operations pursuant to the proposed operational phase |
| University Research Laboratory Principal Investigators (PIs) | 1. Design and implementation of (3) principles found in Guiding Principles and Policies (P2), 2. Ensure lab members complete daily health survey (P3),3. Development and implementation of OR Restart Plan (P8),4. Report lab member positive COVID-19 test results to EOC (P9), 5. Develop Ramp Down Plan (P10), 6. Establish a work schedule and develop a "calendar system" to limit access and establish a "Buddy System" for high hazard and after-hours lab work (P13), 7. Submit a Core Plan for operational use of shared "core spaces" (P33), 8. Complete and submit for approval, Operational Readiness Checklists (Ps34-37) | UCM Guidelines for Research Ramp Up Document | 1-8. Measurement criteria document/photos or link to performance measures for (8) performance standards delineated in Roles and Responsibilities Column 2 of Summary Compliance Table |
| Department of Environmental, Health and Safety (EH&S) | 1. Plan review and comment for PI submitted Operation Restart Plan and accompanying OR checklists, 2. Research laboratories compliance support inspections and corrective/preventive actions submittals to ensure lab health and safety compliance (App. 2, P18) | UCM Guidelines for Research Ramp Up Document | 1. Submitted review comments to Research PIs submitted Operational Readiness Plans for restart, 2. Submitted laboratory compliance spot checks and inspection reports |
| Facilities Management (FM) | 1. Coordinate support services with lab PIs to support lab restart including FM support staff cleaning, trash removal, maintenance and repair operations | 1. UCM Guidelines for Research Ramp Up Document (P14) | UCM FM Work Order System database reports |
| EOC | 1. Report suspected and positive COVID-19 cases to the Merced County Department of Health, 2. Supply COVID-19 response personal protective equipment (PPE) including face coverings to UCM research lab PI and personnel (App. 7, P34) | UCM Guidelines for Research Ramp Up Document | 1. Signed and dated submittal of COVID-19 PUI or confirmed positive COVID-19 reports for UCM personnel, 2. PPE ordering and distribution to UCM lab personnel |

1. The Chair of the Senate Committee on Research as represented the Academic Senate in this process. This formal connection to the Academic Senate will continue as these plans evolve over time. [↑](#footnote-ref-1)
2. <https://www.insidehighered.com/news/2020/04/21/early-journal-submission-data-suggest-covid-19-tanking-womens-research-productivity>; https://www.thelily.com/women-academics-seem-to-be-submitting-fewer-papers-during-coronavirus-never-seen-anything-like-it-says-one-editor/ [↑](#footnote-ref-2)
3. Throughout this document, the term ‘PI’ is meant in the broadest sense to include lead researchers, project directors, and those designated as responsible parties for the oversight of a lab or research project. For more information about PI eligibility and responsibilities, see <https://rds.ucmerced.edu/sites/rds.ucmerced.edu/files/page/documents/ucm_pi_exception.pdf> [↑](#footnote-ref-3)
4. Physical distancing of six feet, while widely recommended to reduce exposure to the coronavirus, is also acknowledged to be too little distance to account for all the aerosol particles generated by talking, breathing, and coughing, especially when sharing space for periods greater than a few minutes. (See<https://www.sciencenews.org/article/coronavirus-covid-19-why-6-feet-may-not-be-enough-social-distance>) Thus, in the first, ultra-low density phase, we are using the metric of one person per 250 square feet of space as a guideline to account for the fact that six feet of physical distancing will be hard to maintain in research spaces that have widely varied physical layouts and airflow patterns as well as common areas such as hallways and bathrooms. Research spaces contain different kinds of obstructions such as benches and equipment, entry and exit bottlenecks, and unusual (forced) airflow patterns due to fume hoods and biosafety cabinets that may spread aerosol particles further than in non-laboratory settings. Concerns over airflow or ventilation can be directed to [Facilities Management](https://facilities.ucmerced.edu/). The 250 square foot metric is insufficient on its own to ensure a safe environment and should be used as a guideline along with other considerations that will reduce occupancy levels even further. While these may change over time, our physical distancing recommendations currently reflect those adopted by many peer institutions nationally. [↑](#footnote-ref-4)
5. Complaints regarding non-compliance may be filed with UC Merced Emergency Management at [emergency.mgmt@ucmerced.edu](http://emergency.mgmt@ucmerced.edu). [↑](#footnote-ref-5)
6. The following write-up is based on that generated by the University of Toledo. [↑](#footnote-ref-6)
7. See <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-at-higher-risk.html>. [↑](#footnote-ref-7)
8. [www.countyofmerced.com/coronavirus](https://www.countyofmerced.com/3350/Coronavirus-Disease-2019) [↑](#footnote-ref-8)
9. Adopted from a UCD document released May 6, 2020. [↑](#footnote-ref-9)