This plan is developed in consultation, and adherence with, the following:

COVID-19 guidelines by the CDC, State of California, Cal-OSHA, City of Los Angeles, and USC EH&S, HR, Provost’s office, and DPS

and

USC Guidelines for Resuming Campus Research Operations
(including the school level actions articulated on page 6)

LAST EDITED BY: Stephen Bradforth, Dornsife Divisional Dean for Natural Sciences and Mathematics

6/6/2020
Plan Stipulations

In order for research to resume, the Dornsife College of Letters, Arts and Sciences ensures the following requirements have been met and detailed in this document:

1. This college-level plan has been distributed, and communicated to, all experimental laboratory researchers, and will be updated as needed.

2. The college approved a lab-specific research plan for all research-active PIs, including detailed protocols for physical distancing of researchers, de-densifying research buildings up to the allowable levels of the given phase, disinfectant use and other cleaning practices, etc. These plans have been reviewed and approved by the school’s department task force committees, department chairs (or section heads in Biological Sciences) and by the Divisional Dean for Natural Sciences.

3. All PIs/labs have developed a space reservation calendar to help researchers secure times to work while observing de-densifying policies and removing the risk of contact with others.

4. All researchers planning to work on campus will have completed the required “informed consent to return to work” form provided by the University at the end of the Trojan Learn module prior to returning to campus.

5. All researchers planning to work on campus will have completed all TrojanLearn modules relevant to research resumption.

6. All researchers identified by PIs to perform work on campus have been told that they cannot return until instructed. They have been informed on the requirement to use the daily campus check-in, symptom checking, and building reservation and tracking systems, as well Google calendars set up by each research team to ensure that the number of team members present at any time falls within the allowable number.

7. The school will ensure that all researchers returning to labs will be supplied with appropriate PPE, specified herein, including face coverings and gloves as provided by Facilities and Operations, EH&S.

8. The school will ensure that appropriate disinfectants are available to researchers on their floor and near their work areas. Researchers will be responsible for daily disinfection of surfaces in labs and office spaces.

9. University-approved signage will be posted in school research buildings and areas before research in those buildings resumes.
Risk Mitigation

PIs have each provided a research transition plan to ensure that their personnel adhere to specified conditions of social distancing (10 feet strongly preferred, 6 feet minimum), do not exceed the appropriate fraction of occupancy (30% in phase 2A), use required masks, shields, and other PPE, and practice hand hygiene. Detailed plans have been required that must include detailed PPE requirements, names and contact information of all designated researchers, spaces assigned to the PI with square footages, peak and average occupancy, phase 2 proposed occupancy. In addition, each PI was required to describe and illustrate how physical distancing will be managed within the research spaces they manage. All plans were checked and reviewed as defined in the next section.

There will be a short ramp-up phase (phase 2A1) where activity will be 10%. We expect each experimental lab will need several days of commissioning before being able to conduct experiments – ramping up instruments, devices, cell lines, animal colonies and simple restocking. If one in every three labs has personnel go in for a short shift each day, or labs work together to do this commissioning with a skeleton crew, we will meet the 10% guideline.

Department task force members and chairs as well as the divisional dean have reviewed each research plan to ensure that only critical experimental work will be carried out during phase 2A. All other analysis, computing, writing, meeting, and other functions of research will take place remotely. Researchers have been instructed to come in solely to carry out an experiment or procedure and then leave. They have been instructed to use their offices only for dropping off personal effects for safe keeping or for waiting while an instrument completes a process.

School research restart coordination structure

In Dornsife, the Divisional Deans in Social Sciences and Humanities will coordinate research-return plans for their areas of scholarship during a subsequent restart phase.

For experimental laboratory science, Stephen Bradforth, Divisional Dean for the Natural Sciences, is responsible for coordinating communication, by providing zoom meetings and information sessions for the departments and sections that report to him.

No clinical work will be carried out during phase 2A. Computational/data science groups are permitted to come in to restart servers or to carry out critical on-campus processes, but at no more than 10% of their normal team may be present at any time.

For each experimental laboratory science unit within Dornsife, the department chair (or section head in biological sciences) will have primary responsibility and report to Divisional Dean Bradforth. Each department or section has established a research return task force specifically charged with reviewing all PI plans and making recommendations to faculty and their chairs. These departments (and their chairs/section heads) are:

Chemistry (Surya Prakash)
Physics (Stephan Haas)
Earth Sciences (Frank Corsetti)
Biological Sciences, with 5 sections:
  Human and Evolutionary Biology (HEB, Lorraine Turcotte)
  Marine and Environmental Biology (MEB, James Moffett)
  Molecular and Computational Biology (MCB, Oscar Aparicio)
  Quantitative and Computational Biology (QCB, Remo Rohs)
  Neurobiology (NBIO, David McKemy)
Researchers in the Michelson building have an additional task force (Steve Kay, Peter Kuhn leads) designed to coordinate labs that share space often between researchers with primary affiliations in Dornsife, Keck and Viterbi.

The roster of these local task force members is given in the Appendix.

Departments are also required to identify and assign a workplace coordinator who will be responsible for COVID-19 issues and the potential impact on the workplace. Until such assignment is provided to the Divisional Dean, it will be assumed that the department chair or section head has that responsibility. This individual will work with the building coordinators defined below and in Appendix C.

Each departmental faculty task force has reviewed, revised and approved PI research plans. This review included checking how physical distancing was practically achieved in each PI plan. Department chairs or section heads endorsed the reviewed plans and provided Dornsife all PI plans, a summary table and a document describing how their review was carried out. The Divisional Dean has reviewed each department task force report, the PI plans, and the proposed research activity and social distancing guidelines used. He will meet with each department chair and task force lead on June 8th to address any remaining concerns.

Once research restarts, the local task force will be tasked to
- work with building monitoring teams who will carry out random spot inspections of each lab up to three times weekly (detail in Appendix C).
- verify that disinfection procedures to high-touch surfaces, restrooms and any other shared space are adequately occurring
- perform more specific technical consultations with laboratories where guidance is sought on best practice with specific procedures or to resolve disputes on safe practice.
- implement quarantine procedures for labs where researcher infection takes place
- Perform weekly review, any issues of non-compliance reported from the spot inspections by the building coordinators or anonymous tips from university hotline involving researchers from their unit.
- provide periodic review of guidelines and progress in faculty meetings. Any changes to guidelines and practice should be communicated to the Divisional Dean for approval.

If issues of non-compliance come up in Dornsife laboratories, the department/section task force will be the first group to review the violation and recommend appropriate action. Task force documents define measures that will be taken when violations take place (additional training, revocation of lab privileges, all the way up to shutting down a laboratory for all researchers). In meetings scheduled for June 8th, these guidelines will be harmonized and socialized by the Divisional Dean across all science departments. The guidelines will then be distributed to all researchers by the Divisional Dean, so that all have been made aware of what enforcement actions will be taken if the rules are not followed. Department chairs or section heads will be tasked to implement enforcement actions.

The Divisional Dean will receive a bi-weekly report and meet with building monitors (see Appendix C) to review infractions and to understand what enforcement actions have been applied. He will also meet with department chairs and section heads at least monthly over the summer to inquire about issues that have come up, and to share best practices. Reporting of violations, knowledge of new infections, and any serious concerns held by a department chair or section head must be communicated to the Divisional Dean.
**Building and facilities coordination:**

Building coordinators have been assigned by Dornsife and are managed by Alfonso D’Onofrio, Director Dornsife Architectural Services. These coordinators are tasked with random inspections of research spaces in their designated buildings. See Appendix C for names of coordinators and the structure of inspections.

We have confirmed that FMS has maximized the make-up air in our older laboratory buildings and replaced all building air supply filters.

Procurement and distribution of sufficient PPEs, hand sanitizers, and decontaminating solutions:
- Dornsife will coordinate pick up of university-provided PPE supplies (face coverings/masks, gloves, disinfectant solutions) from the campus bookstore and work with departments/sections in distribution.
- Our understanding is that EH&S will place hand sanitizing dispensers on each floor (by each elevator) of our research buildings and provide small bottles of hand sanitizer for laboratories that do not have sinks or hand washing stations. This will be coordinated by Alfonso D’Onofrio working with Dick Sun in EH&S.

**Behavior Modification and Training**

In addition to the required TrojanLearn modules, researchers will be informed of EH&S training videos, in particular in how to don and doff masks and gloves. Departments will provide specific training (via zoom) to their students, postdocs and staff on elements specific to their research spaces and typical practices. PIs will be tasked with providing laboratory specific instruction of any modified practices that should be used under the research return.

Departments will provide updated instructions to PIs that clearly define inspection policy, enforcement actions and how infractions will be handled. They should also communicate that routine EH&S inspections will include a new component on COVID compliance. PIs will be encourage to regularly communicate with their groups the importance of everyone determining to make their lab a safe workplace and the possible penalties if they do not.

Departments and PIs are encouraged to cross-train employees to perform essential functions so that operations can continue without interruption even if key employees are absent.

Departments are being asked to develop metrics to determine workload and staffing levels that are needed to continue research operations. As of April 3, all non-essential travel is on hold. Advanced approval from the Dean’s office will be required to approve travel requests.

**Researcher Consent**

Dornsife is describing phase 2A research return as opt-in for its researchers. PIs are being asked to designate researchers returning to work, and each individual at the end of the TrojanLearn module must provide informed attestation that they understand the risk of return. No student or postdoc can be compelled to come to campus to perform research.

During research phase 1, Dornsife developed a confidential conversational email process to determine a graduate student’s comfort with being on campus, including their transportation plans. It was made clear to a student that if at any later time, they became uncomfortable with coming to campus they were free to contact the Divisional Dean of Natural Science to express that concern. This system was adopted by other schools.
In phase 2A, for students and postdocs who do not wish to return, they do not need to provide a reason for their preference, but their supervisor will need to agree that they can continue to perform required research (data analysis, paper writing, proposal preparation, coordination) remotely. If a supervisor does not agree that a doctoral student can perform their research adequately remotely, each case will be referred to the Dornsife College Dean of Graduate Education. If a supervisor does not agree that a postdoctoral trainee can perform their research remotely, they can contact the Divisional Dean who will consult with Human Resources to understand employment ramifications and work out an appropriate remedy. The Provost’s Postdoctoral Scholars office will also be informed.

At this time, we expect that for later research phases, different rules about non-return to campus will be in effect.

**Buildings**

Access to buildings will be only after a researcher has completed the health survey and checked in to his/her research building and laboratory space with the ITS tool. Building access is managed by DPS. Most Dornsife research buildings still use keys; Michelson and RRI use Lenel card readers and access to these buildings will be periodically compared to the honor code scheduling tool data.

_Elevators_ – for most elevators, only one person should occupy the elevator at a time. Larger freight elevators may be large enough to accommodate 2 people using appropriate physical distancing. Follow signage provided by EH&S.

_Bathrooms_ – occupancy in bathrooms should be limited and should follow signage provided. For example, 1 person will typically be allowed in a standard (2 to 3 stall) bathroom at a time. In some department plans, researchers have been asked to indicate which bathrooms their personnel will use, so as to distribute people equally and to minimize contact between different research groups. Researchers will be instructed to follow signage posted by EH&S.

_Floor and stairs direction_ will follow signage supplied.

**Minimizing personnel time on site, physical distancing and at-risk groups**

Directions and examples have been provided to all departments of how their PI’s should consider the layout of their laboratories so as to maintain 10 feet (preferred) separation at all time. We have allowed 6 feet separation if essential and in situations where there will not be extended periods of time at this close proximity. Building floor plans have been provided to department task force and chairs, and task force members asked to consider individual PI plans based either on floor plans, or their specific knowledge of their colleagues’ laboratory layouts and idiosyncrasies. This local review is crucial for a large footprint research school like the college. The Divisional Dean will meet with each of the task force leads as well as their department chair/section head to review and approve the local criteria used.

We have instructed researchers to establish alternating days or add extra shifts to dramatically de-densify total number of employees in the facilities at a given time. This reduces hallway, elevator and bathroom social interactions. However, personnel are asked to maintain a buddy system so no one should work alone in any wet or laser laboratory setting. We are instructing researchers to avoid entering the workspace of others and prohibiting socializing between groups. The information sent to all researchers before return sets forth the policy that food may not be consumed in research buildings. Finally, all group meetings are to be conducted online.

In directions to faculty it has been made clear that undergraduates cannot be included in research return plans and cannot be designated as essential researchers. All PI plans are reviewed specifically to verify no
undergraduate students, or volunteers are included. If long-term visiting scholars are indicated in PI plans, the PI must submit evidence that their home institution has explicitly approved their in-person participation.

As stated above, in phase 2A, research on campus is considered an opt-in decision by an individual researcher. A policy where a researcher does not need to explain why they do not wish to return to campus is designed to protect at-risk and vulnerable individuals and ensure fair treatment. Individuals should work with Dornsife and University Human Relations to understand policies in this area.

**Prevention of virus transmission**

- **Personal Protective Equipment:**
  - At all times when in research facilities, all researchers must wear the PPE specified by university policy as necessary to protect against transmission of SARS-CoV-2. This is in addition to any PPE required for safe conduct of research.
  - Gloves should be worn as appropriate to the work being conducted and surfaces contacted.
  - In a private space such as an office, a face covering is not required if the researcher is alone.
  - All researchers have been provided with EH&S Guide Sheets on COVID-19 including the PPE Risk Matrix and how to use PPE, as well as a link to the related video instructions.
  - Dornsife will arrange distribution of the cloth face coverings provided by the university to its science departments and sections.
  - We will inform individual researchers that if they wish to provide their own face covering it must meet the university minimum standard (the covering provided to them).
  - If any disposable face mask is provided by the PI and department, it is on the understanding that each researcher has already received a university-distributed mandatory face covering, and there is no expectation of continued provision of alternate face masks.

- All lab coats will be laundered (by the currently provided service) at least once per week.
- Before and after each use, researchers should clean and disinfect frequently touched objects and surfaces such as workstations, keyboards, telephones, doorknobs, counters, tables, various equipment and appliances (using biocide).
- Departments should verify that stair well handrails are being disinfected and make sure spray disinfecting is taking place in common areas.
- The principal investigator will ensure placement of protective removable films on equipment-human interface, common computer keyboards and other shared instruments before a laboratory space is used and shall inspect this protection at least weekly and replace when needed.
- Researchers may be provided thermometers by their departments for their personal use as a mechanism to support personal wellness and self-checks as needed or recommended by health care providers. When document is complete from public health office, guidelines for use of temperature monitoring will be distributed.
- Aramark will be providing enhanced cleaning in restrooms, elevators and shared spaces. Departments should verify that appropriate measures are taking place. If they are concerned such enhanced measures are not taking place, they should contact Alfonso D’Onofrio in College Architectural Services.
- Spot inspections will be carried out by the department COVID monitor or building manager (as appropriate to building). Anyone not wearing appropriate PPE will be subject to discipline, up to and including termination.
- A face shield cannot be considered a replacement for face mask. In the case of research with pyrophoric reagents or procedures using flames, a non-flammable face shield can be used, but eye
protection as well as a non-flammable face mask is the required PPE. The PI should provide these PPE.

- Under university policy, kitchens may be used to prepare food, but careful disinfection measures need to be used on appliances like refrigerators, microwaves, draws and cupboards. No eating of food will be allowed in research spaces, although food can be consumed in personal offices.
- For phase 2A, shared areas such as lounges or lunchrooms will be closed. Conference rooms will be not be used without advanced approval.
- For phase 2A, Dornsife strongly recommends its researchers bringing food to campus to avoid shared kitchens and consume their lunch outside not congregating with other researchers, observing all physical distancing appropriate to having face coverings off.

**Reporting and tracking the virus, symptoms, and non-compliance**

- Dornsife researchers must use the ITS tool that requires daily self-reporting of symptoms and that registers the buildings that a researcher will enter and occupy that day.
- Researchers will be informed that the information gathered by this tool may be used, with other information, to aid contact tracing in the event that a person at USC tests positive for the virus.
- As this data is protected, supervisors will only receive notification of which employees are cleared to be on campus each day.
- Employees who indicated exposure and/or symptoms will be directed to seek medical care, provided with testing resources, and ask to notify their supervisor that they are not cleared to come to campus.
- If an employee, student, or principal investigator is either diagnosed with COVID-19 or notified that another individual in their lab has been diagnosed with COVID 19 (who has been working on campus) they will report this immediately by calling the COVID-19 hotline at 213-740-6291 or emailing covid19@usc.edu.
- The campus response team will conduct contact tracing and any needed notifications and environmental cleaning.
- Signs in each laboratory will provide information on how to contact the COVID Hotline to report (anonymously, if desired) any violation of policies (non-compliance with physical distancing or PPE requirements; eating or drinking in laboratories; improper hygiene with shared instruments, surfaces and door/drawer handles; etc.), or observation of COVID symptoms in a co-worker.
- The departmental task force, department chair and divisional dean may impose penalties ranging from additional training and revocation of lab privilege and essential researcher status for an individual, to suspension of an entire laboratory from continued research activity.

**Appendix A: Department and Biology Section Research Restart Task Force**

- Judith Hirsch and Alan Watts (Biological Sciences, NBIO)
- Scott Kanoski and Jill McNitt-Gray (Biological Sciences, HEB)
- Norm Arnheim, Oscar Aparicio, Matt Michael, Steve Finkel, Susan Forsburg, John Tower, Ian Ehrenreich, Carolyn Phillips (Biological Sciences, MCB)
- Suzanne Edmands, Eric Webb, Dave Hutchins (Biological Sciences, MEB)
- Steve Kay, Scott Fraser, Peter Kuhn, Stacey Finley, Remo Rohs (Michelson Hall)
- Will Berelson, Frank Corsetti and Jan Amend (Earth Sciences)
- Mark Thompson, Jahan Dawlaty, Megan Fieser, Peter Qin, Barry Thompson, Ralf Haiges (Chemistry)
- Vitaly Kresin and Moh El Naggar (Physics)
Appendix B: PPE

The number of Dornsife researchers returning to campus in phase 2A is ~ 600. At a given time, we expect 270 researchers spread across ~15 buildings.

Dornsife will arrange distribution of the cloth face coverings provided by the university to departments and sections. We will inform individual researchers that if they wish to provide their own face covering, it must meet the university minimum standard (the covering provided to them). If any disposable face mask is provided by a department or PI, it is on the understanding that each researcher has received a university-distributed mandatory face covering, and there is no expectation of continued provision.

Our current estimate for disposable gloves is 1000 pairs of gloves per day when phase 2A is in full swing.

The chemistry department has secured around 150 face shields 3D printed in the Dornsife/Viterbi machine shop.
Appendix C: COVID-19 Research Restart Building Monitor Protocol

- **COORDINATE WITH VITERBI’S MODEL AND EH&S**
  - Allow for a consistent approach amongst the schools

- **ASSIGN BUILDING MONITORS PER APPROPRIATE BUILDING CLUSTERS**
  - ACB, SHS – 1 person TBD
  - AHF, PED – Don Bingham
  - HNB – 1 person TBD
  - LHI – Robert Aniszfeld
  - LJS, OCW, SSC, TRF, SGM (Chemistry) - Corey Schultz and Ralph Haiges
  - DNI, SGM (Psychology) – 1 person TBD
  - MCB – Jivin Seward
  - RRI – Rokas Oginskis
  - ZHS – 1 person TBD
  - Wrigley Catalina – Sean Conner

- **MONITORING PROTOCOL**
  - Identify series of questions and preprogrammed answers
    - Lab Personnel (compliant/non-compliant/not visible)
      - wearing face masks/coverings
      - remaining a minimum of 6 feet apart.
      - sanitizing common equipment after use.
      - leaving the lab with “lab gloves” on without use of appropriate polyethylene barrier.
      - not washing or sanitizing hands prior to leaving the lab space.
    - Lab Space (yes/no)
      - Ask if adequate PPE available for researchers
      - Ask if adequate disinfectant solution is available
      - Observe if COVID-19 signage is in place

- **DEVELOP MONITORING PROTOCOL WEB TOOL**
  - Monitors can answer specific questions on website
    - Option requires monitors to have iPads or smartphone
  - Tool has report function on results
    - Maintain database of when buildings visited
    - Shared with USC EH&S

- **WEEKLY BUILDING WALKS - Randomized**
  - Request guidance from EH&S on frequency (1, 2, or 3 times a week)

- **REPORTING**
  - Architectural Services gathers the data and transmits any infractions to departmental task force weekly. In addition, reports will be prepared for bi-weekly meetings with the Divisional Dean of Natural Science and Vice Dean of Operations
  - Provide hotline for building monitors to provide concerns anonymously, if it becomes necessary

- **TRAINING**
  - All building monitors to have both EH&S standard general campus COVID Safety Training as well as Lab Environment training
Appendix D - Safe Workplace Enforcement

Each lab will have a spot check three times a week where compliance with research restart policies will be verified. Failure to comply with guidelines will be reported to the department research restart task force and department chair/section head.

If an individual researcher is shown to be out of compliance with the guidelines (failure to sign in; failure to enforce social distancing during experiments; inappropriate removal of PPE; failure to clean shared surfaces or equipment after use; etc.) the appropriate unit leader (department chair, section head of unit the researcher is associated with) will decide on the appropriate sanction. This will be either to give a warning (first and minor violation only) or issue a sanction as follows:

1st offense: Banned from returning to lab for two weeks

2nd offense: Banned from returning to lab for a month

If a research group receives 3 offenses total, the whole lab will be banned from operation for two weeks. Lab PI’s will be notified of any infraction by a lab member in their group and required to implement necessary steps and modified procedures to prevent further infractions.