COVID-19 OUTBREAK
STANDARD OPERATING PROCEDURE

Following the directives of the Centers for Disease Control (CDC) and UCR, this document aims to summarize the measures to be applied to the laboratory to conduct our activities in a safe and healthy way during the COVID-19 epidemic period. This document was adapted from Standard Operating Procedures of Mathew P. Conley's laboratory at UC Riverside.

These measures and recommendations are in effect for the duration of the COVID-19 outbreak and are subject to change as the health emergency evolves.

The success in implementing these guidelines is only possible with the commitment and responsibility of each one of us.

Remember that all these actions are aimed at preserving the health and safety of yourself and your colleagues, and ultimately the population at large.

The implementation of all the measures to work in a safe manner is time-demanding; above all do not rush when applying the safety rules in order to save time.

In order to reduce the number of people working simultaneously in the lab, two working shifts are established (see below point 4).

A return to a stay at home order can occur; two cases are foreseen:

- By decision of the authorities due to a resurgence of the pandemic.
- By the appearance of COVID cases in the lab. This can lead to the complete closure of the laboratory.

1. GENERAL ACTIONS and BEHAVIORS

- **Before coming to the lab**, ensure you **do not have any of the symptoms*** listed below:

  + Fever or chills
  + Cough
  + Shortness of breath or difficulty breathing
  + Fatigue
  + Muscle or body aches
  + Headache
  + New loss of taste or smell
  + Sore throat
  + Congestion or runny nose
  + Nausea or vomiting
  + Diarrhea

*This list does not include all possible symptoms. Please, advise CDC's website (cdc.gov/coronavirus) for up to date list of symptoms.

- In case of symptoms or doubts:
  - stay at home;
  - contact your doctor;
  - inform your PI and laboratory members

- In case you have been in close contact with a person known to have COVID-19 or if you live in or have recently been in an area with ongoing spread of COVID-19 within 14 days, do not come to the lab, until the self-quarantine period of 14 days passed.

- If using public transportation, remember that the use of cloth face coverings is mandatory.

- **Strictly respect your shift,** please, use Zachariah's group labagenda management tool to reserve a 6-hour time slot per day (https://my.labagenda.com/schedule.php). *Please, see section 4.* Only 1 person for every 300 sq. ft. to ensure at least a distance of 6 ft. between the lab users. This means that the Zachariah 2144 Sq. Ft. lab can accommodate up to 7 people, however in an effort to be safer we will limit lab occupancy to no more than 6 people and it is highly unlikely that that level of occupancy will be achieved.

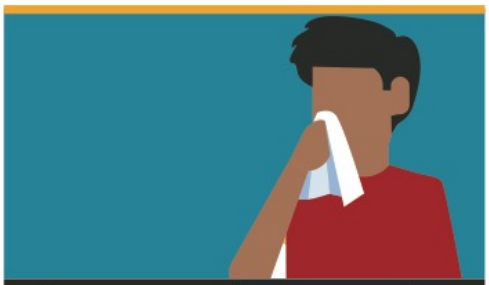
- Ensure that you are wearing a cloth face covering before entering campus and when entering the lab. Washable cloth masks (CDC) must be washed every day at 140°F for at least 30 minutes. It is required that each person washes them at home. For the right use of masks and face shields, refer to "Face shields and Face coverings".

- **In the laboratory** and outside **strictly follow** the practices recommended by CDC outlined on a poster on the next page. The posters will be printed and displayed on the lab walls as a constant reminder of safe practices to be followed while working:

Stop the Spread of Germs

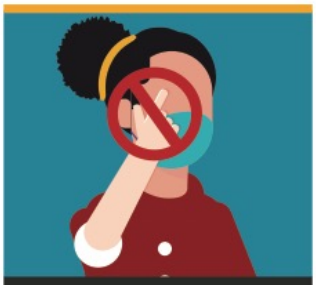
Help prevent the spread of respiratory diseases like COVID-19.

Stay at least 6 feet (about 2 arms' length) from other people.

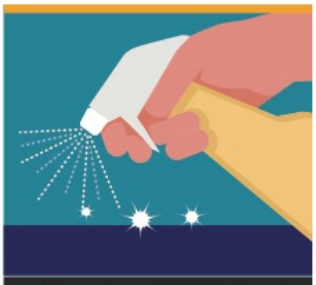


Cover your cough or sneeze with a tissue, then throw the tissue in the trash and wash your hands.

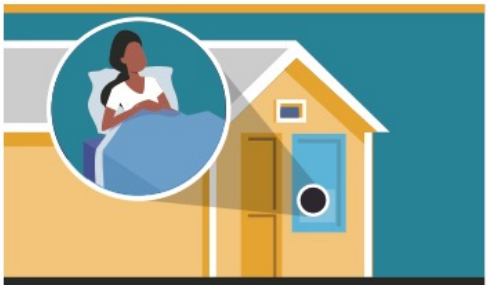
When in public, wear a cloth face covering over your nose and mouth.



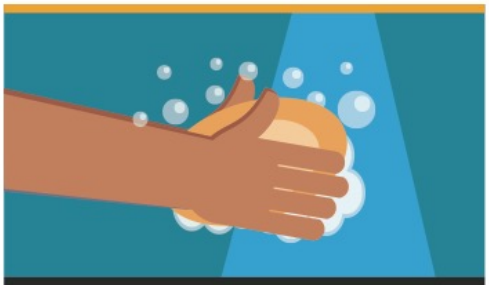
Do not touch your eyes, nose, and mouth.



Clean and disinfect frequently touched objects and surfaces.



Stay home when you are sick, except to get medical care.



Wash your hands often with soap and water for at least 20 seconds.

CDC

cdc.gov/coronavirus

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- Items collectively used by the group as well as office spaces (for example, coffee machine, fridge for food storage, and microwave for warming food) cannot be used.

- Avoid using elevators due to the risk of contamination to the hands (control buttons), the narrowness of the cabins, and the confined atmosphere. If you must use an elevator, only one person in the elevator at a time is allowed. Wash your hands immediately after the elevator usage

- Do not use the water fountain.

- For the instruments and equipment shared by different people, strictly follow the specific COVID-19 protocol that you will find near each of instrument present in the lab (see Appendix 1).

- The circulation in corridors is restricted, preserve the minimal distance between people (minimum 6 ft). Please, avoid going outside of the lab when possible.

- Each room (lab, office, technical room) is equipped with a kit containing:
  - 1 bottle of hand sanitizing gel (with 60% < alcohol composition)
  - 1 bottle of 250 mL of isopropanol or ethanol solution (min 70% aq.)
  - Paper towels

- In case of an accident, before helping the injured person, protect yourself with clean gloves, a mask and protective face shielding.

- Equipment reservations (SEM, TEM, XRD and etc) must be followed as recommended by facility managers with the aim of reducing encounters with other people.

- **Before leaving the laboratory at the end of your designated shift:**
  - Clean and disinfect elements commonly touched by different persons including (see Appendix 1):
    - Metal surfaces (*e.g.* door handles), glass surfaces and light switches using a paper towel soaked with the disinfectant solution of isopropanol (min 70% aq.)/ethanol solution (min 70% aq.)/bleach solution (min 10% aq.);
    - Keyboards and mouse (instruments, printers, etc.) using a paper towel soaked with the disinfectant solution of ethanol solution (min 70% aq.);
    - Remove the gloves and wash your hands with soap and water.

- There should be no consumption of any drink or food while in the building as this would require removal of face coverings. All consumption of food or drinks should be performed outside of the building while following all CDC guidelines (e.g. social distancing).

2. INDIVIDUAL PREVENTIVE MEASURES

- When you arrive at the lab, wash your hands with the provided hand sanitizer gel found on the door.
- In the case of using public transport, when you arrive at the lab, wash your hands, remove your washable tissue mask (or throw the mask in the trash if it is for single use) and put on a clean mask.
- It is required to wear a face covering when in a campus building at all times.
- It is required to use face masks in compliance with CDC guidelines during experimental manipulations. In the event of handling pyrophorics, a flame-resistant face shield will be required as well on top of the face mask.
- Wash your hands often with soap and water. Hand washing with hand sanitizer should preferably be applied in rooms and places where water is not accessible.
- Avoid touching face, mouth, nose, eyes, ears, etc. with your hands.
- Keep a minimum physical distance of 6 ft at all times in buildings on campus.
- Avoid greetings that involve physical contact.
- Avoid touching the door handles if possible, and manipulate the door with your elbow, if possible.

3. USE OF INDIVIDUAL PROTECTION ELEMENTS

Gloves should be used as usual personal protective measure while working in the lab. Protective gloves should NOT be used in a general manner, since their use can induce a false sense of protection and result in an accidental spread of chemicals from the lab to outside environment.

Masks

- People working in an office or lab without continuous interaction with other people, must wear a washable face covering, provided by an identified supplier or homemade according to the CDC standard (https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/diy-cloth-face-coverings.html). Reusable cloth masks or disposable masks are recommended to be changed every 4 hours if possible.
- People working in an office with frequent interaction with other people may also chose to wear a **protective face shield**, or a face shield in combination with a cloth mask.
- The protective face shield must be cleaned with soap and water or with ethanol (70% aq) or isopropanol (70% aq), and dried with towel paper each 4 h**. The protective face shield is personal and it cannot be exchanged between users**.

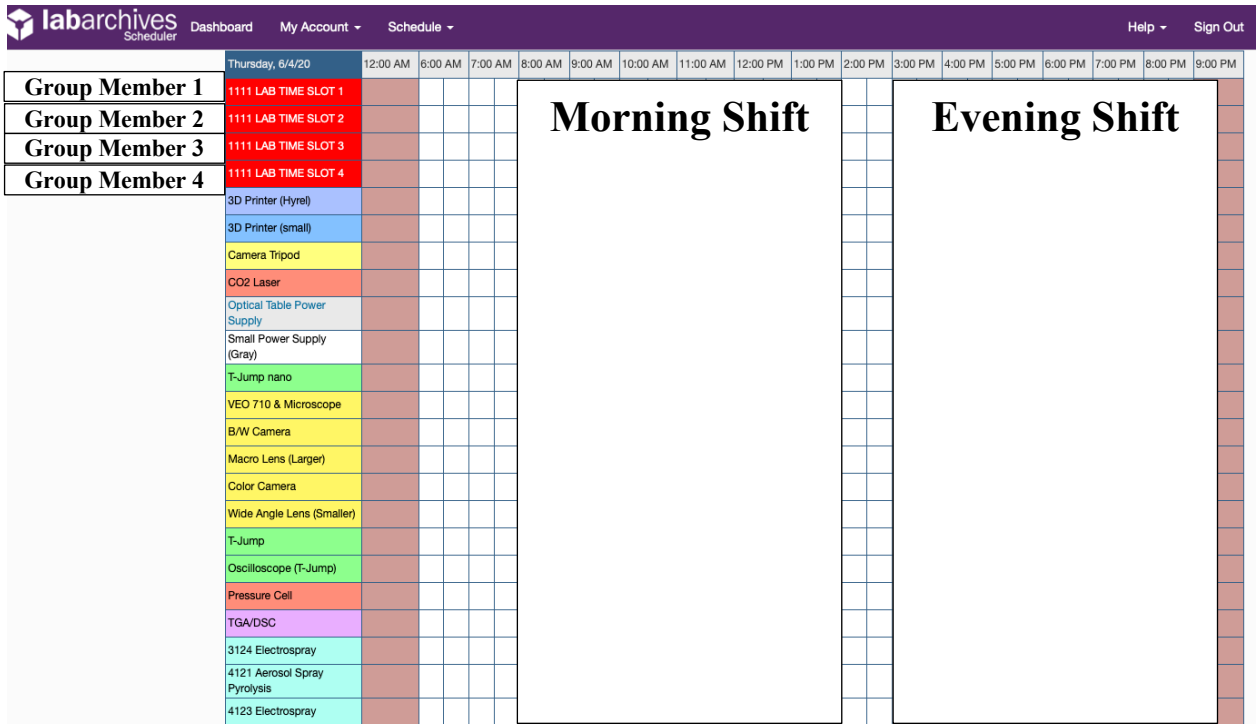
4. WORK IN THE LAB

- **Working remotely is strongly encouraged.** In particular, writing reports, data processing, bibliographic search, and all computer work must be done at home. All computational work including simulations and modeling must be performed remotely.

- The face-to-face activities such as conferences, seminars or group meetings are forbidden until further guidance from the campus for these activities.

- When receiving packages or mail, interactions with the delivery person should be avoided. The delivery person should deposit the package or mail on the floor or table, and you take it once he/she is at a good distance (6 ft minimum). Wash your hands after receiving and opening packages, and clean surfaces in contact with them with isopropanol or ethanol. If needed, sign the receipt with your own pen.

- In order to reduce the number of people working simultaneously in the lab, 2 shifts are established:
  - **Morning shift: 8am to 2pm**
  - **Afternoon shift: 3pm to 9pm**



- **People from different shifts can not overlap.** Ensure to have 15 minutes before the shift end for cleaning of all the common spaces and the equipment that has been used (see Appendix 1). In the event members from the morning shift need additional time to safely

finish an experiment and/or safely disinfect the lab, the members on the afternoon shift must be notified by phone (call or text) and email.

- All the commonly applied safety rules must be followed as usual.

- The lab (office area and fume hood ares) is only allowed to contain a total of **4 persons** at any given time. This preserves standard safety and protection measures and ensures that appropriate social distancing of 6ft is maintained throughout the respective shifts.

- Each person must clean the outer sash of the fume-hood with the disinfectant solution (isopropanol or ethanol) before starting to work and when leaving the room at the end of the shift.

- Lab coats must remain inside the lab at all times and must not be worn when using the bathroom or any facilities outside of the lab space. Please put your lab coat on your lab stool or hang it on the designated hanger. Lab coats should be cleaned on a regular basis.

APPENDIX 1

Found below are guidelines on how to disinfect and use communal instruments found within the lab space. The success in implementing these guidelines is only possible with the commitment and responsibility of each one of us.

Remember that all these actions are aimed at preserving the health and safety of yourself, your colleagues and, ultimately, everyone, even those outside of the lab.

The implementation of all the measures to work in a safe manner is time-demanding; above all do not rush when applying the safety rules in order to save time and work with serenity.

GLOVEBOX

1. Wash your hands with soap and water, wipe your hands with paper towel.
2. Before use, clean the screen, gloves, antechamber handle and vacuum/argon valves with the provided disinfectant.
3. Once finished, repeat steps 1 and 2.

OVENS

This applies to ALL Ovens

1. Before use, clean the oven handle with a wipe impregnated of the alcoholic solution (70 aq.%).
2. After use, clean the oven handle with the alcoholic solution (70 aq.%).

SCALES

1. Before use, clean all hand touched surfaces using paper towel or (preferentially) the wipe impregnated with the alcoholic solution (70 aq.%): touch screen monitor, door handle of the scale, brush, etc.
2. After use, repeat step 1
3. Take back all the chemicals and disinfect cabinets that were touched.

REAGENT CABINETS

1. Before use, clean the door handle (and all hand touched surfaces such as boxes, containers or plates) using paper towel or (preferentially) the wipe impregnated with the alcoholic solution (70 aq.%).
2. After the use of chemical, bring back the chemicals to the designated place.
3. Repeat step 1.

GAS CYLINDERS

1. If the cylinder is placed in a bracket, clean the carbineers that will be touched as well as the metal chain, and anything else that is touched.
2. Clean all the parts of the both cylinders (empty and full ones) you will touch: the valve, the cap, the manometers or the hose and flexible tubing end connections, and the valves of the gas distribution board, and the wrench, with the disinfectant solution using a wipe.
3. Change the gas cylinder as usual.
4. Repeat step 3 (and step 2 when the cylinder is placed back in the bracket).
5. Wash your hands with soap and water.

LIQUID NITROGEN DEWARS

1. Clean the collection dewar handle with the disinfectant solution using a wipe.
2. Go to the liquid nitrogen tank and clean the valve and handle with the disinfectant solution using a wipe.
3. After use, clean the valve and handle with the disinfectant solution using a wipe, as well as the collection dewar handle in your lab.

FT-IR, TGA-DSC COMPUTERS

1. Before use, clean all hand touched surfaces with wipe impregnated with the alcoholic solution (70 aq.%).
2. After use repeat step 1.

LAB COMPUTER

1. Wash your hands with soap and water (if sink nearby) or with hand sanitizing gel, and avoid the use of gloves.
2. Before use, clean all hand touched surfaces with wipe impregnated with the alcoholic solution (70 aq.%).
3. After use, clean all hand touched surfaces with wipe impregnated with the alcoholic solution (70 aq.%).
4. Wash your hands with soap and water (if sink nearby) or with hand sanitizing gel.

3D PRINTERS

1. Before use, clean all hand touched surfaces including touch screen and keyboard attached with a wipe impregnated with the ethanol solution (70 aq.%).
2. After use, clean all hand touched surfaces including touch screen and keyboard attached with a wipe impregnated with the ethanol solution (70 aq.%).

VOLTMETERS, POWER SUPPLIES, KEYBOARDS, LAPTOPS FOR HIGH-SPEED CAMERAS, HIGH SPEED CAMERAS AND COMPUTERS ATTACHED TO MASS SPECS

1. Before use, clean all hand touched surfaces including touch screen and keyboard attached with a wipe impregnated with the ethanol solution (70 aq.%).
2. After use, clean all hand touched surfaces including touch screen and keyboard attached with a wipe impregnated with the ethanol solution (70 aq.%).

COMMUNAL SUPPLY CLOSET

1. Before use, clean the door handle (and all hand touched surfaces such as boxes, containers or plates) using paper towel or (preferentially) the wipe impregnated with the alcoholic solution.

2. Once you have taken your items, repeat step 1.

SONICATOR

1. Wash your hands with soap and water or hydroalcolic solution if not available.

2. Clean the clamp and your sample with ethanol.

3. After use, repeat step 2.

4. Wash your hands with soap and water.
3.

FACE SHIELDS AND FACE COVERINGS

Types of PPE and specifications for laboratory use

Face shields

Face shields are simple, transparent screens that cover the face and help prevent infectious droplets from entering the eyes, nose and mouth.

The protective face shield is personal; it cannot be exchanged between users.

People working in an office or a laboratory with frequent interaction with other people are encouraged to wear a **protective face shield.**

The protective face shield is not a substitute for laboratory safety glasses or a face covering during lab work.

Do not touch the protective face shield with your hands when you wear it. Whenever the shield is touched, the user must wash their hands with soap and water or hand sanitizing gel.

Surgical masks

Surgical masks are disposable, loose-fitting face masks that cover your nose, mouth, and chin. They're typically used to protect the wearer from sprays, splashes, and large-particle droplets to prevent the spread of potentially infectious respiratory secretions from the wearer to others. Surgical masks can vary in design, but the mask itself is often flat and rectangular in shape with pleats or folds. The top of the mask contains a metal strip that can be formed to your nose. Elastic bands or long, straight ties help hold a surgical mask in place while you're wearing it. These can either be looped behind your ears or tied behind your head.

How to safely wear and remove a mask

The mask absolutely does not exempt the user from the application of barrier gestures in addition to essential social distancing measures. Further health instructions are presented on the CDC website https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/diy-cloth-face-coverings.html.

It is recalled that collective protection measures must be taken as a priority over individual protection measures.

The use of the barrier mask must be done considering the compatibility of its use with the wearing of personal protective equipment (PPE) (protective glasses, protective helmet, personal protection against noise, etc.).

How to put on a mask

To be effective, the barrier mask must be used correctly. It is recommended to wear it on bare skin (without the presence of hair in contact with the skin of the user) as follows:

a) Wash your hands with soap and water or apply friction with hand sanitizing gel before handling the mask;

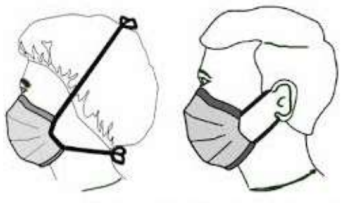
b) If the mask has been previously used, please make sure that it has been washed prior to any use according to the recommendations in section 4;

c) Locate the top of the mask;

d) Place the barrier mask on the face, on the nasal bar (if existing) of the nose;

e) Hold the barrier mask from the outside and pass the elastic bands or ties of the set of bridles behind the head, on either side of the ears, without crossing them. This is an example of how to position the bridles;

Front view



Lateral view

f) Lower the bottom of the barrier mask under the chin;

g) Check that the mask covers the chin;

h) Pinch the nasal bar (if existing) with both hands to adjust it to the level of the nose;

i) Check that the barrier mask is correctly fitted. For this it is necessary to check the tightness and the respiratory discomfort.

j) Once adjusted, do not touch the barrier mask with your hands. Whenever the barrier mask is touched, the user must wash their hands with soap and water or apply a hand sanitizer;

Maximal time of any given mask

The barrier mask should be washed or discarded whenever it is soiled, wet or improperly positioned on the face.

It should not be placed in a waiting position on the forehead or under the chin during and after use.

Do not reuse a soiled or wet barrier mask.

During a period of 4 hours, the mask can only be used several times if it is removed according to the instructions, temporarily stored or hung to offer the least possible contact and delivered according to the instructions.

The wearing time must be in accordance with the instructions for use if existing. In all cases, it will be less than 4 hours on a single day (equivalent to half a day).

How to remove a mask

Masks must be properly removed and kept isolated, either to be thrown away or to be washed. In order to preclude contamination while removing them, please follow the instructions hereafter:

a) If wearing gloves, it is necessary to remove your protective gloves first;

b) Wash your hands with soap and water or rub with hand sanitizing gel;

c) Remove the barrier mask by gripping the elastics of the set of flanges from behind without touching the front part of the barrier mask;

d) For single use mask: after use, dispose it into the specific container located at the entry of lab.

For reusable tissue CDC masks: place the reusable mask to be washed in a clean plastic bag and wash it at home.

e) Wash your hands with soap and water or apply friction with an alcohol-based solution;

Disinfection of PPE

Cleaning and disinfection of face shields

Disinfection containers and cleaning area will be located in the office are of the lab, and on lab benches.

Always consider that the shield about to be cleaned may be contaminated. Place the protective face shield on a work surface near a sink with a warm water source.

Use cleaning wipe or cloths together with one of the following recommended solutions:

- Isopropyl alcohol, 70-75%
- Ethanol >70%,
- Sodium hypochlorite 0.01-0.5%,
- Soap water, repeated washing, duration

In the lab, we will use >70% ethanol preferentially.

Prepare cleaning area: By disinfecting the work surface before you begin.

No more than 2 face shields should be cleaned at the same time.

Clean and disinfect shields: Submerge the face shield parts into the disinfection solution, ensuring that 100% of the surface comes into contact with the disinfectant.

Clean the shields with the pad and soapy water.

Rinse well under running water and place on a cleaned surface to dry.

Wash and tumble dry washable masks

Washing and drying the barrier mask must comply with the manufacturer's recommendations (user manual, or maintenance instructions).

Contact between a soiled barrier mask (to be washed) and clean clothing should be avoided. The person responsible for washing should protect himself or herself to handle the soiled masks if they are not in a water-soluble bag.

It is recommended before washing the barrier masks to clean your washing machine, by performing a cold rinse with bleach or spinning it empty at 140 °F or 200 °F without spinning.

It is not recommended to use specific products other than the usual detergent without first making sure of the non-toxicity of any potential volatile residue, and that their use do not degrade the materials. **The complete washing cycle (wetting, washing, rinsing) must be at least 30 minutes with a washing temperature of 140°F**.

NOTE The use of fabric softener is not recommended.

The barrier masks can be washed with old sheets in the machine, in order to guarantee the mechanical aspect of the washing.

The barrier masks must be completely dried before reuse.

NOTE Thermal cleaning with a microwave oven is not recommended.

A visual inspection (with protective gloves or washed hands) must be carried out after each washing cycle. If any damage to the barrier mask is detected (less adjustment, deformation, wear, etc.), the barrier mask must be discarded.

Standard Operating Procedure

Title: COVID-19 OUTBREAK

By my signature I acknowledge the contents, requirements, and responsibilities outlined in this Standard Operating Procedure (SOP):

Name	Identification*	Signature	Date

***Identification:** Enter your Student ID, Employee ID, UCR NetID, UCR Email*