

COVID-19 Shared User Facility Standard Operating Procedure (SOP)

Instructions on how to prepare and submit the COVID-19 Shared User Facility SOP

This COVID-19 Shared User Facility SOP fillable template must be used for shared user facilities on the Purdue West Lafayette Campus. Multiple adjacent rooms or service spaces located in the same building can be included in a single SOP as long as the space has common oversight and supports a common research activity. Separate SOP fillable templates are available for Purdue's individual and multi-investigator research spaces and field sites.

The COVID-19 Shared User Facility SOP should be completed for all centralized, professionally staffed shared user research facilities, including core laboratories, that provide access to instruments, technologies, services to approved internal and external researchers. At Purdue, centers, institutes, colleges, and departments provide oversight of shared user facilities. Over 100 of these facilities are recharge centers that are managed through iLab at Purdue.

Each COVID-19 Shared User Facility SOP should include a well-documented plan that everyone working in the space agrees to follow and enforce. The lab director/manager and other individuals responsible for oversight and operation of the facility should review the [pre-read document](#) and questions in the template before beginning. One person from this group should be designated as the Point of Contact (POC) to submit the SOP and manage subsequent communication.

This SOP **should** be used to describe how the layout of the shared user facility and the individuals using the space will comply with the Protect Purdue COVID-19 safety measures. This SOP **should not** be used to repeat or modify the Protect Purdue COVID-19 safety measures and processes, such as the health and wellness protocols and the required use of cloth or disposable face masks, which are available on the [Protect Purdue Website](#).

Please send a message to COVIDSOP@purdue.edu for assistance in determining the correct SOP template for a research space and/or completing the SOP template. Use the subject line Shared User Facility SOP Assistance.

Before returning to campus, all members of the shared user facility team who either conduct or support the research activities covered by this plan must: (1) review the pre-read for background and awareness; (2) complete [online COVID-19 Protect Purdue training](#); (3) read and understand the attached SOP; (4) participate in a group meeting to discuss the SOP; (5) sign the SOP indicating understanding of Shared User Facility SOP and intent to follow SOP.

Using the COVID-19 Shared User Facility SOP fillable form

The COVID-19 Shared User Facility SOP is using a MS Word fillable form to collect information in a standard format for rapid review and feedback. Input can be added to the field by clicking on the field and typing the response. Additional fields can be added by clicking on the "+" found at the lower right-hand edge of the first field.

COVID-19 SHARED USER FACILITY SOP

Shared User Facility and Point of Contact for SOP Submission

This section collects information on the shared user facility rooms and service areas that will be covered by the SOP and the contact information of the POC for the SOP submission. All communication on the review and approval process will be routed through the SOP submitter. Click on “+” at the lower right-hand corner of the fillable field to add additional fields.

Building Code: WTHR

Shared User Facility Name: X-ray Crystallography

Room Number(s): 101, 101A, 101B

Unit Responsible for Oversight of the Facility: Chemistry

Shared User Facility SOP Submitter Information:

Name: Zeller, Matthias

E-mail: zeller4@purdue.edu

Select College: Science

Department: Chemistry

Institute/Center: n/a

Position Title: Crystallographer and Manager X-ray Services

Research in this Shared User Facility Includes (check all that apply):

- COVID-19 Research
- Animal Research
- Human Subject Research
- Leverages Field Research, State, National, or International

Note: Purdue placed additional restrictions on animal, human subject, and field research in March. This SOP does not serve as an approval process to resume activities that are still subject to current restrictions found at this link [Guidance for Human Subjects Research](#).

Other Shared User Facility Personnel Included on the SOP

Purdue’s shared user facilities are centralized, professionally staffed research labs, including core laboratories, that provide access to instruments, technologies, services to approved internal and external researchers. At Purdue, centers, institutes, colleges, and departments provide oversight of shared user facilities. Many are recharge centers that are managed through iLab at Purdue.

Q1: Complete the following question if the shared user facility is staffed by personnel other than the SOP submitter. Include information on all personnel associated with the shared user facility, including personnel who manage lab administration and operation, conduct experiments for users, work with users, train users, calibrate and maintain equipment, etc. Only complete the parts that are applicable. NOTE: This question is NOT requesting information on the shared facility users.

To add personnel, hover cursor over large gray box and click to show “+” at the lower right-hand corner of the entire field.

Any individual at high-risk for severe illness or complications from COVID-19 should directly contact Purdue HR for a consultation before returning to campus work. Work that doesn't require access to the shared research facility should be done remotely whenever possible.

Shared User Facility Personnel Information:

Existing Emergency Contact? Yes No

Name: Zeller, Matthias

E-mail: zeller4@purdue.edu

Select College: Science

Department: Chemistry

Institute/Center: n/a

Position Title: Crystallographer and Manager X-ray Services

Approximate % time on campus needed to perform work: >75%

Existing Emergency Contact? Yes No

Name: Mash, Brandon L.

E-mail: bmash@purdue.edu

Select College: Science

Department: Chemistry

Institute/Center: n/a

Position Title: Teaching assistant X-ray laboratory (part time, graduate student Chemistry)

Approximate % time on campus needed to perform work: >75%

Existing Emergency Contact? Yes No

Name: Nathan J. Lin

E-mail: lin626@purdue.edu

Select College: Science

Department: Chemistry

Institute/Center: n/a

Position Title: Teaching assistant X-ray laboratory (part time, graduate student Chemistry)

Approximate % time on campus needed to perform work: >75%

Other Researchers Included on the SOP

Shared user facilities are open to internal and external users who are trained on one or more of the instruments in the facility and are approved to use the lab. To maintain social distancing guidelines and de-densify our spaces, it is critical that all individuals requiring access to on-campus facilities, including shared user facilities, understand and follow the Purdue COVID-19 safety measures. This

will include limiting time spent on-campus to tasks that rely on specialized on-campus facilities. All other work should be conducted remotely whenever possible. It may also require scheduling on-campus activities in multiple shifts across the day.

Q2: Confirm that the shared user facility director, manager, or designated individual will ensure that all internal and external users will complete the following before returning to the lab: (1) review the pre-read materials; (2) complete the COVID-19 online training; (3) review COVID-19 risk matrix and take appropriate actions if at high-risk; (4) review and understand the Shared User Facility SOP and any equipment specific safety measures; (5) have the opportunity to discuss the SOP with responsible shared user facility personnel. Yes No

Practices to Comply with COVID-19 Safety Measures in Shared User Facilities

Shared user facilities at Purdue (except those with active COVID-19 programs) are currently considered medium exposure risk by Occupational Safety and Health Administration (OSHA). All individuals returning to campus to conduct or support research activities, or those currently conducting critical research, will be held accountable for understanding and implementing the COVID-19 Shared User Facility SOP. The SOP must clearly describe how the spaces, processes, and practices of all rooms and individuals covered by the SOP will be adapted to comply with the current COVID-19 research safety measures below:

- Conduct research activities remotely whenever possible;
- Do not come to campus when experiencing COVID-19 symptoms or after close, prolonged contact with a confirmed COVID-19 carrier. See [Protect Purdue Pledge](#);
- Pay attention to personal hygiene, including frequent hand washing with soap and water;
- Wear [cloth or disposable face mask](#) when a 6 ft distance between individuals cannot be maintained at all times;
- Maintain a 6 ft. separation between people working in all shared research spaces for social distancing and de-densification;
- Incorporate engineering controls such as physical barriers and/or enhanced PPE when unable to maintain a 6 ft. separation between people working in a research space;
- Clean and sanitize shared surfaces and equipment frequently, using COVID-19 approved [cleaning products and procedures](#);
- Maximize separation between people when moving through research spaces;

The shared user facility director, manager and/or other responsible personnel should consider how to apply a combination of best practices across the four primary control areas for the lab and shared equipment: Physical Distancing, Social Distancing, Contact Time, Reducing Exposure.

PHYSICAL DISTANCING encourages remote work and video communication whenever possible. It also includes limiting trips to essential research travel to field sites, sponsor reviews, national user facilities, collaborator facilities.

SOCIAL DISTANCING is used to maintain the equivalent of a 6 ft. separation between people working in research spaces. Methods include installing floor markings to manage circulation and identify separation when waiting for shared equipment; removing or labeling desks, tables, and chairs; rearranging furniture and equipment to increase distance between high-use items; shutting down or staggering work in benches, hoods, or other stationary equipment; adding engineered controls such as Plexiglas barriers between adjacent work areas or enhanced PPE.

CONTACT TIME should be minimized by de-densifying and adopting approaches such as staggered work shifts, avoiding peak travel times, and using reservation systems for shared labs.

REDUCING EXPOSURE is aimed at minimizing cross-contamination. Approaches include assigning work areas to particular researchers; frequent hand washing and use of hand sanitizer; regular cleaning and disinfection of surfaces and shared equipment; reassigning research responsibilities to limit the number of different researchers in a shared space; limiting external visitors to essential contractors and vendors. *Most importantly, individuals should not come to campus when experiencing COVID-19 symptoms or after close, prolonged contact with a confirmed COVID-19 carrier.*

Note: Individuals at high risk for severe illness or complications of COVID-19 may require additional accommodations and protective safety measures to return to campus. Anyone who may be medically vulnerable to serious illness or complications from COVID-19 should complete **the assessment process to protect those most vulnerable** and take appropriate action.

The following questions will assist in developing and implementing COVID-19 safety measures, practices and processes for the research spaces covered by this SOP.

Q3: What are the room type(s) for this shared user facility? (check all that apply):

- Office space shared by four or fewer individuals
- Open office shared by five or more individuals
- Open dry space with benches, tables, and/or desks
- Dry bench
- Wet bench
- Analytical testing
- Physical testing
- Sample storage
- Other: Two offices (limited to single occupancy)

Q4: Briefly describe the activities that will be performed in the shared user facility covered by this SOP.

A) Multicrystalline X-ray diffraction. Utilizes an Empyrean Panalytical X-ray diffractometer, control computer and sample prep table. Open for use for trained and approved users.

B) X-ray fluorescence spectroscopy. Utilizes an Epsilon Panalytical XRF spectrometer, control computer and sample prep table. Open for use for trained and approved users.

C) Single crystal X-ray diffraction. Uses two Bruker Quest X-ray diffractometers. Open for use for trained and approved users.

This analysis requires intensive use of optical microscopy during sample preparation. Users are required to thoroughly clean the microscope before and after use. Users must wear goggles or eye glasses when viewing through the binoculars.

Q5: Provide examples of the type of work that can be done remotely to support shared user facility personnel and users.

Sample preparation and XRF and multicrystalline XRD data collections have to be performed on site (for long continuous data collections, users will be encouraged to leave the laboratory while measurement is running). Data analysis has to be performed on site (software and database license limitations do not allow remote access or installation on additional computers).

For single crystal X-ray diffraction sample preparation and crystal mounting have to be performed in the laboratory. The remaining analysis will be performed remotely (from separate office on campus or from home).

Q6: Confirm that the shared user facility personnel and users will communicate via video conference when possible. Yes No

If no, explain how social distancing will be maintained.

Q7: Confirm that all responsible individuals who serve as supervisors understand that anyone who may be medically vulnerable to serious illness or complications from COVID-19 should complete the assessment process to protect those most vulnerable. A Purdue HR representative will work with the individual and his/her supervisor to identify appropriate workplace accommodations. The supervisor cannot require the individual to return to campus until this process is complete. Individuals not at high-risk can return to campus after the COVID-19 Shared User Facility SOP is approved and training is complete. Yes No

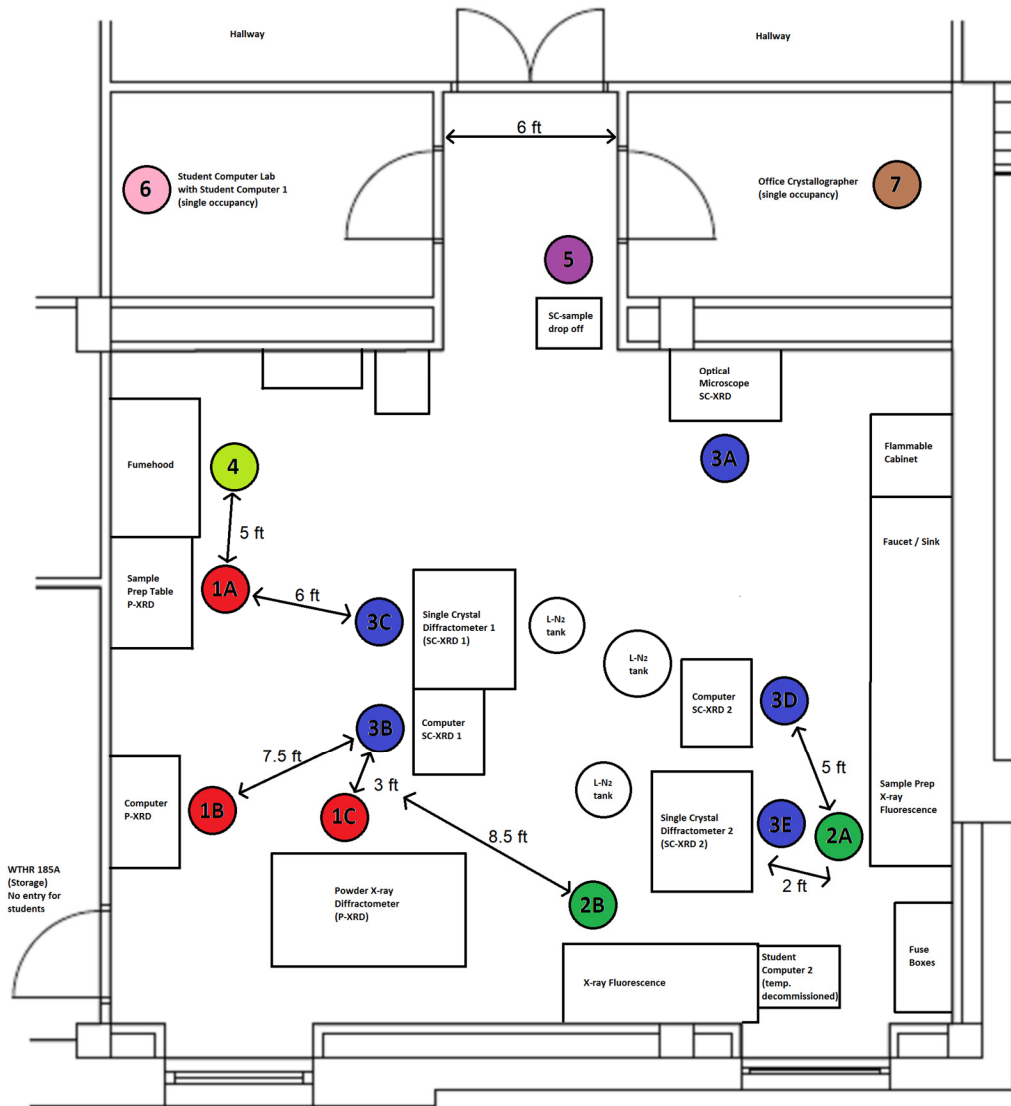
Q8: Confirm that everyone covered under this SOP understands that no individual should come to campus when experiencing COVID-19 symptoms or after being in close, prolonged contact with a confirmed COVID-19 carrier. Supervisors should support and enable these individuals to remain at home during this time. Yes No

Q9: Confirm that everyone covered by this SOP will follow requirements for wearing a cloth or disposable face mask. Yes No

Q10: Confirm that the shared user facility covered by this SOP has a sink suitable for hand washing or will have hand sanitizer available. Yes No

Q11: Confirm that everyone covered under this SOP understands that all Integrated Safety Plans requirements for appropriate laboratory practices and PPE remain in place, including in-person or remote buddy systems. Yes No

Q12: Insert a simple hand-drawn or electronic sketch of the shared user facility space covered by this SOP in the blue box, including critical dimensions where possible. Show the approximate location of major equipment, racks, benches, tables, desks, chairs, etc. For multiple sketches, hover cursor over large gray box and click to show “+” at the lower right-hand corner of the entire field. Floor plans can be accessed [on this page](#) with a valid Purdue login.



Legend:

Work area **(1)**: Powder X-ray diffraction
(1A) Sample Prep table
(1B) Computer table
(1C) Instrument

Work Area **(2)**: X-ray Fluorescence
(2A) Sample Prep table
(2B) Instrument

Work Area **(3)**: Single Crystal X-ray diffraction (Service Measurements only; no student use)

- (3A) Optical Microscope
- (3B) Computer table Instrument 1
- (3C) Instrument 1
- (3D) Computer table Instrument 2
- (3E) Instrument 2

Work Area ④: Fumehood (used in conjunction with either work areas 1 or 3)

Work Area ⑤: Sample drop off for Service Measurements

Work Area ⑥: WTHR 101A, Student Computer Lab (single occupancy)

Work Area ⑦: WTHR 101B, Office Crystallographer (single occupancy)

Q13: Does the shared user facility covered by this SOP plan to use a staggered work shift to maintain the required social distancing? Yes No

Q13a: If yes, confirm that a shared online tool or other method is available to track staggered work shifts. Yes No

Q13b: Confirm that a shared online tool or other method is available to schedule use of shared equipment. Yes No

Q14: Based on the rough sketch of the shared user facility, provide a brief description of the approaches that will be implemented to maintain the required social distancing by annotating the sketch and/or providing a short narrative below. This could include: floor markings to manage circulation and identify separation when waiting for shared equipment; removing or labeling desks, tables, and chairs; rearranging furniture and equipment to increase distance between high-use items; shutting down or staggering work in benches, hoods, or other stationary equipment.

A distance of at least six feet between people will be required at all times. Markers have been added on the floor to assist in keeping the required distance.

The total area of WTHR 101 is 732 sq ft, but only about half the area is physically accessible. To maintain a work area of at least 125 sq ft per person the total occupancy for the laboratory is limited to at most three people at any time.

WTHR 101A and B (the side lab and the crystallographer's office, both 78 sq ft) are limited to one-person occupancy at any time. The crystallographer's office is off limits for anybody but the crystallographer and janitorial personal. Use of the student computers in the lab and WTHR 101A should be kept to a minimum.

Working in groups is prohibited. Only one person per instrument at any time (no tagging along of undergrads or first years with more senior graduate students).

Work areas of the Empyrean XRD and the Epsilon XRF instruments are spatially far enough apart to be used at the same time. If a user needs to pass another person in the laboratory and cannot maintain 6 ft distance, the user should announce his/her approach, wait for the other person to acknowledge the request, and wait for the person to provide the space to pass at > 6ft distance.

Some of the work areas of the Empyrean XRD and the Epsilon XRF instruments are in close contact to the two single crystal X-ray diffraction instruments (see the laboratory sketch provided with this SOP). Users of these instruments are required to communicate with each other to avoid distances shorter than 6ft. All but the absolute required tasks for running single crystal samples (crystal selection and mounting) should be done via remote control from another office or from home.

To avoid interactions between people using the powder XRD or XRF instruments a 15 minute buffer between instrument reservations has been implemented in iLab so that the prior and the following user do not meet in the laboratory.

Casual use of computers for data workup that so far did not require reserving instrument time is suspended to avoid people unnecessarily meeting each other at an instrument computer. Users will have to reserve computer time in iLab for software and database use. A new “zero \$” reservation option in iLab has been created for this purpose for the Empyrean XRD and the Epsilon XRF.

Q15: Based on the rough sketch of the shared user facility and its anticipated use, are there activities or instances when social distancing cannot be maintained for a prolonged period of time and Plexiglas needs to be installed or enhanced PPE will be required? Yes No

The minimum 6 feet distance cannot be maintained during one-on-one instrument training. Enhanced PPE will be used by the crystallographer during training sessions (KN95 mask and face shield), and students being trained will be highly encouraged to also use enhanced PPE (e.g. KN95 mask or regular mask and face shield).

No Plexiglas walls will be required.

Q15a: If Plexiglas needs to be installed, confirm a work order has been placed with Physical Facilities to install the Plexiglas via the [Fix-it Portal](#). When placing the order please specifically mention this is a research-related request. Yes No

Q15b: If yes for Q14a, while waiting for physical facilities to install Plexiglas, describe the interim safety measures that will be used.

If yes for 16a, provide short description of interim safety measures.

Q16: Confirm that everyone covered by this SOP, including shared user facility users, agree to clean and disinfect frequently touched surfaces and equipment used by more than one individual using a [CDC approved disinfectant](#) that is appropriate for the surface or equipment. For example, wipes or sprays containing at least 70% alcohol or ethanol are a good choice for disinfecting keyboards, microscopes, and other sensitive equipment. Yes No

Q17: Describe any additional COVID-19 safety measures that will be implemented to reduce contact time, reduce exposure, or any other controls.

Besides the required cloth face mask, single use gloves must be worn when touching any shared equipment (instruments, tables, computer keyboards, doorknobs, chair armrests, etc). Nitrile gloves (single use) are provided by the laboratory. Users of the optical microscope are required to thoroughly clean the microscope before and after use. Users are required to watch a video with guidelines for microscope cleaning can be found at <https://youtu.be/-VqncPchM1I>. Users must wear goggles or eye glasses when viewing through the binoculars.

Q18: Confirm that shared user facility personnel covered under this SOP will participate in a meeting with the POC and supervisor to discuss this SOP. Yes No

Q19: Confirm that signatures will be collected from those who need access to the shared user facility confirming awareness and agreement to follow SOPs outlined in this document prior to accessing the facility. Yes No

COVID-19 Shared User Facility SOP Signature Page

By signing below, all personnel associated with this shared user facility acknowledge that they endorse the plan in the attached COVID-19 Shared User Facility SOP and agree that it should be submitted for review and approval.

Once the SOP has been approved, the facility director, manager, or designated responsible individual will ensure that all other internal and external users requiring access to the facility have completed all the requirements to return to the lab. The shared user facility is responsible for gathering signatures and maintaining up-to-date records that will be kept in the lab.

Privileges to this and other research spaces on the Purdue campus will be revoked if the signees do not follow the measures in this SOP.

Click “+” for additional fields.

Matthias Zeller	<u>Matthias Zeller</u> Signature	<u>6/10/2020</u> Date	<u>zeller4@purdue.edu</u> E-mail or phone #
Brandon L. Mash	<u>Brandon Mash</u> Signature	<u>6/10/2020</u> Date	<u>bmash@purdue.edu</u> E-mail or phone #
Insert name here	<u>Nathan J. Lin</u> Signature	<u>11/16/2020</u> Date	<u>lin626@purdue.edu</u> E-mail or phone #
Insert name here	_____ Signature	_____ Date	_____ E-mail or phone #
Insert name here	_____ Signature	_____ Date	_____ E-mail or phone #