HEALTH STATUS AND ACCOMMODATIONS

Health Screening

All team members must complete the return to campus questionnaire each day that they come to campus and informed of the importance of answering honestly. They have been informed of the need to stay home if they are sick and the procedures to follow if they suspect they have COVID-19.

Return to Campus Form – to be completed DAILY

1. Log in to http://myhr.uwo.ca/ with your western credentials.
2. In your personal My Human Resources you will find a radio button that has the title of “Return to Campus Questionnaire”.
3. Start Questionnaire, select done when complete.
4. Select Save to submit the questionnaire
5. Once submitted you will get a response based on your replies if you should come to campus.

If you have questions about COVID-19, please take this self-assessment to determine if you need to seek further care before calling Telehealth Ontario.

Weekend health-related inquiries
Telehealth Ontario 1-866-797-0000 or Toll-free TTY: 1-866-797-0007.

Health-related inquiries:
Student Health & Wellness, Western Student Experience at 519-661-3030 health@uwo.ca
Mon - Fri, 9 a.m. - 4 p.m.

Travel to/from Campus

Team members should thoroughly wash their hands with soap and hot water for at least 20 seconds when departing/returning to their residence. In cases where public transit is being used, social distancing guidelines should be strictly followed. Based the latest guidelines from Public Health, the use of face covering is generally recommended in the public.

Lab Scheduling and Log

A log book will provide a log of the attendance of team members, ensuring that the occupancy rules are followed and enabling contact tracing. A log will also been keep to record team members’ visits to other parts of the buildings outside their regular work spaces. The members
of the X-ray Facility will be physically present to work in the Facility on an as needed basis. Further, Dr. Boyle and Ms. Borecki will coordinate the times they will be physically present in the Facility by texting, phone call, or email to ensure mutual exclusivity.

Contact Tracing

Team members will be instructed to maintain daily logs of anyone that they come into less than 2 m contact with (and indicate the PPE used) and anyone that they spend more than 30 min with in a room while on campus.

Accommodations

Team members have been given the chance to identify and request accommodations for scheduling or return to work associated with health vulnerabilities, family responsibilities, or other concerns.

Mental Health

Dr. Boyle is holding frequent one-on-one meetings with team members and the group is also meeting on a weekly basis. All team members have been advised of the mental health resources available at Western and encouraged to use these resources if needed. Dr. Gilroy will also follow up with any individual members suspected to be at risk of mental health concerns.

https://www.uwo.ca/health/psych/index.html

PHYSICAL DISTANCING WHILE ON CAMPUS

General Conduct

Lab members have been advised to walk on the right side of shared hallways and give right of way to the descending person in stairwells.

Remote Work

Team members have been advised that all work that does not require the laboratory facilities (solving and refining single crystal structures, billing and other administrative tasks) should continue to be conducted remotely. All meetings will continue to be conducted using Zoom.

Access to Share Facilities on Campus

When team members need to visit other facilities on campus (e.g., NMR lab), they will adhere to the guidelines provided by such facilities and/or make prior arrangements before visits, in order to maintain a safe and healthy environment for all. When unsure, Dr. Boyle will be contacted for clarification.
GRADUAL RETURN OF TEAM MEMBERS AND MODIFIED USE OF SPACES

The scope of the X-ray Facility’s Areas of Service are first defined, and then how these services are offered as a function of Opening Phase are defined. The use of space as a function of space is also defined in this section.

Descriptions of Areas of Service

Single Crystal X-ray Structure Determinations provide detailed and quantitative information with regard to the crystal and molecular structure. The information includes bond lengths, bond angles, torsion angles, dihedral angles between planar groups in a molecule, as well as intermolecular interactions such as hydrogen bond and other non-covalent interactions. In addition, limited information is available regarding atomic and molecular group motion in a crystal structure.

Powder X-ray Diffraction provides power X-ray diffraction patterns, and phase matching services.

Cambridge Structural Database The University maintains a subscription to CSD and is hosted by the X-ray Facility on one if its computers. This area of service allows researchers to search the CSD for previously determined crystal structures and recover a plethora of information from these structures. In addition, database queries can be used to examine the systematic variations in a set of related structures containing a common structural fragment.

Crystallographic and Structural Chemical Consulting is provided by the Facility Manager. This area of service includes general discussion of crystallographic results, assistance in addressing reviewers’ comments regarding crystal structure results included in a manuscript, suggestions for growing suitable crystals for X-ray analysis.

Phase 2: Start to Ramp-up Research Activities

In this phase the following directives will guide Facility operations:

- **General**
  - As much work as possible will be done from home (e.g. solving and refining single crystal structures, billing and other administrative tasks).
  - Hands must be washed **immediately before** touching the keypad to enter the X-ray Facility.
  - A logbook will be kept noting the person, the date, arrival and departure times from the lab will be kept by the entry into the lab. In addition, this logbook will be used to record contacts with other personnel during their time in the Department.
  - Dr. Boyle and Ms. Borecki will be present in the lab at mutually exclusive times. They will coordinate with the other to ensure this mutual exclusion.
  - If, at anytime, more than one person is in the X-ray Facility, all persons must wear masks and eye protection.
  - The amount of “buffer time” between occupants will be 15 minutes for the X-ray Facility’s main room, and 30 minutes for the instrument room.¹

¹ These buffer times are based on air exchange rate values provided by Warren Lindsey in an email dated 8 June 2020 (see Appendix for these emails).
• When physically present in the X-ray Facility, authorized personnel (Dr. Boyle, Ms. Borecki) will wipe down all high contact surfaces with a disinfectant wipe at the start and at the end of their time in the Facility. These surface will include, but not limited to: Facility’s access keypad, all door handles, light switches, computer mice and keyboards, liquid N\textsubscript{2} tank handles and valves, microscope adjustments, tools for mounting crystals, mortar and pestle, sample mounts, handles and switches on the instruments.

• All samples will be run by either the Dr. Boyle or by Ms. Borecki. **There will be no student run samples during this phase.**

• Samples will be submitted via the online sample submission queue and the physical sample will be dropped off outside of the Facility in boxes provided. For highly air sensitive samples arrangements should be made with either Dr. Boyle or Ms. Borecki to be present when the sample is dropped off so that it can be run immediately.

• **Single Crystal Service**
  - Dr. Boyle will run single crystal samples
  - For “data collection only” the reduced data will be uploaded to the Facility’s web server for download by students or faculty who wish to solve and refine their own structures
  - Complete structure determinations will be uploaded the Facility’s web server for downloading by the end user.

• **PXRD Service**
  - Ms. Borecki will run the PXRD samples.
  - The results will be distributed to the user via email.

• **CSD Service**
  - Use of the CSD may be done remotely by the user if they have the appropriate software for doing remote logins and the display of graphics over the network (ssh client for remote login and an X11 server for remote graphical display).
  - For users needing CSD services but who do not have the proper software installed, a request for a search may be made directly to Dr. Boyle via email. Dr. Boyle will perform the search and send the results to the end user via email.

• **Consultation Service** are made by requesting a consultation via an email to Dr. Boyle. The actual consultation can take place via phone, email, Zoom, Skype.

**Phase 3: Expand Research Activities**

Phase 3 operations will be same as Phase 2 operations except for the following changes:

• **Single Crystal Service** – no change

• **Powder X-ray Diffraction Service**
  - A restricted number of student operators will be allowed to run samples. Only one student per group will be allowed to run samples. That student should be willing to run all the samples for their group.
Those selected student operators must abide by all the guidelines for personnel outlined in Phase 2. In particular:

- Coordinating with Facility staff to ensure mutual exclusion occupancy of Facility space.
- Wiping down all surface to be touched or touched by the student operator at the start and end of their session.

- **CSD Service** – no change
- **Consultation** – no change

**Phase 4: Further Expansion of Research Activities- The “New Normal”**

Phase 4 will be the same as Phase 3 operations will the following loosening of restrictions:

- More than one person will be allowed in the Facility at a time with the following stipulations:
  - Two metre distance between personnel at all times.
  - One person in Dr. Boyle’s office
  - One person in the main Facility space where Ms. Borecki’s workstation and student computers are.
  - One person in the instrument room at a time with a “buffer time” between people entering and leaving the instrument room.
  - Students and faculty may enter the X-ray Facility subject to occupancy and social distancing limits. to drop off samples or to search the CSD if they are not able to access the database remotely.

- Authorized faculty members may collect single crystal data subject to the above outlined occupancy limits. After data reduction and scaling, further data processing, solving, and refining the structure will still need to be done off of Facility computers (or performed through remote logins on ewald.chem.uwo.ca).

- If more than one person is the Facility, appropriate masks must be worn by all occupants.

**LAB SAFETY PRACTICES**

**Masks**

Masks are required in a lab/room when two or more people are present. Surgical masks will be provided to members for use (two per day per person). These masks need to be washed with soap and hot water every day. As always, use of volatile solvent must be conducted in fume hoods. This is particularly important when wearing any face mask, in avoiding any potential incompatibility between the mask materials and solvent.

**Sanitization**
Team members are expected to thoroughly wash their hands with soap and hot water using the sink in the nearest gender appropriate bathroom or using hand sanitizer upon arrival to the Department of Chemistry. Hand sanitizer will be supplied at the entrance of ChB 12. All lab members should wash their hands with soap and hot water for at least 20 seconds on a regular basis.

**Personal Protective Equipment**

As per normal procedures, all lab members will wear safety glasses, labs coats, and gloves in the lab. Gloves should only be removed in the lab when using a personal computer. Fresh gloves should be used when interacting with instruments in the instrument room.

**Computer Access**

As outlined above, structure solution and refinement as well as other computing tasks will be performed at home. However, the diffractometers are computer controlled and the instrument operator needs to be physically present while controlling the instrument.

**Cleaning Protocols**

See above for cleaning protocols. High touch surfaces will be cleaned by members of the lab at minimum, at the start and end of each work shift, using commercial disinfectants or alcohol-based cleaning solutions such as the hand sanitizer recommended by the WHO ([https://www.who.int/gpsc/5may/Guide_to_Local_Production.pdf](https://www.who.int/gpsc/5may/Guide_to_Local_Production.pdf)).

**OTHER**

**Communication**

The plan has been communicated and developed in collaboration with team members. All lab members have been encouraged to bring any concerns regarding safety in the lab to Dr. Boyle confidentially at any time. Lab members have been provided with his cell phone number for emergency contact ((226)378-8313). Non-urgency matter should be communicated via email.

**Access to eating facilities**

Team members are encouraged to take lunch or coffee breaks outdoor whenever possible. Seating with physical distancing has been arranged in ChB 12. Members are responsible to disinfect surfaces occupied before and after each use.

**Breaks and Socializing**

It is very important that members of the lab take regular breaks and have opportunities to socialize with friends and colleagues. However, we must realize that this is no longer possible in
ChB 12. Team members are encouraged to use designated spaces in the Department Chemistry or to head outside for these types of activities.
08 June 2020 email from Warren Lindsay regarding X-ray Facility’s rate of air exchange.

Hi Paul

A typical lab in our department changes over the air about 8 or 9 times per hour.
A typical office turns over the air about 2 or 3 times per hour.
Room 12B would be different again because it is trying to control the temperature and humidity (when it's working) so its use of outside air vs recirculated air is low. It would probably be similar to an office. Best to calculate based on an office. The fume hood exhaust by definition requires 100% replacement fresh conditioned air. The rest of the your lab will certainly have the 8 to 9 turnovers per hour in that space.

Warren

Original email from Paul Boyle to Warren Lindsay:

Hi Warren,

I am developing the X-ray Facility's phased reopening plan. For the initial phases I am planning on only allowing one person in the Facility at a time. In order to ensure a safe mutual exclusion, and being that small aerosol particles can remain suspended in air in a closed space for several hours, I would like to know how long it takes the building's air handling system to completely exchange the air the X-ray Facility. This figure would be the buffer length of time between occupants of the Facility. For example, if it takes the air handling system a half-hour to completely exchange the air in the X-ray Facility, then there would need to be a half-hour between occupants in the X-ray Facility. I have no idea what these numbers are. Also, the instrument room (ChB 12B) has its own environmental control. I presume that the air exchange rate would be different for this room. Can you supply these numbers for me.

Thanks,

Paul