

## Integrated Microscopy Facility Trainee Policies

*This document is intended for trainees using our facility. Please refer to the complimentary document for supervisors for additional information*

- 1. About the Facility:** The Biotron Integrated Microscopy Facility is a core microscopy service facility affiliated with the Biology Department, within Western's Faculty of Science. We serve the Western community as well as external Academic and Industrial clients.
  - a. **Services offered:**
    - i. Please refer to our website at [https://www.uwo.ca/sci/research/biotron/integrated\\_microscopy/index.html](https://www.uwo.ca/sci/research/biotron/integrated_microscopy/index.html) for a full description of our services.
    - ii. Complete instrument and software training for light, fluorescence/confocal and transmission electron microscopy.
    - iii. Image analysis support, training, and automations
    - iv. A full wet lab containing various equipment and support for the preparation of quality microscopy samples for both light and electron microscopy (TEM and SEM).
    - v. A range of options from hands-on training through to full fee-for-service
    - vi. Technical time for instrument training is free for Western students. Sample preparation training and image analysis setup can be arranged based on hourly or project rates. Refer to our rate sheet and dedicated project support flyers.
  - b. **Location:** We are located on the Western University campus in the Biotron Building, Suite #105, 1<sup>st</sup> floor. It is accessible from Perth Drive next to the Biology greenhouses, or through the Biology/Materials Science lobby on the 1<sup>st</sup> floor. [Google Maps location](#)
  - c. **Staff and Contact Information:**
    - i. **For General inquiries:** about registration, training, and booking, email [biotron\\_microscopy@uwo.ca](mailto:biotron_microscopy@uwo.ca) so that any one of our staff can assist you.
    - ii. **Karen Nygard, Microscopy Technical Specialist:** oversees the microscopy facility and supports light microscopy, sample preparation, and image analysis. [knygard@uwo.ca](mailto:knygard@uwo.ca), x 88061
    - iii. **Reza Khazae, TEM Technical Specialist:** manages all TEM-specific inquiries. [rkhazae@uwo.ca](mailto:rkhazae@uwo.ca), x88624
    - iv. **Marc Courchesne, Research Assistant:** provides general support and technical help for light microscopy and staining. [mcourch4@uwo.ca](mailto:mcourch4@uwo.ca), x 85601
    - v. **Carrie Hamilton, Facility Operations Manager, Biotron/Biology:** Oversees Biotron operational units in terms of financial matters, human resources and facilities [carrie.hamilton@uwo.ca](mailto:carrie.hamilton@uwo.ca) x83777
    - vi. **Shipping/ mailing address:**

Western University, Integrated Microscopy Facility,  
Biotron Experimental Climate Change Research Centre,

Biotron Building, Room 105, 1<sup>st</sup> Floor (Dock# 65),  
1151 Richmond St. N.  
London, ON N6A 5B7

**d. Hours of Operation:**

- i. Business hours are 8:30 AM to 4:30 PM from Monday to Friday.
- ii. Training & Assistance hours must be pre-scheduled between 9AM-4PM.
- iii. We remain open during Western Reading Weeks but are closed on statutory holidays.

**2. Steps to Getting Started as a User:** *Note that instrument or sample prep training is not available until all steps are completed.*

**a. The following documents must be submitted for every user (onsite, remote, or fee-for-service) before work may begin:**

- i. A signed registration form with complete billing and contact information
- ii. A signed and witnessed confidentiality form.

**b. Users planning to work onsite must also provide Western Safety Training Certificates:**

- i. WHIMS
- ii. Laboratory Safety/Waste Management
- iii. Biosafety
- iv. Worker or Supervisor Health and Safety Awareness
- v. Adherence to any relevant and current public health protocols and precautions (may require additional forms). Live Cell workers should refer to the section below on biohazardous samples.
- vi. Site specific training will follow receipt of ALL documents listed above.

**c. Site-Specific training which must be completed by each user:**

- i. **Review of this document** with our staff and return of the signed copy. This can take place onsite or remotely via Zoom.
- ii. **Onsite safety tour and orientation** by our staff to ensure that you understand your responsibilities, precautions, and how to respond to emergencies.
- iii. **Instrument or Sample Prep Training.** This is not offered until all the steps above are completed. It will include specific training for safe use and handling of instruments, samples, chemicals, and equipment.

**3. Levels of Access:** *Users may not book time for or train other users or bring guests into the facility without staff notification and supervision.*

**a. External Users Without Western Safety Training:** Any user who doesn't have appropriate Western University-specific safety training certificates cannot be left unsupervised.

- i. External users may enroll as a Western "Associated Person" and complete relevant safety training if they wish to gain access, or they can choose Fee for Service billing and have the work done by staff.

- b. **Biotron Building Access** may be granted to anyone who has completed their first training session. Please inquire. The door to Biology is open during the day, however the Perth Drive entrance is secured. The Microscopy suite lab doors are open between 9:00 AM and 5:00 PM.
- c. **After Hours Microscopy and Building Access** is only available to experienced users. This privilege is confined to users who have completed at least 5 independent sessions on our systems in the daytime with proven competence and is offered solely at the discretion of our staff. An application form is available.

#### 4. Instrument Reservations and Tracking:

- a. **Online Reservation Calendar:** All imaging instruments, workstations, benches and fume hoods in the Integrated Microscopy Facility must be prebooked online using our remotely-hosted Calcium calendars at <https://www.brownbears.wa.gov.au/mc/BiotronMicroscopy>
- b. **Your Username and Password:** \_\_\_\_\_
- c. **First Time Users:** First-time users must book directly through our staff for training and orientation, regardless of prior experience.
- d. **Refresher training is mandatory after 6 Months since last visit** Please email staff before booking and choose “I require assistance” as the category.

#### 5. Calendar Booking Categories and Training: *Refer to the booking calendars for the following training levels listed under “categories” when you create a booking:*

- a. **“New User Training”:** New user training must be booked through our staff following orientation. Do not book this for yourself or others.
- b. **“I Require Assistance”:** Following your new user training, you may begin booking your own sessions by indicating that you require assistance as the category when booking, so that we can ensure technical help is available for you. You must book sessions a minimum of 48 hours in advance. Please also notify us by email if you need extensive help. Your session must occur between 9:00 AM and 4:00 PM if you need help with it.
- c. **“I am independent”:** If you indicate on the calendar that you are independent, staff may take other appointments or leave the facility, and may not be available to help on demand.
- d. **“After-Hours Use”:** Experienced users who have been granted permission and to have swipe card access may book time after hours (5 PM to 8:30 AM). After-hours users will be given a new login and special instructions for booking and conduct onsite. Please refer to the Swipe Card Access Policies document
- e. **“Software Use Only”:** On some instruments, we offer discounted billing for using the software alone. The hardware must be turned off to qualify for this. Refer to staff for guidelines on whether this is applicable. Selecting this category ensures you will be billed appropriately.
- f. **“Maintenance”:** This category will be used to communicate breakdowns, scheduled maintenance, and repair plans to users. Please consult the relevant calendar before emailing us. We appreciate your patience. Maintenance will happen as soon as possible in most cases.
- g. **“Fee for Service” and “Staff Use” Categories** are to be used by staff only

#### 6. Reservations and Tracking Rules:

- a. **Time Limits:** The instrument calendars have minimum or maximum time limits imposed on them. Typically, the minimum is 0.5 hour, and the maximum is 4 hours during peak use times. Please DO NOT book back-to-back 4-hour sessions in the daytime without asking us.
- b. **Instrument Log Sheets:** All instruments and bookable spaces have a calendar-style log sheet posted next to them. Users must fill in the logs at each use so we can track problems and bill appropriately.
- c. **Book in Advance:** All sessions **MUST** be booked in advance on our calendar to assist us with bookkeeping regardless of duration, time of day or type of instrument/service.
- d. **If you require any assistance, we require 48 hours of notice to schedule our time.** Do not book at the last-minute if you require assistance, as we may not be available.
- e. **Last Minute Users must reserve:** These users **MUST** add their time to the online calendar before they arrive. There are no pre-booking restrictions on the online calendars, but we do not accept drop-in users. Technical assistance may not be available for drop-in clients.
- f. **Book only for yourself:** Users may not book time for other users or expect to train them themselves.
- g. **Notify us of Lateness and Cancellations:** Appointments may not be changed or cancelled within 24 hours of occurrence, except by directly contacting our staff. Latecomers forfeit their time after 30 minutes if they have not contacted us with a valid reason. Please email [biotron\\_microscopy@uwo.ca](mailto:biotron_microscopy@uwo.ca). We reserve the right to bill no-show users for the time scheduled.
- h. **Overbooking Time:** We try to be fair for unexpected sample failures and mishaps, but users who regularly overbook may be charged for the full number of hours reserved when instrument demand is high.
- i. **Instrument Maintenance:** We will provide current information about the status of instruments requiring repair on the booking calendars, with updates. Periodically we may have to cancel a user session unexpectedly to make room for maintenance visits when service technicians are available on short notice.

## 7. Safety Policies:

- a. **This is a Hazardous Worksite:** We handle all the hazardous substances listed below and we also host untrained students from high school through to graduate level studies. Therefore, safety policies are strictly enforced. These materials are present onsite:
  - i. Biological materials such as level 2 bacteria and live cells
  - ii. Toxic substances and heavy metals
  - iii. Mildly radioactive uranium compounds
  - iv. Equipment with glass under pressure
  - v. Gas tanks under pressure.
- b. **Safe Workspace:**
  - i. **Everyone is Responsible for Safety-Follow Guidelines:** Western and all applicable public health guidelines must be followed onsite.
  - ii. **Failure to Comply:** Technical staff have absolute authority to ask trainees who fail to comply with Western and Biotron Health and Safety or harassment guidelines to leave the facility.

- iii. **Bring your own PPE (Lab coat and safety glasses).** Always wear your PPE while onsite in the wet lab spaces.
  - iv. **Lab Attire:** Shorts, skirts, crop tops and sandals are not permitted for any reason within the lab.
  - v. **SDS sheets** are available via any computer terminal at this website: <https://www.uwo.ca/hr/safety/topics/sds.html> Always read labels and SDS sheets before touching anything-Do not rely on staff to know everything.
  - vi. **Food and Drink** must be consumed outside of the laboratory suite. A lounge area with washrooms and a kitchen are provided in the lobby outside.
  - vii. **Coats** must be hung in the hallway outside, not within the lab.
  - viii. **Bags** must be tucked under a bench out of the way of other users or left in the hallway with the coats.
  - ix. **Bullying or harassment** of any kind is not tolerated in our workspace. Violators will be asked to leave, reported to their supervisor, and potentially banned from the facility.
  - x. **When leaving** the lab space, we encourage you to wash your hands in the adjacent kitchen or washrooms. Water in the lab is non-potable.
- c. **Labeling and Storage of Materials, Samples and Reagents Kept Onsite:**
- i. **Reagent Labels:** All reagents prepared in the facility and all waste generated must be labelled according to WHMIS guidelines, even water.
  - ii. **Sample Labels:** Samples must be labeled with your name, the date, and the name of your supervisor.
  - iii. **Storage:** Consult staff for designated location of samples and reagents you wish to leave. They must be labeled. Unlabeled reagents and samples will be discarded.
- d. **Waste Materials:**
- i. **Glass and sharps** should never be discarded in regular waste. Scalpels, blades and needles should be safely removed from instruments and syringes and discarded into a sharps container.
  - ii. **Glass** can be left in the designated glass waste containers.
  - iii. **Blades** for re-use must be put away in hard boxes with a warning label.
  - iv. **Sharps and glass contaminated with volatile chemicals** should be left in labelled waste containers in the fume hood. Please tell staff what you have left.
  - v. **Dumping:** No chemical waste should be discarded down drains without authorization. Users are expected to refer to SDS sheets for proper handling of waste.
  - vi. **Chemical waste** must be properly stored and labeled, and staff should be alerted when containers are getting full.
  - vii. **Waste that needs off-gassing:** Some waste may require off-gassing in the fume hood, polymerization in the oven, or autoclaving before being discarded. It must be properly labeled and secured before you leave and staff should be notified, or we will bill for our time.

## 8. Acceptable Sample Types and Precautions: *We offer services for both Life Science and Materials Science samples.*

- a. **Before you Bring Samples:** All samples and materials within the facility must comply with any applicable Western or Facility policies. Transfer of hazardous materials, live organisms or cells, and nanoparticles must be discussed with the Technical Specialist **BEFORE** arrival at the facility.
- b. **Biological Materials:** Arrangements must be made before bringing in live or unfixed materials. We require a copy of your Biohazardous Agents Permit as well as SDS sheets for any live organisms entering the facility.
  - i. Samples must be safely contained when transported to the lab according to Western guidelines.
  - ii. Open biological materials can only be handled in the Level 2 facility in room 105K. There is a biological hood and a small incubator and live cell stage available (48 hours of advanced notice is required for any incubation).
  - iii. The main lab is governed by a limited level 1 Biohazardous Agents Permit, which entails containment of live (Level 1 only) samples in closed dishes or under sealed coverslips for microscopy purposes only. No open handling of these materials can happen in the main lab.
  - iv. Materials in all other areas of the lab must be either covered in sealed containers for transport, or chemically fixed before being brought to the lab.
  - v. The microscope must be wiped down, along with any touch points, in the level 2 room with the wipes provided before leaving if you have been handling live cells.
- c. **Toxic materials, Nanoparticles, Radioactivity:**
  - i. **Chemicals-** Please inform us if you will be bringing your own reagents so we can ensure SDS sheets are consulted and followed. Transfer procedures should be followed as per Western guidelines.
  - ii. **Nanoparticles-** Define the size and format of the particles before sending them to the facility. Particles less than 100 nm should be provided in liquid suspension whenever possible, or they may be handled in a laminar flow hood only. The researcher is responsible for removing and discarding them when the work is complete.
  - iii. **Radioactive Materials-** Radioactive materials of a quantity above C.N.S.C. guidelines are forbidden in this area. We are permitted only to handle low level Uranium compounds in limited quantities.

## 9. Care and Use of Laboratory, Files and Instruments:

- a. **DO NOT CHANGE Instrument Hardware or software:** You are not permitted to change or move the hardware, lenses, cameras, electron beam or laser alignments, or software configuration of any of our equipment unless specifically given permission.
  - i. Pre-arrange to have staff move or adjust hardware with at least 24 hours' notice.
  - ii. Obey any posted signs regarding specific precautions for the instrument.
  - iii. Do not install any software
  - iv. Do not install any software pop-ups such as updates to graphics cards without consulting staff.

- v. If we find an instrument reconfigured without permission, fees for our technical time plus any further damages will be billed.
- b. **USB Keys and Portable Drives:** Malware is a serious concern for us, as many of the systems are robotically controlled. Personal USB keys are portable drives are **strictly forbidden\*** except by arrangement with staff in rare circumstances.
- i. On internet connected systems, your files can be transferred via your Western OneDrive account.
  - ii. For non-networked equipment, we will loan you a clean USB device to transfer files to a public computer onsite for upload. These keys may not leave the facility, or you will be charged \$25 to buy them.
  - iii. \*If files are too large for upload, a portable hard drive may be presented to the staff for malware scanning before it can be attached to our systems.
  - iv. Failure to comply by these rules will automatically incur charges for any technical time and service repair fees incurred scanning or cleaning the systems.
- c. **File Storage:** Please store files in the location designated to you during training.
- i. Files stored on the operational C: drives will be removed immediately.
  - ii. Clients are expected to maintain their own copies of all data and image files as they generate them. We are not responsible for lost files.
  - iii. For files not stored in native (vendor) file formats, help finding acquisition details, obtaining scale bars, obtaining accurate measurements, or performing deconvolution may be impossible. We strongly recommend keeping the raw files available for publication time.
  - iv. Hard drives on our systems are cleaned approximately every 3-6 months or on an emergency basis when full.
- d. **Wet Lab Area Use (Project Trainees Only):**
- i. The bench area and fume hood should both be booked online in advance.
  - ii. You are responsible for checking ahead to ensure sufficient reagents are made up for your session. Please inform us if any reagents are running low.
  - iii. On the day of use, sign in on the paper calendar and indicate the number of slides being used.
  - iv. **Slides generated in the facility** must be logged, labeled, and stored as follows.
    - Fill out the log sheet in the supervisor's binder.
    - Complete and file an experiment plan with appropriate experimental number both electronically (mailed to staff) and on paper in the supervisor's binder.
    - Each slide must be labeled clearly with an experiment number, supervisor's designation, and a slide number. These must correspond to the plan above.
    - Slides for immediate use can be kept in loose folders, but they should be transferred for long term storage to slide boxes once imaging is completed.
  - v. A daily fee is charged for disposal of chemical waste and use of our supplies and reagents, plus additional per-slide charges for specialty consumables for immunostaining. Refer to our rate sheet for details.

- e. **Cleanup and shut down:** Failure to leave an area or piece of equipment in an appropriate state will incur fees for technical time. Please refer to your instrument S.O.P. for instructions. Check the calendar before shutting off fluorescent lamps in case another user is waiting.
- f. **Instrument Malfunctions:** Please contact staff immediately. Do not cancel onscreen error messages. Do not attempt to repair things yourself, or to adjust buttons and switches unless you have been trained in their functions and given permission to do so.
  - i. If staff are not available, please copy down or take a screenshot of any error messages and email us details about what happened at [biotron\\_microscopy@uwo.ca](mailto:biotron_microscopy@uwo.ca).
  - ii. Staff will reduce the billing time accordingly.
- g. **Instrument Damage:** We expect breakdowns of equipment due to normal wear and tear from time to time, however supervisors are financially responsible for any negligent damage caused by users who fail to comply with our training and rules.
- h. **Failure to comply with rules resulting in downtime:** Staff time for necessary repairs and adjustments will be billed to the supervisor if we experience downtime due to failure to comply with our instrument and software handling rules.

## 10. Publication, Authorship and Responsibilities:

- a. **Acknowledgement:** In publications and presentations arising from work performed here is essential for our continued financial support. In making use of our equipment, software, training, or support, you agree to acknowledge the “**STAFF MEMBER NAME at Biotron Integrated Microscopy Facility, Western University**” in all publications and presentations referring to work performed here.
- b. **Notice of Publication:** As a courtesy, the Integrated Microscopy Facility should also be notified of all publications resulting from work carried out in the facility. Please email: [biotron\\_microscopy@uwo.ca](mailto:biotron_microscopy@uwo.ca)
- c. **Authorship:** For any work that requires development of techniques or processes by our staff, it is expected that suitable credit will be given to that staff member in any resulting publications. This may take the form of acknowledgement or co-authorship, as appropriate.
- d. **Unsatisfactory Results:** Good microscopy is dependent on excellence in sample preparation. Instrument time is still billable even if results are unsatisfactory unless the problem is specifically due to staff or instrument error. In such cases, an investigation will be undertaken, and restitution will be applied if warranted. We always strive to be fair to all parties. In the case of new or untested sample types, the researcher may be asked to complete a memorandum of understanding outlining responsibilities.

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I, \_\_\_\_\_ have read and will abide by the Standard Operating Procedures as outlined in this document.

Date \_\_\_\_\_ Signature \_\_\_\_\_