

Micrographia@Western Terms of Reference

PURPOSES AND FUNCTION

NAME: Micrographia@Western (Micrographia at Western).

INVOLVED FACULTIES: Schulich School of Medicine and Dentistry and the Faculty of Science.

RATIONAL AND JUSTIFICATION: Microscopy is a technology central to many scientific disciplines and has been subject to significant capital investments by faculties, departments, and individual faculty members at Western University. However, the rapid evolution of new imaging technologies and their associated, complex methodologies necessitates formalized training, active collaboration between microscopists, practical mentorship of trainees, and leveraging of the expertise and technologies already available in Western's established core facilities. Micrographia@Western brings together microscopists from across Western University, including the affiliated hospitals and colleges, with the following goals:

1. Develop, support, and grow an inclusive and supportive community of microscopists at Western.
2. Run educational programs and establish mentorships that provide formal and informal training in microscopy techniques and image analyses.
3. Promote and enhance Western's microscopy core facilities.
4. Establish Western University as an international leader in microscopy.

PRIMARY ACADEMIC FUNCTIONS:

1. Provide formal training in microscopy through courses, seminars, and other training endeavors.
2. Promote mentorships between experts in specific microscopy approaches and trainees or faculty members whose research would benefit from those approaches.
3. Enhance research at Western through the specific adoption of microscopy-based approaches.
4. Promote the existing microscope technology, methodologies, and expertise available in Western's core facilities.
5. Promote the coordinated acquisition of leading-edge microscopy technology and assist in the adoption of these new technologies and techniques by Western researchers.

CONTRIBUTION TO THE UNIVERSITIES MISSION

Micrographia@Western will contribute to several of Western's Strategic Goals:

EDUCATIONAL EXCELLENCE: The primary focus of Micrographia@Western is to build, enhance, and grow microscopy-based education at Western University. Our focus will be on formal training, educational seminars, and developing one-on-one mentorships to produce a world-class educational program that ensures Western graduates have the knowledge and skills to be world leaders in the application of microscopy to scientific research.

PEOPLE: Micrographia@Western is focused on building a dedicated microscopy community at Western that enhances the training of our students, staff, and faculty in microscopy techniques, and in fostering an inclusive and engaging environment that will attract microscopists from around the world to Western's research and training programs. This represents a material investment into personnel, via providing new opportunities for experts to directly apply their knowledge and skills, and to teach those skills to others.

GREATER IMPACT: *Seeing is believing*, and microscopy allows for the direct visualization of biological, chemical, physical, and mineralogical processes. These intuitive datasets can set apart research from competing publications and grants that rely on less intuitive approaches to investigating these processes.

INTERNATIONAL LINKS: The leadership team of Micrographia@Western are part of national (*Microscopical Society of Canada*) and international (*Royal Microscopy Society* and *Microscopy Society of America*) microscopy societies. Through these links, Micrographia@Western members have access to international resources, conferences, and training programs that are otherwise unavailable to researchers.

PARTNERSHIPS: Micrographia@Western has established strong links with leading microscopy vendors, including world-leading instrumentation companies Leica, Nikon, Olympus/Evident, and Zeiss. These links allow Micrographia@Western to have industry experts provide seminars and equipment demonstrations and allow us to incorporate their training materials into our educational programs.

RESEARCH EXCELLENCE: Microscopy can provide insights into the structure and dynamics of biological, chemical, physical, and mineralogical processes. But uncovering these properties requires the proper application of complex microscopy techniques and specialized equipment, and consequentially, the adoption of these approaches is often limited to a small number of labs who have invested in the corresponding technology and training. By providing inclusive training and mentorship to the entire Western community, Micrographia@Western will enable the broader adoption of advanced microscopy techniques and ensure that Western researchers apply these powerful approaches in a rigorous manner.

GOVERNORSHIP

DESCRIPTION: Micrographia@Western is overseen by an executive committee comprised of two co-directors and an advisory team, with executive committee members having an equal vote on all motions. Specific educational and other activities will be overseen by subcommittees composed of at least one member of the executive committee, plus Faculty and/or Trainee Members drawn from the general membership of Micrographia@Western.

MEETING FREQUENCY: The executive committee will meet after the winter term to set Micrographia@Western programs for the upcoming academic year. Additional meetings can be held on an *ad hoc* basis. All meetings require a majority of executive committee members for quorum, and all motions are decided by majority vote.

GOVERNING OFFICERS: Micrographia@Western is led by two co-directors, one from each of the Faculty of Science and Schulich School of Medicine and Dentistry (SSMD). Co-directors are responsible for overseeing the operations of Micrographia@Western, setting educational priorities, and establishing subcommittees to oversee specific events, training activities, and programs. Co-directors also serve as liaisons between Micrographia@Western and their respective Faculties. Co-directors serve a 2-year term, renewable indefinitely, and are elected by Micrographia@Western faculty members.

Name	Affiliation	Qualification	Responsibilities
Dr. Bryan Heit	SSMD, Department of Microbiology & Immunology	PhD	Co-director, liaison to SSMD.
Dr. Joshua Pemberton	Faculty of Science, Department Biology	PhD	Co-director, liaison to the Faculty of Science

ADVISORY TEAM: The advisory team ensures a strong voice for trainees and core facilities in the operations of Micrographia@Western. The core facility representative is a staff member or supervising

Faculty of a microscopy core facility. Trainee representatives are a graduate student or post-doctoral fellow from the respective Faculty. Advisory members serve a one-year term, renewable indefinitely. The core facility representative is appointed by the executive committee. Trainee representatives are elected by the Trainee Members of their corresponding faculty. Should additional Faculties become significantly involved in Micrographia@Western, additional Trainee Representatives can be added to the advisory team to ensure their Faculty's representation.

Name	Affiliation	Role	Responsibilities
Karen Nygard	Biotron, Faculty of Science	Technical Specialist	Core Facility Representative
Marc Courchesne	Department of Biology	PhD	Faculty of Science Trainee Representative
Rachel Nicholson	Department of Microbiology and Immunology	MSc	SSMD Trainee Representative

SUBCOMMITTEES: Subcommittees can be established by the executive committee to oversee individual events. These committees will be comprised of at least three Micrographia@Western members, of which at least one is from the executive committee who will serve as the liaison between the subcommittee and the executive committee.

MEMBERSHIP

FACULTY MEMBERS: Any faculty member at Western University or an associated college or hospital can join Micrographia@Western as a “*Faculty Member*”. Membership is for 5 years, with unlimited renewals. Micrographia@Western *Faculty Members* receive all communications, can serve as a Micrographia@Western co-director for their Faculty, can serve as a core facility representative, can vote in executive committee elections, can serve in any position in any Micrographia@Western subcommittee, and can participate in all Micrographia@Western events.

TRAINEE MEMBERS: Any graduate student or post-doctoral fellow can join Micrographia@Western as a “*Trainee Member*”, with membership lasting the duration of the training period. *Trainee Members* receive all communications, can participate in any Micrographia@Western committee or event with a trainee component, and can serve as a *Trainee Representative* for their Faculty on the executive committee.

UNDERGRADUATE MEMBERS: Any undergraduate student supervised by a *Faculty Member* can join Micrographia@Western as an “*Undergraduate Member*”. Membership is for 1 year, with unlimited renewals. *Undergraduate Members* receive all communications and can participate in any Micrographia@Western event with a trainee component.

STAFF MEMBERS: Staff and research associates of any *Faculty Member*, and any staff member employed in a core facility, can join Micrographia@Western as a “*Staff Member*”. Membership is for 5 years, with unlimited renewals. *Staff Members* receive all communications, can serve as a core facility representative on the executive committee, can vote in executive committee elections, can serve in any position in any Micrographia@Western subcommittee, and can participate in all Micrographia@Western events.

EXTERNAL ADVISORY BOARD: Every five years the executive committee will establish an *External Advisory Board* composed of national or international experts (e.g. from the *Microscopical Society of Canada*) to review the activities of Micrographia@Western. This advisory board will focus on assessing the contributions of Micrographia@Western to its membership as it relates to achieving its primary academic functions, and to offer suggestions for future improvements.

STUDENTS AND COURSES

FALL CRASH COURSE

Every fall several hundred students join Western's research community, many of whom will utilize microscopy as part of their research aims and educational activities. During the fall reading week, Micrographia@Western offers a course on basic microscopy principles, imaging modalities, experimental design, sample preparation, and image analysis. This course provides these trainees with the foundational knowledge required to succeed as a microscopist, and familiarizes them with the microscopy technology, techniques, and experts available to them at Western.

LUNCH-AND-LEARN

Micrographia@Western has many experts on specific microscopy techniques amongst our membership, and through our commercial partners and international links. As a result, Micrographia@Western can bring world-class experts and demonstration equipment to Western. Several times each year lunchtime seminars are held where an expert (internal or from one of our commercial partners) provides a talk on a microscope technology, technique, or analytical approach, with the goal of educating the participants on the research opportunities provided by the technique/technology, and its appropriate implementation. When possible, these are paired with existing equipment within a core facility, or an incoming demonstration system, allowing participants the opportunity to gain hands-on experience with the technique or technology.

MENTORSHIP PROGRAM

Western University has many researchers who are experts in highly specialized microscopy techniques. These techniques may not be of sufficient general interest, or may require a degree of specialization, that renders them inappropriate for classroom-style teaching. Micrographia@Western supports the establishment of one-on-one mentorships between experts in these specialized techniques and trainees/scientists wishing to establish these techniques in their own research programs. Micrographia@Western initiates these mentorships upon request of a *Trainee* or *Faculty Member*.

AD-HOC COURSES

Acquisition of new instruments, the establishment of new techniques, and other events can create the need for formalized training outside of planned Micrographia@Western educational programs. Micrographia@Western will meet these educational needs by recruiting an appropriate expert to provide relevant training, organizing classroom space, advertising the event, and managing course enrolment.

PHYSICAL REQUIREMENTS

As Micrographia@Western is faculty-led and operates in a virtual manner, dedicated space is not required at this point in time.

STAFFING REQUIREMENTS

CURRENT STAFFING:

Micrographia@Western is currently volunteer-run and does not have any dedicated staff. A work-study student with experience in graphical design will be recruited to develop a webpage and email/newsletter template in the Fall 2024 term, and to manage member registration.

FUTURE STAFFING NEEDS:

Micrographia@Western will hire a work-study student each term to oversee email communications, website updates, and manage course registrations.

FINANCING AND SUPPORT

The only monetary costs incurred by Micrographia@Western is the cost of course materials for courses where instruction and/or resources are provided by Micrographia@Western, and for lunch at the Lunch-and-Learn events. The costs of courses are to be covered by course registration fees. We are in discussion with our commercial partners for funding to cover the costs of the Lunch-and-Learn events.

INTELLECTUAL PROPERTY AND COMMERCIALIZATION

Micrographia@Western claims no intellectual property rights for work undertaken at Micrographia@Western, with all intellectual property rights retained by the researchers performing that research as defined by Western's Senate and the UWOFA Collective Agreement.

ADOPTION

This guidance document was officially adopted by a unanimous vote of the Micrographia@Western executive committee on August 9th, 2024.