Graduate Information

Masters of Health Science (MHSc) in Laboratory Medicine
Department of Laboratory Medicine and Pathobiology
Faculty of Medicine, University of Toronto

Department of Laboratory Medicine and Pathobiology
LMP is a world-class academic department that has an excellent track record of training both laboratory physicians in anatomic pathology and doctoral graduate students in the study of pathogenesis of human disease. Our tenured, status only and clinical faculty are enthusiastic and committed to developing and actively participating in this much-needed new professional program. The department sits at the crossroads of basic science and clinical medicine, strategically placing itself in an excellent position academically to mount a high-quality graduate clinical laboratory sciences program. This is due to the presence of well-qualified dedicated faculty, excellent pathology and infertility resources at the teaching hospitals, an outstanding mix of anatomic pathology cases at the teaching hospitals, and an excellent scholarship track record of linking teaching and research in basic biomedical science and clinical laboratory science.

The MHSc in Laboratory Medicine will be offered by LMP. The department currently offers two research focused degrees: the MSc and PhD, both in this field of Laboratory Medicine. Approximately 200 doctoral stream graduate students (120 PhDs and 80 MSc) are currently enrolled in LMP. Our graduates are successfully employed with approximately 50% in post-secondary education, just under 30% in the private sector and 18% in the public sector (See U of T School of Graduate Studies 10,000 PhDs Project, 2000-2015). As well, LMP has been successfully training non-physician laboratory scientists for many years in the disciplines of clinical chemistry and clinical microbiology; both of these programs are accredited and trainees successfully sit for certification exams. Our graduates are working as laboratory professionals throughout North America. Thus, training clinical scientists aligns very well with the ongoing teaching in LMP carried out by our tenured, clinical and status-only faculty based at the university (St. George campus) and university-affiliated hospital-based research institutions.

Program Overview
The Department of Laboratory Medicine and Pathobiology (LMP), in close collaboration with the Department of Obstetrics and Gynecology (OB/GYN), is offering a two year full-time professional Master’s graduate program (Master of Health Science degree) to educate clinical laboratory medicine scientists in one of two fields in Laboratory Medicine: Pathologists’ Assistant (PA) or Clinical Embryology (CE). Enrollment is 10 students per year (5 PA and 5 CE students) who will complete 9.5 full course equivalent (FCE) courses.
Pathologists’ Assistants (PAs) are involved in providing diagnostic services in anatomical pathology by applying knowledge of tissue and laboratory analysis of human specimens. Clinical Embryologists (CEs) provide clinical management related to assisted reproductive technology in clinical embryology laboratories.

**Program Description**
The Master of Health Science in Laboratory Medicine is a full-time, 6-term, two-year professional (course work and practicum) Master’s degree designed to educate and train highly skilled health laboratory scientists in one of two fields: Pathologists’ Assistant (PA) or Clinical Embryology (CE). The program is offered on a full-time basis (six sessions in sequence full-time beginning in September). Students are required to attend all parts of the courses and practicums. The program imparts general core knowledge and skills and the specific basic and applied principles of anatomic pathology or of assisted reproductive technology (ART) required to work as laboratory scientists. These principles are the foundation upon which PAs or CEs develop fundamental applied and practical knowledge and skills to function as competent, high quality clinical scientists. The nature of this graduate program equips trainees to apply their knowledge to complex decision making, to serious ethical issues and to develop a strong sense of personal accountability and intellectual rigour and independence.

**Minimum Admission Requirements**
*Please note that meeting the minimum requirements does not guarantee that an offer of admission will be granted.*

- Applicants are admitted under the General Regulations of the School of Graduate Studies and must also satisfy the additional admission requirements stated below.
- Admission is based on demonstrated exceptional scholarly achievement, using the following criteria:
  - One-page statement summarizing how this program will contribute to the advancement of the applicants’ professional goals identifying their field of preference.
  - Curriculum vitae (CV)
  - 2 letters of reference, one of which should be familiar with the candidate’s scholarly activities.
- Applicants must have an appropriate Bachelor of Science degree (B.Sc.) from a recognized university, with an average of at least B+ in the last two years of full-time study. Official undergraduate transcripts must be submitted. The students must have a demonstrated interest in human biological and life sciences, preferably with a major or specialist program in the life sciences. These programs prepare students for the study of biomedical science, for fluency in biomedical terminology, and for critical evaluation of biomedical literature. Courses in biology/life sciences, biochemistry, human anatomy and physiology are desirable.
  - All potential students will be interviewed prior to final acceptance into the program. The initial selection of students will be based on a combination of their
academic record, individual statement and letters of reference. These students will be asked to participate in an interview with the Program Coordinator and the Field Director to determine their fit with the program and the student’s goals.

- The School of Graduate Studies’ policies on English-language proficiency testing must be followed ([www.sgs.utoronto.ca](http://www.sgs.utoronto.ca)). Applicants who were educated outside Canada, whose primary language is not English, and who graduated from a university where the language of instruction was not English, must demonstrate proficiency in the English language through the successful completion of the:
  - Test of English as a Foreign Language (TOEFL) with the following minimum scores: Internet-based TOEFL: 100/120 and 22/30 on the writing and speaking sections.
  - Michigan English Language Assessment Battery (MELAB) Web; Required score: 95
  - International English Language Testing Systems (IELTS); Required score: 8.0 (Academic) with at least 6.5 for each component
  - Certificate of English Proficiency (COPE); Required score: 86 minimum total with at least 22 each component and 32 in writing
  - School of Continuing Studies, University of Toronto, “Academic English” course Required score: a final grade of B in Level 60 (Advanced)

Program Requirements (Subject to Minor Changes)

- Coursework: All students in both fields are required to complete the following 4.0 FCE core courses
  - LMP 2000H, Cell and Molecular Biology (0.5 FCE)
  - LMP 2001H, Biomedical Research Methods (0.5 FCE)
  - LMP 2002H, Clinical Laboratory Management (0.5 FCE)
  - LMP 2003H, Biomedical Ethics (0.5 FCE)
  - LMP 2004H, Biostatistics (0.5 FCE)
  - LMP 2005Y, Capstone Project (1.0 FCE, continuous course)
  - 0.5 FCE elective

- Students pursue their field of choice and complete all these additional courses:
  - Clinical Embryology (4.0 FCE): LMP 2100H, MSC1008H, LMP 2102H, LMP 2103H, LMP 2104H, LMP 2105H, LMP 2106H, LMP 2107H
  - Pathologists’ Assistant (1.5 FCE): LMP 2200H, LMP 2201H, LMP 2208H

- To complete their training, students are required to complete all the following practicum courses:
  - Clinical Embryology (1.5 FCE): LMP 2108H, LMP 2109H, LMP 2110H
  - Pathologists’ Assistant (4.0 FCE): LMP 2202H, LMP 2203H, LMP 2004H, LMP 2205H, LMP 2206H, LMP 2207H, LMP 2209H, LMP 2210H
All courses and practicums must be passed. Students who fail a course or practicum will be offered remediation in the form of additional readings, assignments and practicum time by the Course Director and/or Field Director in order to pass the course or practicum. Students who fail two courses/practicums and fail their remediation will be required to repeat the year.

2020 September Applications

Note: No official offers of admission will be made to the program until the Department receives final approval by the Ministry of Training, Colleges, and Universities. Once the program is approved, applicants will be required to submit an official application package using the University of Toronto’s School of Graduate Studies Application System: https://apply.sgs.utoronto.ca/.

In the meantime, candidates are encouraged to informally apply to the program by sending the following documentation to the Graduate & Life Sciences Education Officer, Brandon Wells (brandon.wells@utoronto.ca):

- Official Transcripts (digital preferred)
- Curriculum Vitae (CV)
- Letter of Intent
- Two Academic References (submitted directly by referee)

Application Deadline: June 1st, 2020

For additional information:

Brandon Wells, Graduate & Life Sciences Education Officer
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Professor Avrum I. Gotlieb, MHSc in Laboratory Medicine Program Coordinator, MDCM, FRCPC
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