

# UTQAP Cyclical Review: Final Assessment Report and Implementation Plan

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## 1. Review Summary

<b>Programs Reviewed:</b>	Pathobiology, HBSc: Specialist (Faculty of Arts and Science) Laboratory Medicine & Pathobiology, MSc, PhD Laboratory Medicine (Clinical Embryology/Pathologists' Assistant), MHSc Translational Research in Health Sciences, MHSc
<b>Unit Reviewed:</b>	Department of Laboratory Medicine and Pathobiology
<b>Commissioning Officer:</b>	Dean, Temerty Faculty of Medicine
<b>Reviewers (Name, Affiliation):</b>	<ul style="list-style-type: none"><li>• Dr. Jane Barron, Associate Professor and Chair, Discipline of Laboratory Medicine, Faculty of Medicine, Memorial University of Newfoundland</li><li>• Dr. Michael Mengel, Professor and Chair, Dept. of Laboratory Medicine &amp; Pathobiology, University of Alberta</li><li>• Dr. Brian Rubin, Professor and Chair, Robert J. Tomsich Pathology &amp; Laboratory Medicine Institute, Cleveland Clinic</li></ul>
<b>Date of Review Visit:</b>	January 18-19, 2022 (conducted remotely)
<b>Date Reported to AP&amp;P:</b>	February 16, 2023

## Previous UTQAP Review

**Date:** September 16 – 17, 2013

### Summary of Findings and Recommendations

#### Significant Program Strengths

- Well-structured and appropriate undergraduate and graduate programs
- One of the largest such graduate programs in Canada, which attracts outstanding students
- High calibre, internationally significant faculty research
- Very positive morale of faculty, students, and staff within the Department

#### Opportunities for Program Enhancement

- Growing enrolment in the undergraduate life sciences program
- Contributing to Undergraduate Medical Education curriculum revisions
- Encouraging further faculty engagement in management of the graduate program
- Finding ways to expand sources of funding for international graduate students
- Addressing funding pressures on researchers
- Continuing to strengthen relationships with hospitals

## Current Review: Documentation and Consultation

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### Documentation Provided to Reviewers

Confirmation/agreement Letter; terms of reference; self-study report; faculty CVs; course descriptions; schedule; previous review report (2013-14), the joint decanal and Chair's responses, and FAR-IP; Dean's Report 2020; Temerty Faculty of Medicine's Strategic Plan (2018-2023); University of Toronto Towards 2030; University of Toronto Quality Assurance Process.

### Consultation Process

The external reviewers met remotely with the following:

#### Temerty Faculty of Medicine

1. Dean, Temerty Faculty of Medicine and Vice Provost, Relations with Health Care Institutions
2. Vice Dean, Strategy & Operations
3. Chair
4. Vice Chairs
5. Clinical Chiefs
6. Program Coordinators and Directors
7. Faculty
8. Graduate Students

9. Residents
10. Fellows
11. Administrative Staff

#### Faculty of Arts & Science

12. Vice Dean, Undergraduate
13. Former Special Advisor on Innovation in Undergraduate Education
14. Undergraduate Students

#### University of Toronto

15. Cognate Chairs and Directors

## Current Review: Findings and Recommendations

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### 1. Undergraduate Program(s)

*Unless otherwise noted, all bulleted comments apply to all programs reviewed.*

The reviewers observed the following **strengths**:

- Admissions requirements
  - ▶ Undergraduate pathobiology course currently has 35 students
- Curriculum and program delivery
  - ▶ Curriculum has been modernized and improved, especially in the 3rd year, and lectures have been minimized
  - ▶ Three core courses are offered with numerous additional options depending on interests, allowing students to personalize their programs
  - ▶ Instructors meet to discuss curriculum, so that overlap is minimized and coordination and cohesion is maximized
- Innovation
  - ▶ LMP has started several initiatives to introduce pathology and laboratory medicine to undergraduate medical learners, such as enabling access to autopsies, forming interest groups for pathology, appointing a lead for undergraduate medicine, and offering of electives
- Student engagement, experience and program support services
  - ▶ Recent launch of undergraduate mentorship program
  - ▶ Students feel that faculty are approachable and responsive
  - ▶ Mental health accommodations are typically handled centrally, but the University is committed and successful in providing services
  - ▶ Faculty exploring new ways to assess student feedback, and holding periodic town halls

- Quality indicators – alumni
  - ▶ 50% of undergraduate students move on to advanced science degrees (MSc, PhD) and 40% to medicine, law, pharmacy

The reviewers made the following **recommendations**:

- Curriculum and program delivery
  - ▶ Students express desire for more lab courses specific to LMP students, instead of the more generic offerings
- Assessment of learning
  - ▶ Undergraduate students expressed desire for a greater variety of assessments

## 2. Graduate Program(s)

*Unless otherwise noted, all bulleted comments apply to all programs reviewed.*

The reviewers observed the following **strengths**:

- Overall quality
  - ▶ MSc in Laboratory Medicine is new and unique, offering a Pathologists' Assistant program and a Clinical Embryology program
  - ▶ Pathologists' Assistant program addresses important unmet need in Canada
  - ▶ All residency programs are accredited
- Admissions requirements
  - ▶ MSc and PhD student numbers have increased
  - ▶ Admission requirements for new MSc in Laboratory Medicine appear to be appropriate; international students will be accepted once the program stabilizes
  - ▶ MSc in Translational Research in Health Sciences Program uses a rolling admissions strategy; instructors prefer to teach in small groups
- Curriculum and program delivery
  - ▶ Regular town halls with students have resulted in extensive evolution/changes to MSc and PhD curricula, to make the programs more student-centric
  - ▶ A general course in pathobiology and a research course in methodology have been developed and implemented
  - ▶ Elective course requirements have been lowered due to student difficulties in finding electives related to their research
  - ▶ More 0.25 credit courses are being offered, allowing new staff to offer courses based on their expertise
  - ▶ Successful move of MSc in Translational Research in Health Sciences program from an extradepartmental unit to LMP since the last review has provided program with faculty and resources; curriculum is appropriate and described by faculty and students as "innovative" and "real world"
- Innovation
  - ▶ Clinical Embryology program is the only one of its kind globally that is embedded in a pathology department; thus it is innovative, timely and meets an important need

- Accessibility and diversity
  - ▶ Diversity and inclusion described as “key strengths” of the MSc in Translational Research in Health Sciences
- Assessment of learning
  - ▶ MSc and PhD assessments appear in line with student and faculty expectations
  - ▶ A Department Academic Appeals committee was recently instituted to address contentious academic issues
- Student engagement, experience and program support services
  - ▶ Department substantially supports a unique offering where students can attend technical workshops anywhere in the world
  - ▶ MSc and PhD students find faculty approachable and responsive
  - ▶ A well-regarded graduate student mentoring program is in place
  - ▶ Student organization (CLAMPS) collaborates with staff on academic and social missions
- Quality indicators – alumni
  - ▶ A social media platform has been launched recently to track alumni trajectories
- Student funding
  - ▶ MSc and PhD student stipends have been increased by 10% due to faculty engagement with students
  - ▶ Funds have been provided for students who were delayed by COVID, as well as for students who were delayed for other reasons (provided they are in good standing, and the process is unbiased and transparent)

The reviewers identified the following **areas of concern**:

- Curriculum and program delivery
  - ▶ Maintaining a consistent complement of faculty to deliver the MSc in Translational Research noted as a challenge
- Assessment of learning
  - ▶ MSc in Translational Research in Health Sciences students note that feedback on their work is sometimes slow, and is more effective when provided in a timely fashion
- Quality indicators – graduate students
  - ▶ COVID-19 has affected time to completion for some MSc and PhD students, as it was not possible to do “wet” lab activities for substantial periods during the pandemic
- Student funding
  - ▶ Lack of stipends in MSc in Translational Research in Health Sciences Program identified as a challenge for students entering as recent graduates

The reviewers made the following **recommendations**:

- Curriculum and program delivery
  - ▶ Students express interest in further course offerings, particularly those focused on technical skill development and grant writing

- ▶ MHS in Laboratory Medicine students desire a timeline and written guidelines for their Capstone project; Pathology Assistant students would appreciate more focus on continuous improvement for their Capstone research projects
- Assessment of learning
  - ▶ Faculty delivering the MHS in Translational Research in Health Sciences express desire for an approach to grading that allows for an enhanced focus on competencies and innovation in student assessment
- Student engagement, experience and program support services
  - ▶ Graduate students expressed desire for a more open and transparent process for assigning TA positions
- Student funding
  - ▶ Students express desire for more scholarship opportunities
  - ▶ Many students and faculty note that affordable student housing would be welcome due to the high cost of living in Toronto and lack of available subsidies
  - ▶ Program directors in Postgraduate Medical Education indicate that more funded fellowships are needed

### 3. Faculty/Research

The reviewers observed the following **strengths**:

- Research
  - ▶ The need for an internal peer review system for grant competitions was identified and an internal review committee was established
  - ▶ There are 10 research themes in LMP, which provide a framework for students and faculty interested in doing research
  - ▶ Temerty Pathway grants have been important to many LMP tenure track faculty
- Faculty
  - ▶ LMP has approximately 390 active research faculty members
  - ▶ Effective programs are in place for faculty mentorship and development
  - ▶ Significant efforts have been made to increase awareness of faculty wellbeing and EDI issues

The reviewers identified the following **areas of concern**:

- Research
  - ▶ The government provided some funding assistance during the pandemic, but animal costs were not included

The reviewers made the following **recommendations**:

- Research
  - ▶ Faculty highlighted funding pressures, and reviewers note desire and potential for the expansion of available bridge funding

## 4. Administration

*Note: Issues that are addressed through specific University processes and therefore considered out of scope for UTQAP reviews (e.g., individual Human Resources issues, specific health and safety concerns) are routed to proper University offices to be addressed, and are therefore not included in the Review Summary component of the Final Assessment Report and Implementation Plan.*

The reviewers observed the following **strengths**:

- Relationships
  - ▶ Much positive interplay between students and faculty, resulting in many innovations in curriculum and program delivery
  - ▶ All programs note that in general, the COVID-19 pandemic was handled very well, although they are looking forward to increased in-person activities
  - ▶ Morale of faculty, students, and staff is very good
  - ▶ Chair widely recognized as an outstanding leader, with good working relationships with cognate units
  - ▶ T-CAIREM Centre has created positive opportunities for collaboration
  - ▶ New communications initiatives have increased sense of departmental community
  - ▶ Several LMP outreach and global health initiatives observed, including the training of Clinical Fellows in Forensic Medicine
  - ▶ LMP faculty and learners are active in the local community and abroad
  - ▶ Program leadership and learners appreciate and highlight “often exceptional” administrative and executive support for their programs
- Organizational and financial structure
  - ▶ Administrative staff did not indicate that workload is unmanageable, meaning that the support structure is adequate and effective
  - ▶ Staff, faculty, learners, administrators, and executive leaders demonstrate clear understanding of the organizational structures at the program, department, faculty, and institutional level
  - ▶ All programs appear adequately resourced and supported by engaged faculty and learners
  - ▶ Programs are adequately funded at the base to operate at a competitive level
  - ▶ Department provides a lean, transparent, and effective organizational structure to support all programs adequately in alignment with the organizational mission
- Long-range planning and overall assessment
  - ▶ All programs state that commitment to equity, diversity and inclusion is a priority
  - ▶ Under the Chair’s leadership, “the overall education mission of the department has been massively enhanced and revamped”; highlights include increased enrollment in graduate studies, the new PA program, early adoption of CBD in residency training, increasing awareness for EDI and wellness, and a focus on developing female faculty members
  - ▶ Established programs have undergone curricular overhaul, and new innovative programs have been added since last review, making the department a national leader in terms of program content and outputs

- ▶ Breadth and depth of programs is comprehensive and reflects the broad interdisciplinary spectrum of LMP
- ▶ “The recently formed center for Artificial Intelligence (T-CAIREM) offers a tremendous opportunity to further advance the leadership role of the department in innovative education of the future workforce”
- International comparators
  - ▶ “Department is competitive at all levels nationally and internationally and has a leadership position for some innovative new and established programs: the combined Clinical Embryology and Pathologists’ Assistant program and The Translational Research in Health Sciences program”

The reviewers identified the following **areas of concern**:

- Organizational and financial structure
  - ▶ Faculty delivering MHSc in Translational Research in Health Sciences program highlighted a lack of transparency with regard to their budget
  - ▶ Deficits identified in accessing flexible funding for innovative initiatives at the departmental level
  - ▶ LMP disadvantaged in accessing philanthropic opportunities, as a non-patient facing department

The reviewers made the following **recommendations**:

- Organizational and financial structure
  - ▶ Strategic institutional investment into an education endowment or endowed Chair in LMP has high likelihood of leading to further revenue generation, through attracting high profile national and international students, matching grant opportunities, and philanthropic investments
- Long-range planning and overall assessment
  - ▶ Several programs, (in particular professional degree programs), have identified opportunities for increasing the number of learners
  - ▶ Further expansion in the area of Artificial Intelligence has great potential to attract international students, industry investment, and philanthropy
  - ▶ Further targeted investment in programs very likely to further advance department’s innovative leadership in education, and attract high-potential learners nationally and internationally



## 2. Administrative Response & Implementation Plan



TEMERTY FACULTY OF MEDICINE  
UNIVERSITY OF TORONTO

Temerty  
Medicine

L. Trevor Young, MD PhD FRCPC  
Dean

Vice Provost, Relations with Health Care Institutions

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January 24, 2023

Professor Susan McCahan  
Vice-Provost, Academic Programs  
Division of the Vice-President & Provost  
University of Toronto

Dear Susan,

### DEPARTMENT, UNDERGRADUATE & GRADUATE PROGRAMS Joint Decanal Response | Faculty of Arts & Science and Temerty Faculty of Medicine

On behalf of the Temerty Faculty of Medicine at the University of Toronto, we would first like to thank the reviewers, Dr. Jane Barron, Dr. Michael Mengel, and Dr. Brian Rubin, for their very comprehensive review of the Department of Laboratory Medicine & Pathobiology (LMP) on January 18-19, 2022. We would also like to thank Dr. Rita Kandel, Chair of LMP, the administrative staff, and all those who contributed to the preparation of the outstanding self-study report. We also wish to thank the many staff, trainees, and faculty members who met with the external reviewers and provided thoughtful feedback. The reviewers noted *“The review confirmed that all degree programs in the department of Laboratory Medicine and Pathobiology are in good standing and belong to the leading programs in the country and are very competitive in attracting students at the internal level. Since the last review significant improvements and enhancement to all degree programs occurred due to the visionary, engaging, and strong leadership by the Chair Dr. Kandel.”*

The thorough report provided by the reviewers is an invaluable guide for program enhancements and future strategic directions of LMP. The reviewers identified a number of areas for enhancement including curricular offerings, teacher engagement, student support, teaching assistant positions, and faculty grant funding. Each of the recommendations has been addressed in the Programs' Responses column in the accompanying table, and in Dr. Kandel's Response of the Chair. We are in full agreement with the responses of Dr. Kandel and the programs, and have provided additional comments addressing each of the recommendations in the Deans' Responses column of the table.

Overall, LMP has made excellent progress under the leadership of Dr. Kandel and as noted by the reviewers, *“The breadth and depth of the programs is comprehensive and reflects the broad interdisciplinary spectrum of LMP. The department is competitive at all levels nationally and internationally and has a leadership position for some innovative new and established programs: the combined Clinical Embryology and Pathology Assistant program and The Translational Research in Health Sciences program.”* We congratulate Dr. Kandel on her outstanding leadership and look forward to continuing to work with her and members of LMP to ensure the continued success and growth of the Department to attain its strategic and operational aspirations.

The next review of LMP is scheduled in 2025-26. In 2024 we will follow up with the Chair on the implementation of the external reviewers' recommendations and, later that year, provide you with an interim report on the status of the implementation plan.

Sincerely,



Melanie Woodin, PhD  
Dean  
Professor, Department of Cell & Systems Biology  
Faculty of Arts & Science



Trevor Young, MD, PhD, FRCPC  
Dean  
Temerty Faculty of Medicine  
Vice Provost, Relations with Health Care Institutions

cc: Lisa Robinson – Vice Dean, Strategy & Operations, Temerty Faculty of Medicine  
Justin Nodwell – Vice Dean, Research & Health Science Education, Temerty Faculty of Medicine  
Bill Ju – Acting Vice Dean, Undergraduate, Faculty of Arts & Science  
Gillian Hamilton – Acting Vice Dean, Academic Operations, Faculty of Arts & Science  
Alison Chasteen – Acting Associate Dean, Unit-Level Reviews, Faculty of Arts & Science  
Andrea Benoit – Academic Review Officer, Office of the Dean, Faculty of Arts & Science  
Anastasia Meletopoulos – Academic Affairs Manager, Office of the Dean, Temerty Faculty of Medicine  
Daniella Mallinick – Director, Academic Programs, Planning & Quality Assurance, Office of the Vice Provost, Academic Programs  
Rita Kandel – Chair, Dept. of Laboratory Medicine & Pathobiology, Temerty Faculty of Medicine

2021-22 UTQAP Review of MED Department of Laboratory Medicine and Pathobiology - Review Recommendations

Request Prompt <i>verbatim from the request</i>	Rec. #	Recommendations from Review Report <i>verbatim from the review report</i>	Programs' Responses	Deans' Responses
Undergraduates expressed desire for additional offerings that are specific to LMP students, and for a greater number and variety of assessments.	1	"There was a request for more lab courses, specifically for LMP students, instead of the more generic offerings."	<p>We agree with the undergraduates. So, in 2019, our department initiated a full curriculum mapping and program review. Based on recommendations from the LMP Undergraduate Curriculum Working Group, consultations with our cognate Life Science Undergraduate programs and LMP faculty, we made major modifications to the program. The major modifications were approved by Arts &amp; Science and the Provost in 2021 and we launched our first course in 2021-2022. Our new 300- and 400-level courses are being offered for the first time in the 2022-2023 academic year.</p> <p>In our new Pathobiology Specialist program, we have added the following new 'clean-slate designed' courses that are specific to LMP students:</p> <ul style="list-style-type: none"> <li>▪ LMP305Y1 - Pathobiology Research Analysis and Project</li> <li>▪ LMP310H1 - Fundamentals of Pathobiology</li> <li>▪ LMP320H1 - Pathobiology of Stem Cells</li> <li>▪ LMP430H1 - Metabolic Disorders</li> <li>▪ LMP440H1- Mechanisms in Host-Microbe Interactions</li> <li>▪ LMP450H1 - Organogenesis in Health and Disease</li> </ul> <p>LMP305Y1, LMP310H1, LMP320H1, LMP430H1, LMP440H1 and LMP450H1 are new courses with new material in the curriculum.</p> <p>LMP305Y1 is the lab/research course that was created.</p> <p>Courses that remained similar:</p> <p>LMP330 Genetic and Computational Modeling in Human Development and Disease (formerly LMP408) was moved from 4<sup>th</sup> year to 3<sup>rd</sup> year. The course title and</p>	LMP recently completed an extensive curriculum mapping and program review with the intent of optimizing alignment of curricular offerings more closely with the expressed needs of the LMP students. Following approval of major modifications by the Faculty of Arts & Science and the Provost, implementation of the new courses commenced in 2021-2022, with the new upper-year courses rolling out in 2022-2023. As described in the Program response, six new courses specifically for LMP students have been added as part of the new Pathobiology Specialist program.

			<p>curriculum remained similar to LMP408, except for the addition of a bioinformatics module to the course.</p> <p>LMP420 Cancer Pathogenesis (formerly LMP365) was moved from 3<sup>rd</sup> year to 4<sup>th</sup> year and still covers cancer pathobiology, but lecture topics were refreshed.</p> <p>LMP460 (formerly LMP406) was simply a name change; topics were not changed.</p>	
	2	<p>“Students in the 1st and 2nd year commented that there were too few assessments and that they are assessed mostly by multiple choice questions – they want more of a variety of assessments. Students commented that multiple choice questions could be quite difficult, depending on how they were worded and asked that more free text questions could be included in future exams. A comment was made that on-line tests were not executed as well as in-person tests, a casualty of the pandemic.”</p>	<p>In the new courses, we have also worked with the course coordinators to ensure that assessment modes are varied, and final grades are not based solely on a single midterm and final exam. Some of our courses now have additional midterms or quizzes to reduce the weighting on any one single test (LMP310H1 and LMP320H1). Other courses have introduced assessments for written assignments (LMP200H1, LMP305Y1) and in-class discussion (LMP320H1, LMP430H1). On-line tests were a necessity during the pandemic but as we have returned to in-person classes this is no longer an issue.</p>	<p>During the pandemic on-line testing became a necessary mode of student assessment. In response to student concerns about too few assessments and over-reliance on multiple choice examinations, the LMP program has worked with course coordinators to ensure varied means of student assessment, including assessment of written assignments, oral presentations, and in-class participation, and addition of midterms and quizzes. These measures will ensure that student assessment is not unimodal and that no single test is overweighted.</p>
<p>Reviewers noted graduate student interest in further course offerings, including ones focused on technical skill development and grant writing.</p>	3	<p>“Students are interested in further course offerings including those focused on technical skill development and grant writing.”</p>	<p>Our department offers several technology-based courses such as ‘Molecular Biology Techniques’, ‘Basic Principles of Machine Learning in Biomedical Research’, ‘Machine Learning for Healthcare’, ‘Bioinformatics in LMP’, ‘Next Generation Genomics in Clinical Medicine’, and ‘Mass Spectrometry, Proteomics, and Their Clinical Applications’. These graduate courses cover some of the fundamental techniques and methodologies in biomedical sciences. We are also initiating a new module, Introduction to R and the Analysis of Single Cell Data, which will start in the 2023-24 academic year. However, given the diversity of research in LMP, we recognized that it was not possible to develop graduate courses for some of the more specialized</p>	<p>LMP currently offers several graduate-level courses focused on technical skill development and will launch a new module addressing analysis of single cell data in 2023-2024. The LMP Department also provides financial support for graduate students to attend national or international workshops focused on technical skill development and will advertise such opportunities more explicitly. Graduate students will also be encouraged to engage in offerings from other departments and again, the availability of such offerings will be more widely shared and more easily visible to students through the Temerty Faculty of Medicine’s shared Acorn-on-line system.</p>

			<p>techniques. Thus, we started the workshop program in 2019 to further address the issue of technical development of our learners. This consists of financially supporting graduate students to attend national or international workshops to learn advanced techniques from experts. Furthermore, we lowered elective course requirements so that taking a workshop would not increase student workload.</p> <p>We will advertise this opportunity on our website more prominently. We will also encourage our students to take modules from other departments that offer technique courses not available through LMP. This will be greatly facilitated by the recent addition of modules from all departments in the Temerty Faculty of Medicine on the Acorn on-line system so students will be able to easily identify them.</p> <p>Regarding grant writing, we do provide lessons in writing graduate scholarship and fellowship applications, which include writing short research proposals, in our mandatory graduate course 'Fundamentals of Research Practice'. Although we do not have a course that focuses strictly on grant writing, there is a workshop that is offered by SGS  <a href="https://www.sgs.utoronto.ca/event/preparing-to-write-a-grant-proposal-recorded-workshop/">(https://www.sgs.utoronto.ca/event/preparing-to-write-a-grant-proposal-recorded-workshop/)</a> that will do this. We now advertise this course on our website. These will be the responsibility of the Graduate Education Officer and implemented immediately.</p>	<p>Skill development in grant and proposal writing will be facilitated through LMP's 'Fundamentals of Research Practice' and through a workshop offered through SGS, now advertised on the LMP website. Additional opportunities may exist through research training centres affiliated with research institutes of the Toronto Academic Health Sciences Network (TAHSN), and such opportunities can be actively explored.</p>
<p>Pathology Assistant students noted that they would appreciate a timeline and more explicit guidance around the Capstone project.</p> <p>Some challenges were noted in the MHS in Translational Research in Health Sciences program:</p>	<p>4</p>	<p>"Students also requested a timeline and written guidelines for the Capstone project. The physician assistant students asked for more focus on continuous improvement for their Capstone research projects."</p>	<p>The MHS in Lab Medicine is 2 years old and this is the first cohort to graduate. We are amazed that there were not more issues identified. As it is a new program we have been meeting with the students and asking for feedback. We appreciate the student recommendations and based on these we have already made the following changes to the capstone course (LMP2330Y).</p> <p><b>Capstone course changes:</b></p>	<p>Because the MHS in Laboratory Medicine is so new, student feedback has been actively sought and student recommendations already incorporated. To address student concerns, specific enhancements of the Capstone course have been made, including a workshop on scientific writing, more detailed follow-up communications with students about the course, and intentional work with students to enable planning for Year 2 of the course. In addition, a new Coordinator for</p>

<ul style="list-style-type: none"> <li>▪ Maintaining a consistent complement of faculty to deliver the program;</li> <li>▪ Faculty delivering the MHSc expressed desire for an approach to grading that allows for an enhanced focus on competencies and innovation in student assessment.</li> </ul>			<p>A workshop (optional attendance) was added in June 2022 to this year’s course (year 2) on how to write a scientific paper. Year 1 students do have a lecture in LMP 2001H on this topic. Going forward this workshop will be a standard feature of the course.</p> <p>Students were given a timeline for this year’s capstone project. This will be provided at the start of the course going forward.</p> <p>In June 2022 the program contacted year 1 students about their capstone project and is working with students to plan for the year 2 Capstone course. This approach will be incorporated into the program going forward.</p> <p><b>Leadership change:</b> In June 2022 a new Coordinator for the Pathologist Assistants’ portion of the Capstone course was recruited to replace the current one.</p> <p>The newly recruited Coordinator began in September 2022. He will revamp the PA portion of the course.</p> <p>Follow up to ensure that these changes are well received will include course townhall meetings to discuss students’ needs and review of the course assessment surveys.</p> <p>The responsibility for ensuring these short- and medium-term changes are incorporated and evaluating student satisfaction will lie with the MHSc Program Director and MHSc Graduate Coordinator.</p>	<p>the Pathologist Assistants’ portion of the Capstone course has been appointed. Together with the MHSc Program Director and MHSc Graduate Coordinator, the Coordinator will lead curricular renewal, improvement, and assessment.</p>
	5	<p>“The faculty are engaged and passionate and responsive to their students. However, maintaining faculty has been a challenge. Their program is outside of the box and it’s hard to find instructors in the teaching stream when their mantra is ‘we don’t teach!’. Their focus is on enabling learning.”</p>	<p>We agree with these comments. Finding individuals with the requisite expertise to teach in the MHSc in Translational Research program and the funds to pay them are significant challenges.</p> <p>We plan to address these by working with Advancement to fundraise for the program and with the decanal office</p>	<p>In 2023 the Chair of LMP will work with Temerty Medicine’s Office of Advancement and Office of the Dean to identify resources to support teaching with the requisite expertise in the MHSc of Translational Research in Health Sciences program.</p>

			to find matching dollars with intent to hire more permanent faculty. This will be initiated in January 2023.  The LMP Chair will be responsible for these activities.	
	6	“The program finds the graduate level grading system challenging. They want to focus on competencies, not grades. They find it difficult to assess innovation with a traditional grading system. One faculty member remarked that ‘you know innovation when you see it but how do you mark it?’ ”	I believe that this comment is related to MHSc in Translational Research program (TRP).  The educators are planning to institute a competency by design approach for student evaluation. We plan to pilot this type of assessment for the Capstone project course and to all the other courses following governance approval.  This will be the responsibility of the Director of TRP.	To better address the needs of the students enrolled in the MHSc of Translational Research in Health Sciences program, the educational leaders of LMP will seek governance approval for a CBD approach for student assessment, beginning with the Capstone project course.
Graduate students emphasized that more funding opportunities would be welcome, noting the cost of living in Toronto as a significant challenge.	7	“Student stipends have been increased by 10% due to faculty engagement with students. A social media platform has been launched recently to determine what graduates are doing. Requests for more scholarship opportunities were voiced. Many students and faculty noted that affordable student housing would be welcome as Toronto is quite expensive and no subsidies are available.”	LMP agrees that the major issue for our department is the cost of living (COL) in Toronto. As tri-council grants are reduced by 25% on average and no allowance is made for COL in the more expensive cities, this limits how much investigators can pay students. Investigators over the last 3 years have increased student stipends by over 25%. There will be a further increase of approximately 10% for 2023-24 with the help of the Decanal office.  LMP is and will continue advocating at University forums and Boards to further build affordable housing for students and for more student subsidies.  The Chair and Graduate Coordinators will be responsible for this.	The cost of living in Toronto presents significant hardship for graduate students enrolled in LMP. This issue is not unique to LMP and has been identified as a universal challenge for graduate students across the Temerty Faculty of Medicine. The Office of the Vice Dean, Research & Health Science Education has prioritized financial support for graduate students and has developed a plan to enhance student funding in the near term.
	8	“Several programs, in particular professional degree programs, described opportunities for increasing the number of learners (forensic pathology, postgraduate fellowship programs, PA programs). However, the learners expressed the need to adjust stipends / bursaries to address the very high costs of living in the Greater Toronto Area.”	We agree with the need for more financial support for learners. Toronto is an expensive place to live. However, this is beyond the control of LMP.  LMP will advocate with Temerty Medicine and University of Toronto for more learner funding support at every opportunity.	As noted, the high cost of living in Toronto poses significant hardship for learners enrolled in programs across LMP and indeed, throughout the Temerty Faculty of Medicine. The decanal leaders of Temerty Medicine will continue to work with the Office of Advancement and the University of Toronto to identify opportunities for enhanced financial support of learners. For example, The Office of the Vice Dean, Research & Health Science Education is currently working with the Office of

			This will be the responsibility of the Chair and the Vice Chair, Education.	Advancement to conduct an in-depth review of philanthropic gifts that could be used to enhance learner support.
Graduate students expressed desire for a more open and transparent process for assigning TA positions.	9	“Assignment of Teaching Assistant positions was brought up by students as an area for improvement. These positions are typically assigned to students within the course instructor’s laboratory. One student remarked that they had applied for 29 different Teaching Assistant positions and had not received any. There is a desire for a more open and transparent process for assigning these positions.”	<p>We have TAs only in our undergraduate Pathobiology Specialist program and MHSc programs. The TAs are members of a union, CUPE 3902 Unit 1, so we must abide by the collective bargaining agreement. This includes, but is not limited to, having a robust search and selection process as well as offering guaranteed six subsequent appointments for TAs at the PhD level, as long as they remain enrolled in the School of Graduate Studies. The requirement for subsequent guaranteed positions limits our ability to hire new TAs.</p> <p>We did review our Teaching Assistant positions and the selection process.</p> <p>The candidates are interviewed by the course coordinator and selected in large part by the level of expertise they have in the fields covered by the course. This will ensure a better learning environment for students.</p> <p>To determine if there was any bias, we reviewed the past two years of TAs and only 1 of 36 TAs was a graduate student in the coordinator’s research lab. Going forward the selected TAs will be reviewed yearly to ensure there continues to be no hiring bias. This will be done by the Undergraduate Coordinator or the MHSc Graduate Coordinator for their respective courses.</p> <p>This will be implemented for the 2023-2024 academic year.</p>	TA positions in LMP are only available for undergraduate Pathobiology Specialist and MHSc programs, and as TAs are members of a union, the collective bargaining agreement must be respected, including implementation of a robust search and selection process. At present, candidates are interviewed by the course coordinator and a major criterion for selection is the candidate’s expertise in the fields covered by the course. There may be an opportunity to further enhance the selection process by incorporating an equity lens at each step. Recently, the Temerty Faculty of Medicine examined how to bring Excellence Through Equity to life in search and admissions processes. Individual working groups examined admissions processes for students in clinical programs, graduate students, and post-MD learners, as well as search and selection processes for faculty leaders, and developed specific recommendations for each group. The guiding principles can help to inform other recruitment processes.
Faculty highlighted funding pressures, and in particular express desire for the expansion of available bridge funding.	10	“The Temerty Pathway grants have been vital to many in the LMP tenure/tenure track faculty but according to those interviewed more funding is needed. In particular, the amount of bridge funding available could be expanded. During the pandemic the government did provide	<p>We agree with the need for more Pathway grants/bridge funding. However, this is beyond the control of LMP.</p> <p>LMP will advocate within Temerty Medicine and University of Toronto for more funding at every opportunity.</p>	New opportunities to enhance research funding remain a priority of the Temerty Faculty of Medicine. As many LMP faculty members are also appointed at TAHSN research institutes, opportunities to synergize and amplify funding among Temerty Medicine departments, hospital research institutes, and other faculties, centres, and programs at U of T can be more systematically



		some funding assistance, but animal costing was not included.”	This will be the responsibility of the Chair and the Vice Chair of Life Sciences Research.	sought out. In parallel, the Vice Dean, Research & Health Science Education, Temerty Faculty of Medicine, is developing processes to improve awarding of research grants to TFOM faculty by Tri-Council Agencies and other major granting agencies. The central feature is robust internal peer review of grants before submission. This process has been in operation in The Hospital for Sick Children Research Institute for many years and has resulted in rates of funding at SickKids that are consistently higher than the national average.
The reviewers noted that further expansion in the area of Artificial Intelligence has great potential to attract international students, industry investment, and philanthropy.	11	“The recently formed Centre for Artificial Intelligence (T-CAIREM) offers a tremendous opportunity to further advance the leadership role of the department in innovative education of the future workforce. Further investment in this area has great potential for significant Return of Investment through attracting international students, industry investment, and philanthropy.”	T-CAIREM has been a great success and we are grateful for the donation from the Temerty family that supports this Centre. We agree that T-CAIREM has potential to raise funds through interactions with industry and by philanthropy. This year industry representatives were contacted and discussions initiated. This interaction must be done thoughtfully with a full understanding of what industry wants to get out of this arrangement.  The Chair will work with the Centre Director and Advancement to maximize our opportunities to raise funds to support the Centre.	T-CAIREM was launched to great success and provides new opportunities to attract international students, philanthropy, and industry investment. Opportunities for industry partnership and philanthropic investment are currently being explored, and enhanced opportunities for learner recruitment can be explored in the future.
The reviewers noted that strategic investment in LMP programs is likely to further advance the innovative leadership of department, and thus attract high-potential learners both nationally and internationally. They recommend that the unit work with Advancement to support relevant philanthropic initiatives.	12	“[T]he department should be supported to build an endowment to support the Chair in further developing the programs in an innovative manner. Since there is evidence that Dr. Kandel is capable in doing so and has a clear vision for the department and its programs, a strategic investment by the institution into an education endowment or endowed Chair in LMP has a high likelihood of leading to further revenue generation for the institution through attracting high profile national and international students, matching grant opportunities, and philanthropic investments.”	We thank the reviewers for their kind comment.  The Decanal office has agreed to direct the Office of Advancement to make fund raising for LMP a priority in 2023.	As noted, Dr. Kandel’s clear track record of success bodes well for further growth and enhanced sustainability of LMP programs and initiatives. To facilitate these enhancements, the Office of Advancement, Temerty Faculty of Medicine, will work closely with LMP to identify new opportunities for funding departmental programs.

### **3. Committee on Academic Policy & Programs (AP&P) Findings**

The spokesperson for the reading group reported that the review summary accurately described the full review and that overall, they had found the review to be positive. The reading group reported that the Dean's administrative response had adequately addressed issues identified by the review, however, the reading group asked for the distinction of first entry Faculty of Arts & Science students and Undergraduate Medical students.

Professor Rita Kandel, Chair, Department of Laboratory Medicine & Pathobiology clarified that while LMP faculty did teach MD students and drew clinical trainees from the program, the MD was delivered separately by the Temerty Faculty. Thus, second entry undergraduate MD students were separate from the undergraduate FAS students who were enrolled in the undergraduate programs that were part of this review.

No follow-up report was requested.

### **4. Institutional Executive Summary**

The reviewers praised the Department as a national leader in terms of program content and output; they noted clear, appropriate program requirements and learning outcomes, significant program quality enhancements and increased enrolment since the last review; and positive interplay between students and faculty, resulting in many innovations in curriculum and program delivery. They highlighted the unique new MHS in Laboratory Medicine and the successful move of the MHS in Translational Research in Health Sciences Program to LMP following the last review; they commended the department's strong commitment to EDI initiatives and to continually modernizing its curriculum; its mentorship programs for students at both the undergraduate and graduate levels; the chair's outstanding leadership and strong relationships with cognate units, as well as the generally excellent departmental morale. The reviewers observed that effective programs are in place for faculty mentorship and development, and significant progress has been made in addressing gender inequities for advancing in faculty promotion; that the faculty and learners of LMP are active in the local community and abroad; and finally that the recently formed center for Artificial Intelligence (T-CAIREM) offers a tremendous opportunity to further advance the leadership role of the Department in the innovative education of the future workforce.

The reviewers recommended that the following issues be addressed: exploring additional undergraduate offerings and a greater number and variety of assessments; addressing graduate student interest in expanded course offerings; providing Pathologists' Assistant students with a timeline and explicit guidance around the Capstone project; addressing challenges in the MHS in Translational Research in Health Sciences program around maintaining a consistent complement of faculty, and addressing faculty desire for an updated approach to grading; exploring additional funding opportunities for graduate students; providing a more open and transparent process for assigning TA positions; addressing faculty funding pressures and desire for the expansion of available bridge funding; considering further expansion in the area of Artificial Intelligence; and working with Advancement as needed to pursue strategic investment

in LMP programs, to further advance the Department's leadership and attract high-potential learners. The Dean's Administrative Response describes the Faculty and units' responses to the reviewers' recommendations, including an implementation plan for any changes necessary as a result.

## **5. Monitoring and Date of Next Review**

In 2024 the Dean will follow up with the Chair of the Dept. of Laboratory Medicine & Pathobiology on the implementation of the external reviewers' recommendations and will provide an interim report to the Vice-Provost, Academic Programs no later than December 2024 on the status of the implementation plans.

The next UTQAP review of the Dept. of Laboratory Medicine & Pathobiology will be commissioned in 2025-26.

## **6. Distribution**

On June 30, 2023, the Final Assessment Report and Implementation Plan was posted to the Vice-Provost, Academic Programs website and the link provided by email to the Dean of the Temerty Faculty of Medicine, the Secretaries of AP&P, Academic Board and Governing Council, and the Ontario Universities Council on Quality Assurance. The Dean provided the link to unit/program leadership.