

UTQAP Cyclical Review: Final Assessment Report and Implementation Plan

1 Review Summary

Program(s) Reviewed:	Undergraduate programs (<i>offered in association with the Faculty of Arts & Science</i>): <ul style="list-style-type: none">• Physiology, HSc: Specialist, Major, Minor Graduate programs: <ul style="list-style-type: none">• Physiology: MSc, PhD• Medical Physiology, MHSc
Unit Reviewed:	Department of Physiology
Commissioning Officer:	Dean, Temerty Faculty of Medicine
Reviewers (Name, Affiliation):	<ul style="list-style-type: none">• Prof. Irene Tracey, Professor of Anaesthetic Neuroscience and Pro-Vice Chancellor, University of Oxford• Prof. John White, Chair, Department of Physiology, McGill University• Prof. James Young, Chair, Department of Physiology, University of Alberta
Date of Review Visit:	March 21-22, 2022 (conducted remotely)
Date Reported to AP&P:	April 13, 2023

Previous UTQAP Review

Date: April 3-4, 2014

Summary of Findings and Recommendations

Significant Program Strengths

- “Top tier” research and teaching programs
- Comprehensive range of undergraduate courses
- Outstanding educational experience
- Graduates, postdoctoral trainees, and faculty are in great demand

Opportunities for Program Enhancement

- Examining graduate student enrolment
- Reviewing faculty contributions to medical undergraduate curriculum
- Supporting the four research platforms within the broader Departmental mandate
- Identifying new revenue streams

Current Review: Documentation and Consultation

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 2021; Temerty Faculty of Medicine’s Strategic Plan (2018-2023); University of Toronto Towards 2030; University of Toronto Quality Assurance Process.

Consultation Process

Temerty Faculty of Medicine

1. Dean, Temerty Faculty of Medicine and Vice Provost, Relations with Health Care Institutions
2. Vice Dean, Strategy & Operations
3. Director of Strategic Initiatives, Office of Advancement
4. Chair, Dept. of Anesthesiology & Pain Medicine
5. Chair, Dept. of Laboratory Medicine & Pathobiology
6. Chair, Dept. of Nutritional Sciences
7. Director, Heart & Stroke Richard Lewar Centre of Excellence in Cardiovascular Research

Dept. of Physiology

8. Chair
9. Vice Chairs
10. Program Coordinators and MHS program Director

11. Research Platform Leads
12. Faculty
13. Fellows
14. Postgraduate Trainees
15. Administrative Staff

Faculty of Arts & Science

16. Acting Vice Dean, Academic Planning
17. Associate Dean, Student Affairs
18. Undergraduate Students

Research Institutes

19. Director, Toronto General Hospital Research Institute
20. Interim Director of Research, Lunenfeld-Tanenbaum Research Institute, Sinai Health System

Current Review: Findings and Recommendations

1. Undergraduate Program(s)

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

The reviewers observed the following **strengths**:

- Objectives
 - ▶ Physiology Specialist, Major and Minor program requirements and learning outcomes are clear and appropriate, align with relevant undergraduate degree-level expectations, and are consistent with the University's mission, and current Faculty and Departmental academic plans
- Admissions requirements
 - ▶ Admission requirements are appropriate; students typically have marks that are considerably higher than minimum requirements due to the competitive nature of the program
- Curriculum and program delivery
 - ▶ Program requirements and curriculum delivery align with program learning outcomes, with knowledge and skills progressively developed throughout the program
 - ▶ Curriculum reflects current state of the discipline, with appropriate and well-communicated program structure, modes of delivery, and learning outcomes
 - ▶ Reviewers commend the Department's thorough and extensive undergraduate program curriculum mapping

- Innovation
 - ▶ Core program learning objectives are thoughtfully paired with learning objectives in Social and Scientific Responsibility, to expose students to learning beyond the conventional classroom
 - ▶ Department has been successful in obtaining competitive university-wide grants for curriculum content and delivery
 - ▶ Department has undertaken multiple initiatives to enhance the quality of its programs, including development and delivery of new courses, substantial revisions to existing courses, and incorporation of active learning activities in several courses
 - ▶ First-year course, PSL190H Biomedical Research at the Cutting Edge, is a high-impact initiative to recruit students into Physiology programs
- Accessibility and diversity
 - ▶ Department played key role in establishing the Amgen Scholars Program at the University, which has as a goal to recruit outstanding undergraduates from under-represented groups to increase accessibility and diversity in research
- Assessment of learning
 - ▶ Knowledge and skills are progressively developed throughout the undergraduate program and the assessment of learning is appropriate throughout
- Student engagement, experience and program support services
 - ▶ Students report that Physiology curriculum provides a valuable and challenging learning experience
 - ▶ Undergraduate Physiology Student Association is a strength of the program, working closely with the Department and the Graduate Association for Students in Physiology
- Quality indicators – undergraduate students
 - ▶ Enrollments in the Physiology Major and Minor programs have increased since the last review; enrolment in the Physiology Specialist program has remained relatively steady
 - ▶ Students have given positive feedback in course evaluations about the ability of the course to improve their understanding of the material and provide opportunities to demonstrate that understanding.
 - ▶ Excellent graduation and time to completion rates
 - ▶ Cumulative grade point average of Physiology graduating students is at the high end of University averages

2. Graduate Program(s)

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

The reviewers observed the following **strengths**:

- Overall quality
 - ▶ Reviewers note that MSc/PhD programs satisfy or exceed expectations of quality in graduate supervision, student mentoring, time to completion rates, and quality of students entering these programs

- ▶ Reviewers observe that MSc/PhD programs' structure and faculty research is successful in ensuring the intellectual quality of the student experience
- Objectives
 - ▶ MSc/PhD program requirements and learning outcomes are clear and appropriate, aligned with relevant graduate degree-level expectations, and are consistent with the University's mission, and current Faculty and Departmental academic plans
- Admissions requirements
 - ▶ Admission requirements are appropriate
- Curriculum and program delivery
 - ▶ Department has introduced new bioinformatics-based courses providing theoretical and practical aspects to computer programming, big-data analysis, general statistical analyses, and commercialization knowledge, in response to student concerns about preparation for future careers
- Assessment of learning
 - ▶ Learning assessment methods are appropriate
- Student engagement, experience and program support services
 - ▶ Graduate Association for Students in Physiology is a strength of the program, working closely with the Department and the Undergraduate Physiology Student Association
 - ▶ Opportunity for student placements with supervisors located off campus in University-affiliated institutions noted as a program strength
 - ▶ Department and student association have taken steps to mitigate challenges of having students spread out across multiple locations, including social gatherings and informal events
- Quality indicators – graduate students
 - ▶ Student surveys and course evaluations are generally positive
 - ▶ Graduate enrolments have remained relatively stable
 - ▶ Student publications have increased in recent years and students are continuing to present at national and international conferences
 - ▶ Excellent student completion rate of above 96%
- Student funding
 - ▶ Department has maintained overall student funding levels despite recent challenges
 - ▶ Commendable "Graduate Stimulus Program" provides funds to support graduate student stipends

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

- Overall quality
 - ▶ Reviewers note "a striking disconnect" between faculty's and students' impressions of the success of the MSc program, with students commenting that "the program is trying to cover too much ground in one year and winds up doing little as well as it should"

- Curriculum and program delivery
 - ▶ Literature review requirement in the MHSc program is prized by some faculty, but students viewed the effort required as disproportionate relative to the perceived benefit
 - ▶ MHSc program is not proactive enough in lining up potential practicum placements; reviewers note “an apparent lack of coordination of practicum placements at the Faculty level” with the risk that lack of suitable practicum placements could limit program enrollment
 - ▶ MHSc students commented that the timing of the practicum at the end of the program is problematic for some, due to hiring preferences of potential employers
- Accessibility and diversity
 - ▶ Students noted that, in terms of diversity, the overall make-up of the Department is not yet representative of the student body
- Student engagement, experience and program support services
 - ▶ Geographically distributed nature of the program, spread across multiple on- and off-campus sites, leads to many students feeling isolated and without a sense of community, contributing to a feeling that students have “somewhat limited preparation for the future”; reviewers note this as the major challenge to the Physiology graduate program
 - ▶ MHSc students commented on a perception that it was difficult to approach faculty to give feedback on the program
 - ▶ Students raised concerns over power imbalances in supervisor-student relationships; “There was a perception among the students that the mechanisms in place to deal with student-supervisor conflict were inadequate, and that having another faculty member as a mediator represented an inherent conflict of interest”
 - ▶ Inadequate support for trainees in areas such as career development, accommodations, wellness, day care, medical insurance, and conflict resolution
- Student funding
 - ▶ Reviewers note concerns that graduate student and postdoctoral stipends may be insufficient to meet current costs of living
 - ▶ Reviewers note reluctance of some supervisors to allow their graduate students to take TA positions to gain teaching experience and supplement their income

The reviewers made the following **recommendations**:

- Curriculum and program delivery
 - ▶ Re-evaluate MHSc program learning objectives and organization
 - ▶ Reviewers recommend that MHSc program be extended by one term, and that some courses, particularly in AI/machine learning and commercialization aspects of the program, should be bolstered or extended
- Student engagement, experience and program support services
 - ▶ “There is a major need to continue building a sense of the community within the Department, as well as continue preparing students for future careers, particularly in nonacademic settings”

3. Faculty/Research

The reviewers observed the following **strengths**:

- Overall quality
 - ▶ No less than 42% of Primary and Primary status-only faculty have held external salary awards between 2013 and 2020
 - ▶ Department is in receipt of multiple Faculty and University-wide teaching awards, a testament to the overall quality of its education
- Research
 - ▶ Research thesis-based graduate program is a core Departmental activity linking research priorities directly with education
 - ▶ 4-pillar research theme organization functions well and benefits the Department
 - ▶ Department embraces emerging research areas such as big-data and AI
 - ▶ Outstanding research opportunities and facilities for postdoctoral fellows and students at all levels
 - ▶ Commendable “Collaborative Seed Grant Fund” promotes new cross-platform and cross-disciplinary research
- Faculty
 - ▶ Faculty are central to Department’s research strengths
 - ▶ Faculty complement, including clinician scientists, provides outstanding quality, availability and research diversity of graduate supervisors
 - ▶ Department has formed an EDI Committee to ensure that future faculty hires conform to EDI best practices

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

- Overall quality
 - ▶ Reviewers note an unfortunate sense that undergraduate education is undervalued in comparison to supervision of graduate students and research
- Faculty
 - ▶ “Undergraduate education largely falls on the shoulders of an aging Primary faculty, and a relatively small number of other dedicated educators, and it is not clear to us whether the Department is moving fast enough to replace outgoing faculty with new hires to maintain its teaching commitments”
 - ▶ “Variable” student mentoring across supervisors
 - ▶ Unique challenges posed by decentralized structure with faculty spread across multiple geographic locations
 - ▶ Reviewers comment on a sense that the Department may be “spreading itself too thin to gain additional teaching revenue,” noting that this is exacerbated by the preferred workload distribution for Primary faculty; they also observe that Primary faculty’s success in obtaining research grants limits the time they have available for teaching
 - ▶ Reviewers comment on the “non-level playing field” between Department’s core members and those in the external research institutes, and varying levels of commitment to the life of the Department and its teaching duties among faculty,

many of whom do not rely on the Chair for annual performance increments or promotion

The reviewers made the following **recommendations**:

- Faculty
 - ▶ Department has made a number of new faculty appointments since the previous review, “but nevertheless needs to engage in an expeditious hiring program to maintain its teaching commitments”
 - ▶ Faculty complement balance between tenure-stream and non-tenure stream faculty will be crucial, especially if population demographics predict continuing upward pressure on student enrollment

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
 - ▶ “Administrative staff received the highest praise from students”
 - ▶ Department has initiatives in place to improve the sense of community and inclusivity
 - ▶ Good relationships with cognate Departments, including a number of joint undergraduate and graduate educational initiatives
 - ▶ Partnerships with other universities are largely PI-driven and focused on research collaboration
 - ▶ Relationships with government and external academic and professional organizations are a strength of the Department, with many faculty sitting on committees, editorial boards, grant panels
 - ▶ Department is perceived to be a welcoming place for clinician scientists
 - ▶ Department has formed an EDI committee in response to Temerty Medicine’s commitment to equity, inclusion and diversity
- Organizational and financial structure
 - ▶ Department makes appropriate and effective use of its financial and human resources
 - ▶ Administrative staff “do an outstanding job and should be prioritized for future expansion as financial resources permit”
 - ▶ Highly-valued organizational structure of 4 principal research domains provides benefits for curriculum design and graduate program organization

- ▶ Several measures implemented to mitigate against “silo effects” within the Department including cross-disciplinary research talks and seminars, internal grants to promote cross-platform collaboration, and strategic recruitment into new “Integrative Physiology” and “Systems Biology” faculty positions
- ▶ Online courses for international students and other distance learners represent an important source of income for the Department
- ▶ To mitigate expected effects of decreased revenue from online teaching, Department has successfully bolstered revenues through increased undergraduate teaching and increased enrolments in graduate programs
- ▶ Research facilities in the ageing Medical Sciences Building have been improved through ad hoc renovations, with plans for a new building in the future
- ▶ Despite a static or decreasing base budget, Department’s financial state is strong and diversified relative to some Canadian comparators
- Long-range planning and overall assessment
 - ▶ The Department has been successful in Advancement including “Insulin 100” centennial celebration held in 2021
 - ▶ Department will benefit from stability in the Chair position and the ongoing work to establish a new and updated Strategic Plan
- International comparators
 - ▶ Department “continues to be one of the largest and most successful teaching- and research-intensive Departments of Physiology in North America and world-wide”
 - ▶ Levels of research funding, publication metrics and other research quality indicators establish the Department as being on par with its national and international comparators

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

- Relationships
 - ▶ Reviewers note variable morale across the Department
- Organizational and financial structure
 - ▶ Reviewers note frequent changes in Department Chair in recent years and note that it is hoped the current chair will “provide the stability the position requires”
 - ▶ Administrative support in the Department is insufficient to support its undergraduate and graduate programs, with too many duties are off-loaded onto faculty
 - ▶ Administrative staffing for MHSc program is expected to be insufficient once the program reaches its full capacity
 - ▶ Poor state of some Medical Science Building laboratories noted as a concern
 - ▶ Department has a complex organizational structure and reviewers note a sense that the Department is “over-committee-ed”
- Long-range planning and overall assessment
 - ▶ Pursuing opportunities to sustain existing revenue generation and ensure continued strong program enrollments carry a risk of spreading educational resources too thin

The reviewers made the following **recommendations**:

- Relationships
 - ▶ Explore ways to enhance the sense of inclusivity and community in the Department
- Organizational and financial structure
 - ▶ Consider amalgamating some Departmental committees, particularly as needed new committees in EDI and Big-Data/AI are formed
- Long-range planning and overall assessment
 - ▶ Maintain balanced investment in both educational and research recruitment

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

March 16, 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 Cover Letter | 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. Irene Tracey, Dr. John White, Dr. James D. Young—for their very comprehensive review of the Department of Physiology on March 21-22, 2022. We would also like to thank Dr. Scott Heximer, Chair of the Department, 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 Department of Physiology at the University of Toronto has a long and storied past that includes the 1921 discovery of insulin, and award of the University of Toronto’s first PhD. It continues to be one of the largest and most successful teaching- and research-intensive Departments of Physiology in North America and world-wide...In the 7 years covered by this review (2013-2020), the Department, on a per capita basis, continues to perform in education and research at the level of its comparators.”*

The thorough report provided by the reviewers is an invaluable guide for program enhancements and future strategic directions of the Department of Physiology. The reviewers identified a number of areas for enhancement including re-evaluation of the MHSc program learning objectives and organization, new faculty recruitment, ensuring equitable engagement in the Department between members based at the University and the research institutes, supports for both graduate and postdoctoral trainees, administrative support and organizational structure. Each of the recommendations has been addressed in the Programs’ Responses column in the accompanying table, and in Dr. Heximer’s Chair’s cover letter. We are in full agreement with the responses of Dr. Heximer and the programs and have provided additional comments addressing each of the recommendations in the Deans’ Responses column of the table.

Overall, the Department of Physiology has made excellent progress under the leadership of Dr. Heximer and as noted by the reviewers, *“The Department punches above its weight...now beginning his 3rd year as Chair, it is hoped that appointment of Dr. Heximer will provide the stability the position requires.”* We congratulate Dr. Heximer on his outstanding leadership and look forward to continuing to work with him and members of the Department of Physiology to ensure the continued success and growth of the Department to attain its strategic and operational aspirations.

The next review of the Department of Physiology is scheduled in 2028-29. In 2025, 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
Scott Heximer – Chair, Dept. of Physiology, Temerty Faculty of Medicine

2021-22 UTQAP Review of MED Department of Physiology - 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
<p>The reviewers noted concerns that undergraduate teaching is undervalued in comparison to research, and noted that time-sensitive complement planning is warranted to maintain commitments to this program, as well as to the department's other teaching and research activities.</p>	1a	<p>"Within the Department, there was also a general sense from our interviews that undergraduate education was undervalued in comparison to supervision of graduate students and research."</p>	<p>We recognize the need to widely support our undergraduate teaching programs, especially as they have become an important source of revenue for the Department in recent years. We feel there are short- and medium-term steps that can be taken to address these important issues:</p> <ol style="list-style-type: none"> 1) Short-term: There is an imminent need to hire new teaching- and tenure-stream faculty who are fully invested in the teaching of undergraduate students. (See answer to Rec#1b below.) 2) Ongoing: We will need to be strategic in the cross-appointment of new off-site faculty members ensuring that their expertise and plans are in line with the Department's educational directives. 3) Medium-term: We feel there is an opportunity to leverage/reorganize our current research platform structure to better coordinate our research and educational programs in a way that will optimize current faculty buy-in and generate more excitement around our educational goals. 	<p>The Department of Physiology ("the Department") has created a well structured plan to take steps toward widely supporting their undergraduate teaching programs in the short term as well as the longer term.</p> <p>A Life Sciences planning committee, with decanal representation from the Faculty of Arts & Science and the Temerty Faculty of Medicine and undergraduate chairs from the life science departments (from both Faculties), meets regularly to discuss proposed curricular changes, timetabling and enrolment issues to ensure collective awareness and consultation. We will explore expanding the mandate of these meetings to include regular review of the quality of undergraduate offerings.</p>
	1b	<p>"We have concern that the Department is spreading a limited number of educators too thin in efforts to support both education and research in the department. Pending retirements of Primary faculty will exacerbate the situation."</p>	<p>The steps toward addressing these concerns are already underway. Recognizing that recent and pending faculty retirements will likely leave our undergraduate program teaching faculty understaffed relative to other comparable departments, we have already requested two additional faculty positions (one tenure-stream and one teaching-stream) in our complement plan. As proof of our commitment to these goals, we have redirected over \$1 million in Strategic Initiative Funds toward recruitment.</p>	<p>Temerty Medicine fully supports departmental efforts to recruit additional faculty members both in the tenure and teaching streams.</p>

			<ol style="list-style-type: none"> 1) The search for a new tenure-stream faculty member is currently underway and the candidate is expected to be in place by July 1, 2023. The high calibre quality of the applicant pool may afford the opportunity to hire an additional tenure-stream faculty member from this search pending approval from the Dean and VPFAL. 2) The search committee for the teaching-stream position has been approved by the Dean and the job advertisement is currently under review. The plan is to have this person in place by July 1, 2023. 3) Additional faculty positions will be requested on our complement plan in 2024 and 2025, if expected retirements occur on schedule and the financial position of the Department remains strong. 	
	1c	<p>“Balance between tenure-stream and non-tenure stream faculty is, and will continue to be, a critical issue for the Department moving forward. Balancing these two faculty streams will be crucial, especially if population demographics predict continuing upward pressure on student enrollment.”</p>	<p>We appreciate that our off-site faculty have a large commitment to their own research institute and, as such, a heavy commitment to ensuring the success of their research enterprise. We believe the key to successfully balancing these two faculty streams lies in the following:</p> <ol style="list-style-type: none"> 1) Managing the expectations of newly cross-appointed faculty to ensure their vision is in line with the educational goals and expectations of the Department. This has been addressed through the creation of a new “departmental expectations for cross-appointees” document that is reviewed with each new applicant before they apply. 2) Involvement of off-site faculty in strategic planning to coordinate educational and research mandates (as outlined in response to Rec#1 above). This will occur through a series of Breakfast With The Chair events held at the various TAHSN sites to encourage optimal participation. 3) Long-term introduction of funding support packages for fully engaged colleagues. (See full description in the response to Rec#6.) 	<p>Temerty Medicine supports the collaborative approach that the Department is planning to take to manage expectations of newly cross-appointed faculty members, to involve off-site faculty members in strategic planning to coordinate educational and research mandates, and to provide funding support packages for fully engaged faculty members colleagues.</p>

<p>The reviewers commented on a disconnect between student and faculty impressions regarding the success of the MHS program, noting student concerns that the program is “trying to cover too much ground in one year”; they recommended that the Department re-evaluate the program learning objectives and organization, and that the program and some of its courses be extended.</p>	2a	<p>“there was a striking disconnect between the impressions of success (or lack thereof) of the MHS program between faculty and students. Students gave us the impression that the program is trying to cover too much ground in one year and winds up doing little as well as it should.”</p>	<p>We understand that some of the students may not have appreciated the value of the scientific communication training and the broad spectrum of coursework offered. However, I believe the numbers collected after our first year of the program highlight the success of the program on one of the most important metrics: <u>job placements for our graduates.</u></p> <p>The program is intended to introduce students to emerging areas related to applied physiology and to put it into practice in order to prepare them for future employment in related careers. The students that took part in the self-study preparation had just graduated or were currently in the program and had little experience in applying for related jobs. At the end of the MHS programs, feedback from our practicum placement supervisors valued the breadth of the student training in different areas. Of our first graduating cohort, 2/3 of alumni were employed in health-related settings (hospital or industry) and 1/3 pursued further health-related studies 1 year after graduation. Our alumni success in the talent areas that the program was designed to address demonstrates that the program has met its intended outcomes.</p>	<p>The Department has been working to ensure that the MHS program is a success, especially in the area of ensuring job placements for program graduates. Student feedback on programs and their success is always valuable, but it is important to ensure that feedback is obtained from a broad spectrum of students at different points in their educational and career journeys to provide a fulsome picture of the overall student experience.</p>
	2b	<p>“Re-evaluation of the program learning objectives and organization is recommended.”</p>	<p>We agree. This was last carried out in the summer of 2022 for the Quality Council review, which was favourable.</p>	<p>The Department is planning to reevaluate learning objectives and organization for the MHS program.</p>
	2c	<p>“Our recommendation is to extend the program by one term and bolster or extend some courses”</p>	<p>By increasing the duration of the program we feel that we would lose the competitive advantage over other similar programs and that this would negatively affect our enrollment numbers going forward.</p> <p>However, as suggested, a few of the courses have been bolstered based on feedback for the 2022-23 year (e.g., more Intellectual Property and Business Plan resources were added to the PSL4050 Commercialization).</p>	<p>In making the decision to bolster a few of the courses in the program, the Department has taken course feedback into consideration.</p>
	2d	<p>“AI/machine learning, big data and commercialization aspects of the program should be bolstered”</p>	<p>We must be realistic about our limitations with respect to the breadth of educational offerings our current faculty can provide. (See Rec#s 1a&1b.) Students are provided with</p>	<p>The Department is doing what is possible to provide students with opportunities to take electives in areas based on their interests, and this is one way for</p>

			opportunities to take further electives in these areas based on their interests, and have done so during the 2022-23 year (e.g., BME1478H).	AI/machine learning, big data and commercialization aspects of the program to be bolstered.
The reviewers observed the need for improved coordination of suitable practicum placements for students in the MHSc program.	3	“The program is still not proactive enough in lining up potential placements for practicum. There remains an apparent lack of coordination of practicum placements at the Faculty level”	The program was proactive in securing more practicum placements than student numbers for the 2021 and 2022 placements, but as the program grows more coordination/support for the practicum procurement at the Faculty level would be very helpful. Moreover, providing a guarantee of students’ practicums would go a long way towards both identification of potential practicum sites, as well as recruitment of students into the program. A modified/shared funding model and commitment from the Department and Temerty Medicine could be an ideal solution that benefits both parties. These discussions will be beginning in early 2023 as the Faculty meets with the various programs to explore models for expansion.	Temerty Medicine is committed to engaging in discussions to explore expansion models and funding structures for practicum placements in all Faculty departments.
The reviewers recommended that the Department address student concerns and perceptions regarding power imbalances in supervisor-student relationships, including concerns that the mechanisms in place to navigate conflicts are inadequate.	4	“The Department has work to do to address the students’ perceptions and concerns over the power imbalance in the supervisor- student relationship... There was a perception among the students that the mechanisms in place to deal with student-supervisor conflict were inadequate, and that having another faculty member as a mediator represented an inherent conflict of interest.”	Yes, this is an important issue that the Department has already begun to address: <ol style="list-style-type: none"> 1) We have recently changed the graduate supervisory committee forms to include a tickbox indicating that the student had time with their committee members in the absence of their supervisor to bring up any concerns they have about their training experience. We realize this does not get around the power dynamic issue, however, it would presumably identify any minor problems that could be dealt with before they escalated to require any type of formal mediation. 2) The senior graduate administrators met with the graduate student executive to present two potential solutions to the power dynamic concerns. The two possible short-term solutions identified at that meeting are: a) students have direct access to an ombudsperson from outside the Department (pending available funding); or b) students could bring potential issues to a graduate peer support team and, if necessary, be directed to a dedicated third-party support person. The 	The Department has been engaging in strategic and collaborative approaches to address student perceptions and concerns over the power imbalance in the supervisor-student relationship. Further to this, Temerty Medicine is exploring opportunities to engage central university partners, including the Centre for Graduate Mentorship & Supervision, the Workplace Investigations Unit in the Human Resources Division, and the U of T Equity Offices, in order to co-create solutions for addressing difficult issues that arise between faculty members and graduate students.

			<p>graduate students are currently deliberating on the plan that suits their needs the best.</p> <p>3) In the near-term, we will also engage our colleagues at the Centre for Graduate Mentorship & Supervision to advise us on best practices and solutions for conflict resolution within our graduate programs.</p>	
<p>The reviewers noted concerns regarding services and supports provided for graduate students and postdoctoral fellows in several areas, including career development, accommodations, and wellness; they also voiced concerns about student stipend levels in relation to the high cost of living in Toronto, and noted varying practices with respect to the use of TA positions to gain valuable teaching experience as well as supplementary income.</p>	5a	<p>“there appears to be inadequate support for trainees in other areas (career development, accommodations, wellness, conflict resolution), with postdoctoral fellows especially deserving of attention”</p>	<p>1) The Department has committed to creating a wide range of teaching and academic career-associated opportunities for members of the postdoctoral community. For example, our postdocs are currently involved in PSL course teaching and administration and participate on faculty search and EDI committees.</p> <p>2) The Department regularly engages with the postdoctoral community with respect to strategic planning to ensure that their concerns are heard and their needs are met in any forward planning exercises. Postdocs are invited to voice their opinions at Breakfast With The Chair sessions and in the context of strategic planning breakout groups or Departmental retreats.</p> <p>3) The Department is an active member in conversations at the Faculty-wide level to improve the training experience and range of opportunities for postdoctoral trainees. In the medium-term the Department plans to leverage these Faculty-wide initiatives to provide an even greater number of opportunities for our postdocs.</p>	<p>Temerty Medicine supports the targeted approaches that the Department is pursuing in order to better support and engage postdoctoral fellows. Temerty is committed to ongoing Faculty-wide conversations to address this structural issue in direct collaboration and consultation with the post-doctoral fellows community, with departments, and with the central university’s School of Graduate Studies. As a result of an initiative led by Dr. Justin Nodwell, Vice Dean, Research & Health Science Education, stipends for graduate students in Temerty Medicine will be increased.</p>
	5b	<p>“There is a major need to... continue preparing students for future careers, particularly in nonacademic settings.”</p>	<p>The Department will continue to provide advanced career planning seminars as a mandatory component of its core PhD training program (PSL2000). This comprehensive six-session training program is designed to help students: explore career paths both in academia and beyond; set a professional development plan; develop practical job search and application strategies, communication and collaboration skills; and learn to effectively network and market themselves to stand out from the crowd. In the short term, we will also explore whether there is an interest to expand this program into our mandatory MSc curriculum.</p>	<p>In addition to the Department’s plan to provide continued career planning support for graduate students, there exist resources at the University, including the Centre for Graduate & Professional Development and the Academic Success Centre for Graduate Students, that are promoted via the Temerty Graduate Life Sciences Education website. Additional opportunities can be explored to partner with research training centres affiliated with TAHSN research institutes, many of which have developed career exploration programs.</p>

	5c	“With respect to student stipends...Toronto is an expensive city, and it is of concern to us that stipend levels (especially for MSc students) may not pay a living wage after tuition.”	The Department has fully supported efforts by Temerty Medicine to provide Harmonized Stipend Packages for our graduate students that are higher than any other universities in Canada. The current planned increases will increase the stipends to \$40K/annum (not including any monies earned through TAships) over the next few years. The Dean’s Office has fully supported these increases and is providing extensive financial support to relieve some of the burden these increases will have on individual laboratories.	Temerty Medicine acknowledges the barriers that many students face to access graduate education opportunities. Based on these barriers, Temerty will substantially increase its graduate student stipends beginning in the 2023-2024 academic year, making them the highest in Canada. As a result, students in Master of Science programs will receive \$37,000 per year. PhD candidates will be offered \$40,000 annually.
	5d	“This is exacerbated by a reluctance amongst some supervisors to allow their graduate students to take up TA positions as a means to gain valuable teaching experience as well as supplement their income.”	The large stipend increases should alleviate some of these complications as students should be less likely to need supplemental income support.	Temerty Medicine is supportive of collaborating with departments and the central university to engage in ongoing efforts to alleviate financial barriers experienced by graduate students.
The reviewers commented that contributions to teaching duties and to the life of the Department vary among faculty members whose primary affiliations are with the research institutes.	6	“There is the issue of a non-level playing field between the core members of the Department and those in the research institutes in terms of commitment of members in research institutes to the life of the Department and its academic (teaching) duties. Some members are willing to contribute whereas others are not. The situation is exacerbated by the fact that the majority of Departmental members do not rely on the Chair for annual performance increments or promotion.”	There is a long-term plan in place to leverage the recruitment portion of the SI Funds to partner with advancement/donors and create new endowed chairs for the Department. If successful, this plan will be revenue-generating for the Department and allow for significant <u>ongoing</u> funding of either research projects or graduate student support packages. These funds can be made available selectively to the group of faculty who are actively highly engaged in the Department’s programs thus encouraging maximal participation across the breadth of our community.	The Department’s long-term plan to address faculty member participation and engagement in academic duties will help level the playing field among faculty members.
The reviewers identified a need for increased efforts to build a greater sense of community within the Department, particularly in support of graduate students who are frequently dispersed among local hospitals; they noted that geographic distribution leads to challenges for students, including	7a	“There is a major need to continue building a sense of the community within the Department... the Department has initiatives in place to boost the sense of inclusivity, but more is needed, recognizing that geographic dispersal of the Department over multiple locations poses difficult challenges for the Department.”	In the short-term, the Department will work together to complete its strategic plan (hopefully by December 2023). This exercise is, by its nature, community-building and will provide the opportunity for individuals at all levels (staff, students, postdocs, faculty) to voice their opinions and help shape the future of the Department. We will have numerous Department-wide meetings and retreats to ensure the participation of everyone who is willing. It is anticipated that by the end of this process there will be	Temerty Medicine is very supportive of the Department’s plan to equitably and collaboratively engage in community-building efforts. The Faculty acknowledges that the Department’s EDI Committee has engaged in proactive efforts to enhance equity, diversity and inclusion within the Department. Temerty Medicine is also committed to ongoing efforts to engage in community-building efforts, including events

feelings of isolation and disconnection from the program.			much less feeling of disconnect and a greater sense of community pride and optimism for the future.	and collaborative initiatives for all departments and units, led by Temerty's Office of Inclusion & Diversity.
The reviewers observed administrative duties are frequently taken up by faculty and recommended that the staff complement be prioritized for future expansion to support the department's undergraduate and graduate programs.	7b	"this geographic distribution leads to many students feeling 'lack of general warmth and community' and a 'feeling of disconnect' from the program as a whole and that isolation has contributed to the feeling that they have 'somewhat limited preparation for the future'."	We feel that the COVID-19 pandemic and associated restrictions have taken a huge toll on the collective energy level and mindset of our faculty and students. We have been compartmentalized by necessity leading to a greater sense of isolation than we have ever experienced as a unit. We look forward to moving past this era and re-connecting over the next few months to discuss the extremely bright future for our Department that lay ahead. (See also response to Rec#7a above.)	The Department's experience as a result of the COVID-19 pandemic has been similarly felt across several departments and units within the Faculty. Temerty Medicine supports the Department's focus on reconnecting and connecting community members together in the coming months, and will continue to promote opportunities for all departments and units to engage in in-person and online events and initiatives.
	8	"There is also a general sense of administrative responsibilities being "off-loaded" to faculty. The Administrative staff of the Department... do an outstanding job and should be prioritized for future expansion as financial resources permit."	<p>Thank you for recognizing the outstanding capabilities of our administrative team. We continue to recognize their outstanding work and expand their size and capacity to help support the entire Department.</p> <p>Ongoing: We have tried at every opportunity to put our administrators forward for achievement awards at the level of the Faculty and University. We will continue to ensure they are properly recognized for their excellent work.</p> <p>Short- and Medium-term: We have developed a plan to expand and, at the same time, reorganize our administrative team. The plan is to hire three new members of the administration team as follows:</p> <ol style="list-style-type: none"> 1) Teaching Services Coordinator: responsible for hiring/managing TAs and overseeing teaching systems administration 2) Communications Outreach Officer: responsible for all internal and outreach communications within the Department 3) Research & Space Coordinator: responsible for managing Departmental space usage and assisting faculty members with research-related tasks (e.g., coordinating internal grant reviews or animal/biosafety protocol submissions) 	The Department has created a thoughtful plan to expand their administrative staff team in areas of need. The Faculty acknowledges the Department's efforts in nominating administrators for awards in the Faculty and University.

<p>The reviews commented on a sense that the Department is “over-committed” and recommended that some committees be amalgamated, particularly as new committees (in key areas of EDI and Big Data/AI) are formed.</p>	<p>9</p>	<p>“Even with its large size, there is a sense that the Department is “over-committee-ed”. Some committees could be amalgamated as needed new committees in EDI and Big-Data/AI are formed.”</p>	<p>As part of its strategic planning exercise in 2023, the Department will look carefully at its committee organization to determine whether there may be a more streamlined structure. The aim will be to decrease workload for our faculty, while at the same time ensuring broad/inclusive representation by all groups of stakeholders in key decision-making scenarios.</p>	<p>The Department will be reviewing the organization of their committees to help streamline the structure. Members of the Department have also often been involved in Faculty-wide committees engaged in collaborative work, such as in the area of equity, diversity and inclusion.</p>
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3 Committee on Academic Policy & Programs (AP&P) Findings

The spokesperson for the reading group reported that the reviewers' comments were positive overall, and that the group felt that the review summary accurately reflected the full review. They also commented that they felt the Dean's administrative response had addressed the issues identified in the review with regard to the Master of Health Science program. The group had no additional questions or comments.

No follow-up report was requested.

4 Institutional Executive Summary

The reviewers praised the Department of Physiology as one of the largest and most successful in the world. They commended the undergraduate program for the thoughtful pairing of program learning objectives in social and scientific responsibility with those in core areas of disciplinary knowledge and critical thinking, and they praised graduate students' publication, conference presentation, and program completion rates. They applauded the research opportunities and facilities available to undergraduate and graduate students as well as postdoctoral fellows, and commended the Department's initiatives to promote cross-platform and cross-disciplinary research. Finally, they noted that the Department has cultivated strong external relationships with government, academic and professional organizations, with many faculty sitting on committees, editorial boards, and grant panels.

The reviewers recommended that the following issues be addressed: addressing concerns that undergraduate teaching is undervalued in comparison to research including time-sensitive faculty complement planning; re-evaluating the program learning objectives and organization of the MHSc program; coordinating suitable practicum placements for MHSc students; addressing student concerns regarding power imbalances in supervisor-student relationships, including concerns that the mechanisms in place to navigate conflicts are inadequate; addressing concerns regarding services and supports provided for graduate students and postdoctoral fellows in several areas, such as career development, accommodations, wellness, stipend levels, and varying practices with respect to the use of TA positions to gain teaching experience and supplementary income; considering ways to address the varying contributions to teaching duties and to the life of the Department among faculty members whose primary affiliations are with the research institutes; increasing efforts to build a greater sense of community within the Department; prioritizing expansion of the administrative staff complement support the department's undergraduate and graduate programs; and amalgamating some departmental committees, particularly as new committees are formed.

The Dean's Administrative Response describes the division and unit's responses to the reviewers' recommendations, including an implementation plan for any changes necessary as a result.

5 Monitoring and Date of Next Review

In 2025 the Dean will follow up with the Chair of the Department of Physiology on the implementation of the external reviewers' recommendations and will provide an interim report to the Vice-Provost, Academic Programs no later than December 2025 on the status of the implementation plans.

The next UTQAP review of the Department of Physiology will be commissioned in 2028-29.

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.