

UTQAP Cyclical Review: Final Assessment Report and Implementation Plan

1 Review Summary

Program Reviewed:	Master of Science in Biomedical Communications (MScBMC)
Unit Offering Program:	Institute of Medical Science
Commissioning Officer:	Dean, Temerty Faculty of Medicine
Reviewers (Name, Affiliation):	<ul style="list-style-type: none">• Professor Pamela Brett-Maclean, Associate Professor, Dept. of Psychiatry and Program Director, Arts & Humanities in Health & Medicine, Dept. of Psychiatry, University of Alberta• Professor Corinne Sandone, Professor and Director, Dept. of Art as Applied to Medicine, Johns Hopkins University• Professor David Secko, Professor and Chair, Dept. of Journalism, Concordia University
Date of Review Visit:	January 16, 2023 (conducted remotely)
Review Report Received by VPAP:	March 27, 2023
Administrative Response(s) Received by VPAP:	March 12, 2024
Date Reported to AP&P:	April 10, 2024

Previous UTQAP Review

Date: February 25-26, 2015

Summary of Findings and Recommendations

Significant Program Strengths

- Excellent, interdisciplinary professional program that fills a key niche
- Effective program structure and curriculum
- Faculty are fully engaged in innovative program delivery
- Good student funding for a professional program
- Excellent student completion rate at par with or better than comparator programs
- Satisfied alumni find interesting, well-paid employment, become entrepreneurs, and hire program graduates
- High level of faculty scholarly output and collaborative research
- Very strong morale among all stakeholders

Opportunities for Program Enhancement

- Aligning assessment methods with learning outcomes
- Enhancing the Program's research culture
- Strengthening information technology support for the program at UTM
- Maintaining the program's presence within the Faculty of Medicine
- Seeking additional advancement opportunities

Current Review: Documentation and Consultation

Documentation Provided to Reviewers

Confirmation/agreement Letter; terms of reference; self-study report; faculty CVs; course descriptions; virtual tour; schedule; previous review report (2014-15), the joint decanal and Chair's responses, and FAR-IP; Dean's Report 2022; Temerty Faculty of Medicine's Strategic Plan (2018-2023); UTM Strategic Framework; University of Toronto Towards 2030; University of Toronto Quality Assurance Process.

Consultation Process

Temerty Faculty of Medicine

1. Vice Dean, Strategy & Operations
2. Director, Institute of Medical Sciences
3. Program Director, MHSc in Translational Research, Dept. of Laboratory Medicine & Pathobiology

MSc in Biomedical Communications

4. Director
5. Graduate Students
6. Alumni
7. Administrative Staff

University of Toronto Mississauga

8. Interim Vice-Principal, Academic & Dean
9. Chair, Dept. of Biology
10. Faculty
11. Sessional Lecturer

Master's Research Project Consultants (Basic + Clinical Scientists)

12. University of Toronto Faculty from Depts. Of Anatomy, Biochemistry, Biology, Immunology and Laboratory Medicine & Pathobiology
13. Director, Molecular Visualization, Centre for Molecular & Cellular Dynamics, Harvard Medical School
14. Senior Lecturer, Dept. of Evolution & Ecology, College of Biological Sciences, UC Davis Health

Current Review: Findings and Recommendations

1. Undergraduate Program(s) (n/a)

2. Graduate Program(s)

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

The reviewers observed the following **strengths**:

- Overall quality
 - ▶ Unique in Canada, MScBMC degree is an “exemplary professional degree program” bridging art, science, medicine, and communication
 - ▶ Excellent, interdisciplinary professional program that fills a key niche
 - ▶ Ongoing assessment of program effectiveness helps to ensure the program remains responsive to the needs of stakeholders
 - ▶ Self-Study report provides evidence of sound ongoing review and committed, responsive evolution reflecting changes in society and the profession
- Objectives
 - ▶ MScBMC provides outstanding educational training preparing graduates to enter the field of biomedical visualization

- ▶ Program is well aligned with values and commitments of the University and the strategic priorities of the Institute of Medical Science, and guided by goals informed by the UTM Academic Plan
- ▶ Graduating students are well prepared to meet entry-level professional competencies appropriate for the field of medical illustration
- ▶ Curriculum prepares students to become a Certified Medical Illustrator (CMI) and meets the Standards and Guidelines of the Commission on Accreditation of Allied Health Education Programs (CAAHEP) and the Accreditation Review Committee for the Medical Illustrator (ARC-MI) of the Association of Medical Illustrators (AMI)
- ▶ Program competencies, including analytical and critical thinking, communication, knowledge of basic and clinical sciences, problem-solving and organizational skills, visual design, storytelling, and mastery of digital and traditional depiction techniques, prepare students for the current state of the field
- ▶ Excellent approach to mapping of curricular objectives, content, and skills/ outcomes, aligned with professional competencies appropriate to the field
- Admissions requirements
 - ▶ Admissions requirements are appropriate to the learning outcomes of the program
 - ▶ Students are admitted from a wide variety of interdisciplinary backgrounds; recent changes in admissions requirements acknowledge and validate the value of a strong art background for the program
- Curriculum and program delivery
 - ▶ Program's applied research emphasis and curriculum provide excellent preparation for developing visualizations of scientific data and concepts for professional and public healthcare audiences
 - ▶ Opportunities for engaging and supporting students in research continues to be a focus of curricular development
 - ▶ Learning activities map with learning outcomes "as clearly and beautifully depicted in the full-color infographic on the cover of the [self-study]"
 - ▶ Curriculum is intensive, innovative, and appropriate to program length
 - ▶ Effective use of a variety of modes of delivery and coursework structures
 - ▶ Program provides many diverse opportunities for learning beyond the classroom, including the applied research emphasis which brings students together with those working in industry, educational, and community settings
 - ▶ Faculty research projects provide opportunities to gain research experience
 - ▶ Excellent variety and quality of course offerings; courses evolve to meet industry requirements and advancements in science and healthcare
- Innovation
 - ▶ MScBMC is at the forefront of complex molecular visualization, pushing the frontiers of interactive media design, and emphasizing patient education and science communication for lay audience education
 - ▶ Students master foundational skills in their early coursework, with creative and innovative applications encouraged in the Master's Research Project (MRP)

- Accessibility and diversity
 - ▶ Program continues to responsively evolve in alignment with the expanding, explicit commitments to EDI on the part of UofT, Temerty Faculty of Medicine (TFoM), and UTM, and has introduced approaches and initiatives aimed at “empowering faculty and students as leaders who will effect positive change and drive health equity”
 - ▶ Diversity considerations inform the Program's hiring and admissions practices
 - ▶ Recruitment and promotion strategies are increasingly informed by EDI considerations and have yielded significant increases in the number of inquiries and serious applications from diverse, high-quality applicants; one such initiative is an outreach program that introduces students in underserved schools in Ontario to medical illustration as a potential career path
 - ▶ The BMC-ARC, an anti-racism coalition involving faculty, students, and alumni, was formed to decolonize the curriculum and promote anti-racist educational practices; BMC-ARC efforts led to the creation of a publicly accessible anti-racism resource repository, aimed at empowering learners and practitioners to promote diversity and inclusivity in medical illustration
 - ▶ MScBMC has integrated EDI concerns into the curriculum, and encourages and prioritizes MRPs that address EDI concerns
 - ▶ Course syllabi include statements welcoming students with disabilities or other diverse learning styles and needs, offering responsive support on the part of the instructor and/or Accessibility Services Office
- Assessment of learning
 - ▶ Since the previous review, assessment methods have been better aligned with program learning outcomes
- Student engagement, experience and program support services
 - ▶ Extracurricular events and activities organized by faculty and alumni offer opportunities for student learning beyond the classroom, including a speaker series, a professional development program, involvement in the alumni association, and an annual graduate showcase in which students’ work is displayed for potential future employers
 - ▶ Current students are happy in the program, value their interactions with faculty, and appear confident with their employment potential
 - ▶ Many program-level initiatives exist to support student success and wellness
 - ▶ Faculty members’ commitment to mentoring and high-quality graduate supervision were evidenced by their availability for one-on-one meetings with students
 - ▶ Tour of local medical illustration studios is included in the first-year business practice course
 - ▶ Program regularly monitors students' well-being and concerns through monthly surveys, administered and reported by class representatives
 - ▶ Students are encouraged to participate in Association of Medical Illustrators (AMI) webinars and events, attend an annual conference, and contribute to EDI initiatives
 - ▶ Students actively contribute to the publication of Toronto Notes (a reference used by medical students to prepare for their licensing exams), as well as the IMS and Department of Immunology magazines (which are all student-led initiatives)

- ▶ Student exchanges with other accredited medical illustration programs in the United States enable interaction with future professional peers; exchanges were paused during the COVID-19 pandemic but are expected to resume in the near future
- Quality indicators – graduate students
 - ▶ Program attracts high-quality applicants and admits engaged, talented, enthusiastic students
 - ▶ Many students are successful in attracting external funding and awards
 - ▶ Number of applications, admit/yield rates, student satisfaction, positive course evaluations, program completion rates, and average time to completion are strong indicators of program quality
 - ▶ Program completion rate confirms the alignment of the admissions requirements with the established learning outcomes
 - ▶ Extremely low rates of withdrawal from the program and of students requiring more than two years to complete the program
 - ▶ Students achieve high rates of success at an annual international competitive Salon hosted by the Association of Medical Illustrators (AMI), receiving 45% or more of the total student awards each year, including 67% in 2022; “this is impressive external validation of the quality of student work”
 - ▶ MScBMC students have been very successful in annual AMI competitions for grants and scholarships, receiving the most combined awards over the past seven years and sharing the lead in receiving prestigious named awards
- Quality indicators – alumni
 - ▶ Overall experience and preparation to enter the field are consistently highly rated by program alumni
 - ▶ Satisfied alumni find interesting, well-paid employment, become entrepreneurs, and hire program graduates
 - ▶ Graduates of the program are highly rated by employers
 - ▶ “Postgrad employment is over 90%, with 77% of graduates in the past 5 years employed full-time at companies or institutions; an additional 19% are self-employed”
 - ▶ “It needs to be stated here that [the BMC Alumni Association] is the strongest alumni network of any of the graduate programs in this field”
 - ▶ Graduates of the program contribute to a strong and growing biomedical communications community in the GTA that benefits both society and the region's economy
- Student funding
 - ▶ Good student funding for a professional program
 - ▶ BMC faculty actively seek research funding which provides stipends for student research; additional student funding opportunities include stipends paid by academic partners, summer internships, and student awards
 - ▶ Fundraising efforts over the next five years will focus on scholarship funding for students who come from socio-economically disadvantaged backgrounds, and tuition relief for international students

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

- Accessibility and diversity
 - ▶ Low rates of enrolment among domestic students from socio-economically disadvantaged backgrounds
 - ▶ High tuition rates for international students have limited the diversity of the international student pool
- Assessment of learning
 - ▶ Students expressed interest in more timely feedback as they develop projects rather than receiving the majority of comments upon completion
- Student engagement, experience and program support services
 - ▶ Students expressed concern regarding concentration of course deadlines, receiving quicker turnaround on project feedback, improved communication regarding the process for selecting a MRP, and clearer communication of faculty availability

The reviewers made the following **recommendations**:

- Curriculum and program delivery
 - ▶ Reviewers note discussion of potential curriculum changes to remove the two program streams in order to allow for more flexibility for individual student learning and better prepare students for an increasingly diversified profession; “While this would require time and careful planning, students expressed support for this potential curriculum change”
 - ▶ Reviewers observe that several course-specific curriculum initiatives identified in the Self-Study merit consideration when evolving the curriculum
 - ▶ Continue with responsive approach to ensuring excellent curriculum content and program delivery
 - ▶ Continue to seek and develop opportunities to help research-oriented students prepare for doctoral-level study
- Assessment of learning
 - ▶ Explore opportunities to add interim, in-progress critique formats to supplement the current term-end critiques of student work
- Student engagement, experience and program support services
 - ▶ “It was noted that it would be valuable to formalize a summer internship experience between first and second year (which currently happens informally) to provide an additional opportunity for meaningful student-professional interaction”
- Student funding
 - ▶ Reviewers note student comments suggesting that the program consider hiring second-year students as TAs in software-based classes offered for first year students
 - ▶ Explore opportunities for reducing international student tuition, and enhancing scholarship funding to applicants from socio-economically disadvantaged backgrounds

3. Faculty/Research

The reviewers observed the following **strengths**:

- Overall quality
 - ▶ Faculty in the program are active in the Association of Medical Illustrators (AMI) serving in leadership roles and delivering outstanding presentations at conferences
 - ▶ Faculty hold memberships in a diverse range of professional organizations related to research interests and professional practice
 - ▶ Faculty have developed a broad range of formal and informal collaborations in the US, Europe, Australia, and elsewhere
 - ▶ Faculty report feeling well supported in research, teaching, and professional development by program, unit, and divisional leadership
 - ▶ Strong sense of collegiality and enthusiasm for teaching and contributing to the MScBMC Program
- Research
 - ▶ Quality, quantity, and variety of faculty research ensures the intellectual quality of students' experience
 - ▶ Faculty maintain active involvement in research, including Tri-Council funding
 - ▶ Strong levels of faculty research activity and funding relative to national and international comparators
 - ▶ Reviewers comment that the Self-Study “describes a clear, unified focus for research” with themes that are appropriate in scope and in relevance to both the expertise of current faculty and to a desire to support the future of the field
 - ▶ Self-study notes recent faculty success in securing Tri-Council funding; reviewers observe that “it is clear the MScBMC faculty recognize the importance of peer-reviewed funding for new knowledge generation
 - ▶ Reviewers were impressed with internal and external faculty collaborations
 - ▶ Unit is successfully undertaking research activities for graduate students as part of faculty research
 - ▶ Diverse expertise and research programs of faculty, combined with expert research advisors from TFOM and elsewhere, ensure excellent, enthusiastic MRP mentorship to students
 - ▶ “We were impressed by the number of expert research advisors who made time to meet with us during the site visit to share their enthusiastic support for the MScBMC graduate program”
- Faculty
 - ▶ Faculty remain current with technology infrastructure and endeavour to stay current with professional norms
 - ▶ Reviewers commend program faculty for willingness to provide mentorship to junior colleagues on their research programs and note that this will be important as senior faculty retire
 - ▶ Faculty complement comprises an appropriate mix of tenure-stream and teaching-stream in faculty

- ▶ Faculty retreats provide opportunities for open discussion regarding the program's strengths and areas for further development, leading to reorganization of course material and other changes to best support student learning

The reviewers made the following **recommendations**:

- Research
 - ▶ Provide graduate students who are interested in research with more intensive opportunities to prepare for advanced studies or research careers
 - ▶ Continue to explore ways to publish/disseminate student MRP work
 - ▶ Reviewers “see potential of deeper connections to MRP consultants, as well as the creation of an intensive research environment in the form of a Science Communication Institute with external linkages to others studying science communication in Canada”
- Faculty
 - ▶ Engage in planning for program leadership succession, faculty renewal, and diversity commitments
 - ▶ Faculty retirement and renewal will present opportunities to enact program’s commitments to further diversify the faculty complement
 - ▶ Consider maintaining balance of faculty complement between tenure-stream and teaching-stream faculty as long-range planning continues

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
 - ▶ Dedicated and fully-engaged program leadership, faculty, and staff members
 - ▶ Reviewers observed positive morale and dynamics at all virtual visit meetings
 - ▶ Strong relationships between students, including collaboration, knowledge sharing, and seeking and providing peer feedback
 - ▶ Student-faculty relationships are a strength of the program; students commented that faculty are approachable, available, supportive of creative ideas, and receptive to student feedback
 - ▶ Each student cohort has an internal representative who reports on student concerns at regular faculty meetings and an external representative who liaises with other university graduate student organizations
 - ▶ Regular staff/faculty/student meetings support open discussions where students' ideas and concerns are listened to and taken seriously

- ▶ BMC faculty and staff strive to support students' professional development and to cultivate a safe, respectful, and welcoming environment
- ▶ Library services staff provide a valuable service in assisting with the curation of, and broader access to, student and faculty projects
- ▶ Small size of program combined with dedicated faculty and structured intensive curriculum contribute to a "collegial, collaborative, and supportive learning environment"
- ▶ Program is committed to creating an environment and culture that values and promotes equity, diversity, and inclusion among faculty, students, and staff
- Organizational and financial structure
 - ▶ Organizational and financial structure of the program "is not without tensions but is appropriate to the functioning and goals of the program"
 - ▶ Current structure provides direct access to the bioscience research community; affiliation with TFoM lends legitimacy and credibility
 - ▶ Innovative partnership between UTM and TFoM has ensured a broad network of relationships with faculty from cognate departments and related disciplines
 - ▶ Program's financial resources appear well managed and Self-Study notes that the budget is "currently adequate to its needs"
 - ▶ Good physical space and resources, with up-to-date technology
 - ▶ "UTM location supports continuum of education from the undergraduate to the graduate level; space at UofT's St. George campus ensures connection to biomedical and biocommunication institutions, companies, and opportunities within the GTA via a strong alumni network"
- Long-range planning and overall assessment
 - ▶ Strategic academic plan aligns well with the Institute of Medical Science and the UTM academic plans, including commitments to providing a positive student experience, supporting a research-intensive culture, and expanding the diversity of the student body
 - ▶ Effective quality enhancement processes support ongoing, responsive planning for curriculum change
 - ▶ Program is planning for future needs in terms of refreshing its technology and equipment
- International comparators
 - ▶ Good level of research activity compared to international comparators
 - ▶ MScBMC is one of only five programs in North America offering a master's degree in the field of medical illustration; curricula are comparable, and all are accredited by the Commission on Accreditation of Allied Health Education Programs
 - ▶ Reviewers observe that MScBMC compares favorably to international graduate training programs due to its long history, dynamic faculty, reputation, and impressive graduate outcomes; MScBMC has solidified its stature as a leading program worldwide through these attributes as well as its increasing contributions to the field and expanding network of exchange and collaborations with other medical illustration programs

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

- Relationships
 - ▶ Reviewers note minor comments regarding a desire to explore how to have students re-engage with the BMC space post-pandemic
- Organizational and financial structure
 - ▶ “Program enrollment is at capacity and increases do not appear feasible”
 - ▶ Regarding the possibility of creating an undergraduate program in Biomedical Communications, reviewers note that the potential for additional tuition revenue would need to be considered in relation to the necessary resources to support the program; reviewers also raise concern that an undergraduate program could possibly create confusion regarding the value of the graduate program, with negative impacts for the MScBMC
 - ▶ Reviewers note students’ desire for quiet space or posted “quiet work hours” in shared spaces
 - ▶ Faculty frequently manage software updates and other technology issues themselves, with support complications due to faculty being present on two campuses
 - ▶ Faculty and staff workloads are at capacity and “leaning towards overextension”
- Long-range planning and overall assessment
 - ▶ Reviewers note issues related to international student tuition and “losing qualified students due to lack of funding”

The reviewers made the following **recommendations**:

- Relationships
 - ▶ Continue to collaborate with other parts of the University, including IMS and other cognate professional Master's programs
- Organizational and financial structure
 - ▶ Reviewers endorse the dual reporting structure with UTM and TFoM as important for the program’s success and recommend that it not be changed
 - ▶ Clarify tenure and annual review policies as they apply to program faculty members in light of the program’s dual reporting structure
 - ▶ Explore ways to optimize IT support for faculty to ensure that they can effectively dedicate themselves to teaching and research
 - ▶ Consider a review of human resources related to program-specific administrative support, given heavy teaching, supervisory and informal mentorship loads
 - ▶ Strong recommendation to consider funding support for an additional administrative staff position to support the program
 - ▶ Reviewers note “suggestions that the long-term health of the program will require the directorship be held on a rotating basis”
- Long-range planning and overall assessment
 - ▶ Reviewers endorse stated goal to expand the diversity of the student body, and observe that doing so will require long-range planning and a year-over-year commitment to fundraising initiatives

- ▶ Develop a plan for fundraising, including achievable targets, to support scholarship funding for students from socio-economically disadvantaged backgrounds, and tuition relief for international students
- ▶ “Recognizing that ongoing energy will need to be committed to exploring advancement and other creative revenue opportunities, we strongly support the view that the MScBMC program is ‘a gem’ to be supported by the University”
- ▶ Reviewers “anticipate that faculty are currently assessing recent advances in computer technology and AI in relation to the program”

2 Administrative Response & Implementation Plan

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TEMERTY FACULTY OF MEDICINE
UNIVERSITY OF TORONTO

Temerty
Medicine

Patricia Houston, MD MEd FRCPC
Interim Dean and Vice Dean, Medical Education
Interim Vice Provost, Relations with Health Care Institutions

March 8, 2024

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

Dear Susan,

[MSc, BIOMEDICAL COMMUNICATIONS](#)
[Joint Decanal Cover Letter | University of Toronto Mississauga 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. Pamela Brett-MacLean, Dr. Cory Sandone, and Dr. David Secko—for their very comprehensive review of the Master of Science in Biomedical Communications (MScBMC) program on January 16, 2023. We would also like to thank Dr. Jodie Jenkinson, MScBMC Director, 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 that of the US and European comparators *“None has the long history, dynamic faculty, esteemed reputation, or impressive graduate outcomes of the MScBMC program at the University of Toronto. This, along with increasing contributions to the field and expanding network of exchange and collaborations with other medical illustration programs, has helped the MScBMC program solidify its stature as a leading visual scientific communication graduate program – one that its recognized worldwide.”* We are in complete agreement with the reviewers’ assessment that the MScBMC is a “gem”.

The thorough report provided by the reviewers is an invaluable guide for program enhancements and future strategic direction of the MScBMC. The reviewers identified a number of areas for enhancement including continuing to update the curriculum, providing students with research opportunities, exploring way to reduce financial barriers to entry, undertaking EDIIA-informed hiring for faculty renewal, ensuring annual faculty review and tenure expectations are clear, increasing administrative support, investigating creating an undergraduate major, and assessing the impact of technological and AI advances. Each of the recommendations has been addressed in the Program’s Response column in the accompanying table, and in Dr. Liu’s Director’s cover letter. We are in full agreement with the response of Dr. Liu and the MScBMC, and have provided additional comments addressing each of the recommendations in the Deans’ Responses column of the table.

Overall, the MScBMC has made excellent progress under the leadership of Drs. Jenkinson, Liu, and Short, and, the reviewers commented that *“Bridging art, science, medicine, and communication, the MScBMC program is unique in Canada...we consider the MScBMC to be an exemplary professional degree program.”* We congratulate the entire team on their outstanding leadership and look forward to continuing to work with them to ensure the continued success and growth of the MScBMC to attain its strategic and operational aspirations.

The next review of the MScBMC is scheduled in 2029-30. In 2026 we will follow up with the IMS Director 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,



Nicholas Rule, PhD
Dean
Vice-Principal Academic
University of Toronto Mississauga
Professor, Dept. of Psychology



Patricia Houston, MD, MEd, FRCPC
Interim Dean
Temerty Faculty of Medicine
Interim Vice Provost, Relations with Health Care Institutions
Professor, Dept. of Anesthesiology & Pain Medicine

cc: Justin Nodwell – Vice Dean, Research & Health Science Education, Temerty Faculty of Medicine
Anastasia Meletopoulos – Academic Affairs Manager, Office of the Dean, Temerty Faculty of Medicine
Tracey Bowen – Vice Dean, Teaching & Learning, University of Toronto Mississauga
Martha Harris – Manager, Academic Programs, Reviewers & Quality Assurance, University of Toronto Mississauga
Mingyao Liu – Director, Institute of Medical Science, Temerty Faculty of Medicine
Steven Short – Chair, Dept. of Biology, University of Toronto Mississauga
Jodie Jenkinson – Program Director, MScBMC, Temerty Faculty of Medicine
Lachmi Singh – Director, Academic Programs, Planning & Quality Assurance, Office of the Vice Provost, Academic Programs

2022-23 UTQAP Review of MED Biomedical Communications Program (MScBMC) - Review Recommendations

Request Prompt <i>verbatim from the request</i>	Rec. #	Recommendations from Review Report <i>verbatim from the review report</i>	Program's Response	Deans' Responses
The reviewers recommended that the MScBMC program continue its responsive approach to ensuring excellent curriculum content and program delivery.	1	"Continue with responsive approach to ensuring excellent curriculum content and program delivery (that has led to plans to de-stream the current curriculum to provide more flexibility for student learning)."	Plans are underway to de-stream the MScBMC. Students will be introduced to proposed "pathways" through the program. We anticipate it will take 1 year to implement this <i>minor modification</i> .	Both Temerty Medicine and UTM support the de-streaming of the MScBMC to provide a more flexible educational experience for students. The MScBMC is encouraged to pursue Program Innovation Funding from VPAP to assist with this modification and the other curriculum-related improvements described below.
The reviewers recommended that the program continue to focus on providing opportunities for interested students to engage in research activities.	2	"Continue to focus on opportunities for research-oriented students to help prepare them for doctoral level studies elsewhere; by reinstating an evaluation and research paper in the graduate curriculum and creating additional research opportunities, and the proposed establishment of a Science Communication Institute (Appendix 14Cp)"	Research-oriented students who enroll in MSC2013Y have the opportunity to complete a human subjects research study and paper. We will explore other options for engaging students in research. This may include the development of a half-course elective that offers an alternative to human subjects research. The Science Communication Institute (SCI) is an initiative supported by two faculty members (Profs. Jodie Jenkinson and Marc Dryer). Pending approval of Prof. Jenkinson's request for research leave, she will continue to pursue the development of SCI that will doubtless provide many opportunities for collaborative research. This is a long-term initiative.	The MScBMC is investigating research opportunities for its students beyond the MSC2013Y course that focuses on human subjects research, including the possible addition of another half-course elective.
To ensure diverse student voices and perspectives, the reviewers recommended exploring opportunities for reducing financial barriers to entry to the MScBMC program.	3	"Explore opportunities for reducing tuition for international applicants (currently \$48K/year) and enhancing scholarship funding to applicants from socio-economically disadvantaged backgrounds."	International tuition for cognate professional programs in the Temerty Faculty of Medicine is significantly lower at \$39,860 for the MHS in Translational Research, Medical Genomics, and Laboratory Medicine Programs. We will continue to advocate for a reduction in our international tuition and to seek funding in the form of bursaries and scholarships to offset tuition costs. This will be an ongoing endeavour.	The MScBMC is encouraged to pursue bursaries and scholarships for its international students in addition to exploring possible philanthropic opportunities in this area.

	4	<p>“Long-range planning to ensure academic partners can help fund students is wise, and we recommend developing a plan with UTM's development office for how the ‘next 5 years will be focussed on providing scholarship funding to those students who come from socio-economically disadvantaged backgrounds, and tuition relief for those students coming from outside Canada.’ This is directly related to the issue of international student tuition, and losing qualified students due to lack of funding, which was raised several times. No example of fundraising targets was given but an achievable target can help focus the efforts of the university.”</p>	<p>We agree that having a long-range plan for supporting both international and disadvantaged students will help to set an achievable goal for the program.</p> <p>We will seek the advice of Temerty Medicine’s Office of Advancement and work with our Alumni Association to explore potential sources of funding.</p> <p>We anticipate that this initiative will take upwards of 2 years to set in motion.</p>	<p>The external reviewers commended the MScBMC’s alumni engagement efforts, noting that this “is the strongest alumni network of any of the graduate programs in this field”. The Program will consult with Temerty Medicine’s Office of Advancement to explore both short- and long-term strategies to encourage philanthropic support for international and economically disadvantaged students.</p>
<p>The reviewers recommended that the MScBMC engage in careful faculty complement planning with consideration of directions for program renewal and opportunities for EDI-informed hiring.</p>	5	<p>“Develop planning process for faculty renewal - four faculty members are within 10 years of retirement. This will provide an opportunity to consider directions for renewal, including additional opportunities for EDIIA-informed diversity hiring that is reflective of the communities the UofT/UTM and the Program serve. Additional considerations include the question of maintaining the current breadth of skills and interests of faculty or specializing more.”</p>	<p>Faculty renewal has been an ongoing concern for the program and we are in the process of mapping out a strategy for ensuring both consistency of instruction and potential areas for growth in the biomedical visualization domain.</p> <p>This will be the focus of our upcoming faculty retreat in Spring 2024 which will help to inform a 5-year plan for faculty renewal and future directions. The plan will be completed in 6 months.</p>	<p>Faculty renewal will be the focus of the MScBMC retreat being held this spring. Excellence Through Equity is a pillar of the Temerty Medicine’s strategic plan. The Office of Inclusion & Diversity provides resources, including the <i>Temerty Medicine Guidelines for Excellence Through Equity – Appointments of Faculty & Academic Administrators</i>, to assist units with EDIIA-informed hiring. UTM reviews new faculty requests through a faculty complement planning process across all UTM units. The program may request appointments through this process in keeping with UTM being the budgetary appointment for MScBMC faculty.</p>
<p>The reviewers noted comments that the dual reporting structure involving both the UTM Department of Biology and the Temerty Medicine Institute of Medical Science is important for the success of the program, and recommended that this arrangement remain in effect; they observed that it may be fruitful for the two departments to discuss tenure and annual review policies and ensure that</p>	6	<p>“We agree with this assessment and recommend the current dual reporting structure remain. Nonetheless, it may be fruitful to discuss whether program-specific tenure and annual review policies need to be developed in collaboration with the Department of Biology at UTM to ensure these processes and expectations for productivity are clear to new faculty (if no current policies exist).”</p>	<p>The Dept. of Biology has instituted annual PTR workshops and new faculty will be encouraged to participate in these.</p> <p>Additionally, the MScBMC Director will draft guidelines for evaluating PTR in our discipline. This will include, for example, the evaluation of creative professional activity and other non-traditional research outputs.</p>	<p>In accordance with the reviewers’ recommendation, the Dept. of Biology has established workshops to guide faculty on the preparation of their annual PTR review documents. Further, the MScBMC Director is developing specialized guidelines both for biomedical communications faculty and those serving on the Dept. of Biology’s PTR Committee. These guidelines can likewise be provided to</p>

these are clearly communicated to faculty.			The guidelines will be shared with MScBMC faculty and the Dept. of Biology PTR committee in the next 6 months .	tenure committees to ensure a common understanding of expectations in this field.
The reviewers noted that the administrative staff complement has not grown in relation to significant increases in program enrolment; they recommended considering ways to strengthen supports for the ongoing growth and evolution of the MScBMC program.	7	“It is strongly recommended that consideration be given to providing the funding needed to support an additional administrative staff position to help ensure ongoing growth and evolution of the MScBMC graduate program in line with the UofT's mission - given its doubling in size from 18 to 36 students over the past two decades.”	<p>We agree with this assessment. Our Graduate Program Administrator & Writer fulfills many duties and is working at full capacity. Additional administrative support is needed to pursue further opportunities for the MScBMC's growth and evolution.</p> <p>As an example, we have long-recognized the need to establish a formal internship program for students but do not presently have the capacity to do so.</p> <p>A part-time administrative hire would ensure that initiatives like this can be implemented. The MScBMC will submit a request, and pending approval, will complete the hire within 1 year.</p>	The addition of a part-time administrator could afford the MScBMC the capacity to establish a formal internship program and undertake other initiatives. UTM has a formal process for requesting additional funding for new staff positions. This process launches in late spring and submissions are reviewed in the fall by the Vice-President & Principal and the Strategic Planning Advisory Committee (SPAC). The program may submit a request for consideration by this committee.
Other recommendations not prioritized in the Request for Administrative Response	8	“Creating an undergraduate major could generate additional tuition revenue, but this would need to be considered in relation to the resources that would need to be invested (e.g., faculty and administrative staff hires).”	<p>Since the UTQAP review we have examined the feasibility of creating an undergraduate major and have established that this would not benefit the Dept. of Biology, nor would it generate additional revenue.</p> <p>The additional course offerings required for a major would, by necessity, involve integrating existing curricular offerings from other departments. Significant resources would be required to establish new course offerings.</p> <p>We have elected over the next 2 years to focus our energy on redesigning our minor to better integrate with biology.</p>	The MScBMC has investigated the possibility of creating an undergraduate major and have determined that would not be academically or economically beneficial to do so. Instead, the MScBMC and Dept. of Biology will work together to strengthen the Department's undergraduate minor.
	9	“While not covered in the MScBMC Self-Report we anticipate that faculty are currently assessing recent advances in computer technology and AI in relation to the program.”	<p>We consider generative AI to be of great relevance to the instruction of our graduate students.</p> <p>To this end we have authored a policy on the acceptable uses of AI in biomedical visualization.</p> <p>We have also begun integrating AI exercises in instruction so that students may gain practice in the responsible use of AI. Activities include, for example,</p>	<p>The MScBMC is working to develop policies in response to the rapidly changing advances in computer technology and AI.</p> <p>The Program is encouraged to explore potential opportunities for collaboration with the Temerty Center for AI Research & Education in Medicine (T-CAIREM) at Temerty Medicine.</p>

			using generative AI to ideate concepts and using AI to translate narrative scripts or captions for audiences at varying literacy levels. This will be an ongoing endeavour.	
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3 Committee on Academic Policy & Programs (AP&P) Findings

The spokesperson for the reading group reported that the review summary had accurately reflected the full review and that overall, they had found the review to be positive. While the administrative response adequately addressed most of the relevant issues, the group highlighted areas of concern regarding financial sustainability, and requested further explanation of the plans to address scholarship funding and tuition relief for students.

Jodie Jenkinson, MSc Biomedical Communications Program Director responded that the concerns regarding tuition had been raised in the past, and that they had spoken with the Dean of the School of Graduate Studies, as the tuition fees did not align with other cognate programs at U of T, resulting in loss of international student enrollment. She noted that it was difficult to compete with institutions such as Johns Hopkins, who have measures in place to support international student tuition and attract these learners to their programs; and that the MScBMC would need support to help address this issue.

No follow-up report was requested.

4 Institutional Executive Summary

The reviewers praised the Master of Science in Biomedical Communications as an exemplary professional degree program that is unique in Canada and recognized worldwide, noting that the program is “at the forefront of complex molecular visualization, [and] pushes the frontiers of interactive media design.” They commented that MScBMC students are engaged, talented, and enthusiastic, noting that many are successful in attracting external funding and awards; they also praised the program’s faculty for their strong sense of collegiality, enthusiasm for teaching, and active involvement in research. They commended the MScBMC alumni network, noting their success in securing employment within the field and their ongoing contributions to learning opportunities for current students. Finally, they highlighted the program’s commitment to creating an environment and culture that values and promotes EDI among faculty, students, and staff, a commitment that includes admissions processes which support acceptance of diverse, interdisciplinary applicants and integration of EDI concerns into the MScBMC curriculum.

The reviewers recommended that the following issues be addressed: continuing the program’s responsive approach to ensuring excellent curriculum content and program delivery; continuing to focus on providing opportunities for interested students to engage in research activities; exploring opportunities for reducing financial barriers to entry to the MScBMC program to ensure diverse student voices and perspectives; engaging in careful faculty complement planning with consideration of directions for program renewal and opportunities for EDI-informed hiring; maintaining the dual reporting structure involving both the UTM Department of Biology and the Temerty Medicine Institute of Medical Science, while also encouraging the two departments to discuss tenure and annual review policies and ensure that these are clearly

communicated to faculty; and considering ways to strengthen supports for the ongoing growth and evolution of the MScBMC program.

The Dean's Administrative Response describes the program'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 2026 the Dean will follow up with the Director of the Institute of Medical Science on the implementation of the external reviewers' recommendations and will provide an interim report to the Vice-Provost, Academic Programs no later than December 2026 on the status of the implementation plans.

The next UTQAP review of the Master of Science in Biomedical Communications will be commissioned in 2029-30.

6 Distribution

On June 30th 2024, 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.