UTQAP Cyclical Review: Final Assessment Report and Implementation Plan

1 Review Summary

Program(s) Reviewed:	Applied Statistics (HBSc): Specialist, Major, Minor Bioinformatics (HBSc): Specialist Computer Science (HBSc): Specialist, Major, Minor Information Security (HBSc): Specialist Mathematical Sciences (HBSc): Specialist, Major, Minor
Unit Reviewed:	Department of Mathematical and Computational Sciences
Commissioning Officer:	Interim Vice-Principal Academic & Dean, University of Toronto Mississauga
Reviewers (Name, Affiliation):	• Prof. David Gerhard, Professor and Head, Department of Computer Science, University of Manitoba • Prof. Yair Minsky, Einar Hille Professor of Mathematics, Department of Mathematics, Yale University
Date of Review Visit:	November 25-26, 2024
Review Report Received by VPAP:	March 25, 2025
Administrative Response(s) Received by VPAP:	September 15, 2025
Date Reported to AP&P:	October 21, 2025

Previous UTQAP Review

Date: January 25 & 26, 2016

Summary of Findings and Recommendations

Significant Program Strengths

- Impressive programs providing very sound educational experiences to highly satisfied students
- Small course sizes, high quality teaching, and personal interactions between students and faculty
- Excellent support staff and facilities—including computer labs, which add to high levels of camaraderie and sense of community in the department
- Active research and teaching faculty with very impressive records
- Praiseworthy efforts of faculty advisors in mentoring junior faculty and providing TA supervision and coordination
- Notable community outreach programs—including math camps and competitions

Opportunities for Program Enhancement

- Giving the department more control over enrolment in order to preserve distinctive features of the programs
- Addressing the serious shortage of research faculty and corresponding overdependence on sessional and other short-term instructors, specifically in Computer Science and Statistics; considering strategic "cluster" hiring as part of new searches; and reconsidering the large budget allocated to short-term teaching positions
- Addressing high teaching loads for teaching stream faculty

Current Review: Documentation and Consultation

Documentation Provided to Reviewers

Terms of reference; Self-study; Previous review report including the administrative response(s); Access to all course descriptions; Access to the curricula vitae of faculty.

Consultation Process

Faculty, students, administrative staff and senior program administrators as well as members of relevant cognate units.

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
  - MCS delivers core undergraduate programs that are well aligned with the disciplines of Mathematics, Statistics, and Computer Science
- Curriculum and program delivery
  - Students benefit from smaller classes, individualized learning opportunities, engaged teaching, pedagogical best practices, and a modernized curriculum
  - Department offers experiential learning options, such as co-op opportunities and the newly introduced UTM Co-op Internship Program
  - Strong collaboration between research and teaching faculty in curriculum development, notably through a recent curriculum mapping exercise
- Innovation
  - Teaching faculty use innovative teaching methods, including flipped classrooms, active learning, and peer instruction
  - Department fosters innovative teaching through unique writing initiative embedded in every first- and second-year Computer Science course
- Student engagement, experience and program support services
  - Department demonstrates a strong commitment to student support with competent and knowledgeable staff, a thoughtful labour-intensive approach to advising and counseling, and a robust post-COVID support program
- Quality indicators – undergraduate students
  - Despite significant undergraduate enrolment growth, particularly in Computer Science, MCS has adapted effectively by hiring teaching faculty and temporary instructors, maintaining high quality in program delivery

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

- Accessibility and diversity
  - Computer Science program faces diversity challenges, with women significantly underrepresented in both major and specialist streams.
  - High competitiveness in the Computer Science program disadvantages individuals from non-traditional backgrounds, and systemic barriers persist after entry, leading to lower retention rates among equity-seeking groups
- Student engagement, experience and program support services
  - Due to increased enrolment pressure, it is no longer necessarily true that students at UTM benefit from smaller classes compared to St. George, a key advantage that had previously set UTM apart

- Undergraduate students at UTM have reduced access to research opportunities, due to research faculty spending significant time at the St. George campus and inadequate transportation between campuses, limiting students' exposure to research and potential interest in postgraduate education

The reviewers made the following **recommendations**:

- Curriculum and program delivery
  - Reduce class sizes to re-assert teaching quality metrics as a recruitment tool
- Accessibility and diversity
  - Implement and celebrate initiatives that seek to grow equity, diversity, and inclusion
  - Ensure the EDI committee has a clear mandate and is appropriately resourced
- Student engagement, experience and program support services
  - Increase opportunities for undergraduate students at UTM to experience research, through more upper-level courses taught by researchers, and research project opportunities

2. Graduate Program(s) (n/a)

3. Faculty/Research

The reviewers observed the following **strengths**:

- Overall quality
  - Department's research activity in the department is "world-class"
  - UTM faculty significantly contribute to Toronto's global reputation in mathematics
- Research
  - Research in dynamics is particularly strong, with standout faculty in geometry, analysis, and other fields, centered in the Centre for Nonlinear Analysis and Modeling (CNAM)
  - Robotics group is a flagship research cluster in Computer Science, producing leading work in robot perception, medical applications, and algorithmic planning
  - Computer Science faculty excel in information security, with specific expertise in cryptography applications
  - Statistics faculty are leaders in structured data analysis, including regression, modeling, and inference
  - MCS has actively developed research areas at UTM, including CNAM and the Robotics research group, even while research activity is split between UTM and St. George campuses
  - Teaching faculty are actively engaging in pedagogical research published in highly respected venues
- Faculty
  - Instructors collaborate widely with colleagues across MCS programs, the U of T tri-campus system, and other post-secondary institutions.

- Faculty have received prestigious external recognition, including the CS-CAN Excellence in Teaching Award and the Sloan Research Fellowship
- Faculty across programs report high levels of engagement and commitment

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

- Overall quality
  - Significant enrolment increases have created an imbalance between research and teaching faculty, placing a strain on program sustainability and research productivity
  - Faculty broadly agree that the teaching-to-research faculty ratio is too high and must be balanced
- Research
  - Cancellation of the F2 building has severely impacted the robotics group's research productivity, and negatively impacted morale in the department
  - Converted classrooms used as lab space for the robotics group are inadequate, with limitations in power, networking, and HVAC, and insufficient physical space
  - F2 building cancellation jeopardizes the robotics group's role as a cornerstone for expanding research at UTM, risking faculty departures and loss of momentum
  - Faculty expressed frustration over the cancellation, citing insufficient alternative space and a breach of trust in long-term planning
  - Without a dedicated facility, the robotics group risks stagnation, which could hinder graduate student recruitment, external funding, and development of a sustainable research agenda
- Faculty
  - Existing faculty are insufficient to meet undergraduate teaching demand, resulting in heavy reliance on sessional instructors, LTAs, and CLTAs
  - Enrolment growth has exceeded the capacity of existing salaried faculty and the department's ability to hire sufficient permanent faculty
  - Temporary faculty often leave for permanent roles elsewhere, resulting in a loss of talent, training, and tacit knowledge
  - Department relies heavily on limited-term appointments, but lacks a reliable pathway to transition these roles into permanent positions
  - Without a clear path to permanence, department risks losing experienced instructors, which strains retention, teaching quality, faculty workload, and job security for essential teaching staff
  - Salaried faculty must manage temporary teaching staff alongside their regular duties, increasing their workload despite the high quality of many sessional instructors

The reviewers made the following **recommendations**:

- Research
  - Prioritize direct resourcing of new research space for the robotics group
  - Allocate additional lab space in existing buildings to support the robotics group's activities

    - Provide institutional funding and support (e.g., grant writing, matching funds) to help researchers secure external funding
    - Consider partnerships with industry or other researchers as additional routes to increased support for the robotics group
- Faculty
    - Prioritize hiring research faculty to address the significant imbalance with teaching faculty
    - Align teaching loads between units within MCS
    - Explore pathways for CLTA and LTA to transition to permanent positions
    - Recognize the effort required to coordinate temporary teaching staff by including it as part of teaching load

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
    - Department is "very healthy," marked by a "high level of faculty collegiality, collaborativeness in teaching, and staff excellence"
    - Department has a strong sense of collegiality and collaboration
    - Staff are dedicated to the success of the department and are competent and knowledgeable
    - Individual members are pleasant, kind, and aware of the state of the unit
- Organizational and financial structure
    - Running a large and varied undergraduate program requires complex organizational work and thoughtful labour-intensive student advising and counseling
    - Despite financial challenges, the technical staff is experienced and dedicated, and financial matters are ably handled
    - MCS is inherently interdisciplinary, and although the department has grown significantly, there is strong collegiality and trust in the Chair
- Long-range planning and overall assessment
    - MCS is considered a "real locus of strength" for both UTM campus and University of Toronto overall

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

- Relationships
    - Collegial relationships among department members can result in issues being addressed through informal means rather than being properly resourced centrally; administration may not be made aware of issues that have been resolved informally

- Organizational and financial structure
  - Department lacks adequate technical support capacity
  - Limited and shared office space compromises faculty productivity and may discourage a stronger on-campus presence
  - Repurposed classroom labs do not meet infrastructure requirements (e.g., power, networking, HVAC, and inadequate physical space) for robotics research
- Long-range planning and overall assessment
  - Significant enrollment increases have led to an imbalance between research and teaching faculty, straining program sustainability and research productivity
  - Department is facing challenges typical of a rapidly growing academic unit, compounded by unique complexities of operating as a combined department on a suburban campus within a large university
  - Department is functioning under significant resource constraints, which limits its ability to effectively address the growing and varied challenges it faces

The reviewers made the following **recommendations**:

- Relationships
  - Engage in a constructive dialogue with the robotics group and establish a plan to address space resource allocation
  - Continue building trust with central administration so faculty feel empowered to bring forward structural challenges, rather than relying on overtaxed internal resources and informal problem-solving
- Organizational and financial structure
  - Increase technical staffing to support both undergraduate educational resources and research mandate of the institution
  - Allocate sufficient space to reduce reliance on shared offices for faculty, or implement processes that encourage faculty to spend more time on UTM campus
  - Explore ways to improve transportation options between campuses

UNIVERSITY OF TORONTO MISSISSAUGA

Office of the Vice-Principal,
Academic & Dean

September 12, 2025

Professor Nick Rule
Vice-Provost, Academic Programs
University of Toronto

RE: UTQAP cyclical review of the Department of Mathematical & Computational Sciences and its programs

Dear Professor Rule,

Thank you for your letter of June 13, 2025 requesting the decanal administrative response to the November 25-26, 2024 review of the Department of Mathematical & Computational Sciences and its programs: Computer Science (HBSc) Specialist, Major, Minor; Bioinformatics (HBSc) Specialist; Information Security (HBSc) Specialist; Mathematical Sciences (HBSc) Specialist, Major, Minor; Applied Statistics (HBSc) Specialist, Major, Minor.

On behalf of the University of Toronto Mississauga, we would first like to thank the reviewers, David Gerhard, University of Manitoba, and Yair Minsky, Yale University, for their comprehensive review of the Department of Mathematical & Computational Sciences and its programs. We would also like to thank the Chair, Professor Ilia Binder, and faculty, administrative staff, and all those who contributed to the preparation of the self-study. We also thank the many staff, students, and faculty members who met with the external reviewers and provided thoughtful feedback.

In their report, the reviewers praised the innovative curriculum in Mathematics, Computer Science, and Statistics courses and programs, and reflected on the dedication and collegiality they observed among the staff and faculty of the department. They also emphasized the “world-class” research profile of the faculty and their contributions to the international reputation of the University of Toronto. In their recommendations, the reviewers provided several suggestions for appropriately managing the growing enrolments in the programs offered by the department, including suggestions for new faculty hires, recognizing coordination efforts and alignment of teaching loads within the department, and creating additional supports for the technical staff that facilitate the courses. They made several recommendations for supporting equity and diversity among the faculty and students of the department. Finally, they stressed the importance of a positive relationship between the department and UTM’s central administration.

The reviewers’ recommendations have been addressed in the enclosed Review Recommendations Table that outlines the Department’s response, the Decanal response, and the Implementation Plan identifying action items and timelines for each recommendation (immediate, medium, or long term). This administrative response was developed in consultation with senior leadership in my office and the Department Chair.

Progress checks and monitoring of the implementation plan will occur through the Chair’s Annual Report to the Dean. We also acknowledge your office will request a brief Interim Monitoring Report

midway between the November 2024 review and the next cyclical review, which is scheduled to take place in the 2030-31 academic year.

Thank you very much for the opportunity to respond to the review report. The reviewers' comments and recommendations will help inform the future priorities of the Department of Mathematical & Computational Sciences and its programs.

Sincerely,

William A. Gough
Interim Vice-Principal, Academic & Dean

Encl.: 2024-25 UTQAP Review of the UTM Department of Mathematical and Computational Sciences – Review Recommendations (table)

CC: Ilia Binder, Chair, Department of Mathematical and Computational Sciences, University of Toronto Mississauga
Bryan Stewart, Vice-Dean, Academic Programs, University of Toronto Mississauga
Ferzeen Sammy, Manager, Academic Programs & Quality Assurance, University of Toronto Mississauga
Lachmi Singh, Director, Academic Programs, Planning and Quality Assurance
Emma del Junco, Academic Reviews and Planning Specialist
David Lock, Academic Reviews and Planning Specialist,
Stephanie Machado Fernandes, Administrator, Academic Programs

2024-25 UTQAP Review of UTM Department of Mathematical & Computational Sciences - Review Recommendations

Please do the following for each recommendation in the table:

- If you **intend** to act on a recommendation, please provide an **Implementation Plan** identifying actions to be taken, the time frame (short, medium, long term) for each, and who will take the lead in each area. If appropriate, please identify any necessary changes in organization, policy or governance; and any resources, financial and otherwise, that will be provided, and who will provide them.
- If you **do not** intend to act on a recommendation, please briefly explain why the actions recommended have not been prioritized.
- In accordance with the UTQAP and Ontario's Quality Assurance Framework, "it is important to note that, while the external reviewers' report may include **commentary** on issues such as faculty complement and/or space requirements when related to the quality of the program under review, **recommendations** on these or any other elements that are within the purview of the university's internal budgetary decision-making processes must be tied directly to issues of program quality or sustainability" (emphasis added)
- You may wish to refer to the sample table provided by the Office of the Vice-Provost, Academic Programs

Request Prompt *verbatim from the request*	**Rec. #**	**Recommendations from Review Report** *verbatim from the review report*	**Unit Response**	**Dean's Response**	**Implementation Plan** *actions to be accomplished in the immediate (six months), medium (one to two years) and longer (three to five years) terms, and who (Program Director, Dean) will take the lead in each area.*
The reviewers observed that undergraduate students in the Department have limited opportunities to engage in research, highlighting the concentration of faculty research activity and lab space on the St. George campus, as well as challenges associated with traveling between campuses. They recommended exploring ways to increase students' engagement in research activity, including through more upper-year courses taught by research faculty and the development of structured research project opportunities.	1.	"Increase opportunities for undergraduate students at UTM to experience research, through more upper-level courses taught by researchers, and research project opportunities."	To meaningfully expand student research opportunities and address concerns raised by reviewers, we propose the implementation of a new set of research-intensive capstone courses to operate alongside existing capstone project offerings. The new research-focused capstone courses would allow faculty to supervise multiple student teams, and receive formal teaching credit for the course, thereby integrating their mentoring efforts into the workload framework. These new courses would be recognized within academic program requirements to make them more accessible and incentivize students. Including teaching assistant support	OVPAD will support the Department's curricular development through the Vice-Dean, Academic Programs and Vice-Dean, Undergraduate. Any resulting proposal that affects faculty workload will benefit from consultation with the Vice-Dean, Faculty and may generate changes to the workload policy. We applaud the mentoring and student conference initiatives by the department.	Medium term; Vice-Dean, Undergraduate and Vice-Dean, Academic Programs and Vice-Dean, Faculty

			with these courses would help mentor and guide student teams throughout their projects and create a sustainable model for scaling research participation while maintaining academic quality and rigor. In tandem with this curricular innovation, we propose establishing a mentoring program that pairs specialist students with faculty mentors. This structured advising mechanism would direct students to opportunities that align with their interests and academic goals, including capstone courses, and promote a more coherent and supported pathway into research experiences. Finally, we recommend launching an undergraduate research conference in collaboration with student groups from the three disciplines represented in MCS. Modeled on existing faculty-organized showcases, this formalized conference would serve as a platform for students to showcase projects developed through research courses, prepare students to present at larger national venues, and foster a stronger culture of undergraduate research engagement across all three campuses.		

The reviewers observed that significant enrolment increases, particularly in Computer Science, have placed considerable pressure on program delivery and sustainability, affecting class sizes and the student experience. They noted that smaller class sizes have been a historical strength of UTM, and recommended exploring ways to address these issues.	2.	"Reduce class sizes to re-assert teaching quality metrics as a recruitment tool."	To strengthen pedagogical outcomes and improve student experience, we propose a reduction of course section sizes based on those offered in 2020 which represents a period when instructional quality, faculty workload, and student engagement were more appropriately balanced. In tandem, we advocate for the identification of a specific subset of courses characterized as "feedback-intensive" that require applying stricter caps to allow for adequate time and resources. The identification of such attributes will be guided by pedagogical best practices and departmental input to ensure a transparent and consistent classification framework. We suggest a targeted approach that prioritizes the development of small tutorial sections - especially in courses where iterative improvement and reflective practice are central to student success. These tutorials will serve as the primary vehicle for in-depth dialogue, peer interaction, and tailored guidance. Additionally, this restructured model supports equity in instructional delivery, as students in feedback-intensive courses often come from diverse academic backgrounds and benefit disproportionately from individual attention. A consistent	The reduction of class size is a laudable goal that will need a careful strategic enrollment approach (e.g. SEM) to carefully assess the tension between institutional resource demands and pedagogical benefits of such changes. This will involve a careful review of enrollment targets and faculty complement planning. The OVPAD is committed to such a review for all academic unit but recognizes the critical needs in MCS. We applaud the department for engaging in meaningful ways how to address the large enrollments in their courses while at the same time being mindful of the workload demands on faculty.	Medium term; Vice-Dean, Undergraduate; Vice-Dean, Faculty

			and structured tutorial system will create space for scaffolding learning across varied skill levels and encouraging deeper critical engagement, fostering inclusive excellence. This proposal aligns with our broader goal of elevating undergraduate learning outcomes while maintaining sustainable teaching workloads. It will also enable departments to allocate instructional resources more strategically by concentrating effort where pedagogical returns are highest. We will work collaboratively with curriculum committees and faculty leadership to formalize implementation, monitor its impact, and refine the strategy based on ongoing assessment and feedback.		
The reviewers raised several faculty-related concerns stemming largely from recent rapid enrolment growth; these include an imbalance between tenure- and teaching-stream faculty, increased reliance on sessional instructors and limited-term appointments (LTAs), and increased workload for appointed faculty coordinating and supporting sessional and LTA instructors. They recommended prioritizing the hiring of tenure-stream faculty as opportunities arise, exploring career support for instructors without continuing appointments, and	3.	"Prioritize hiring of research faculty to address the significant imbalance with teaching faculty."	We intend to focus our upcoming hiring initiatives on Tenure Stream positions to establish a more balanced distribution between Teaching and Tenure Stream faculty. To enhance our prospects for successful recruitment, we plan to develop faculty expertise in areas such as Robotics and Information Security within Computer Science, and Statistical Learning within Statistics. Additionally, we remain open to recruiting outstanding faculty members working in related fields across all three disciplines. In the short term, we also aim to	OVPAD will continue to work with MCS and all academic departments to advance faculty hiring through our established faculty complement planning process. We note two hires were approved this year and additional hires to replace vacated positions are scheduled to take place over the next two years. We fully support the strategic deployment of such to support areas of excellence at UTM in MCS (Robotics, Information Security, Statistical Learning).	Ongoing; Vice-Dean, Faculty

considering ways to appropriately recognize faculty members' administrative efforts.			capitalize on the current challenging situation in the United States to attract distinguished scholars.		
	4.	"Explore pathways for CLTA and LTA to transition to permanent positions."	To strengthen teaching excellence across all instructional roles, we reaffirm the department's commitment to supporting part-time faculty through structured mentorship and training initiatives. Recognizing that part-time instructors contribute significantly to the learning environment, we provide them with dedicated mentorship from experienced members of our Teaching Stream faculty. These mentorship relationships are designed to enhance pedagogical practice, foster inclusive classroom strategies, and improve long-term teaching portfolios. The department monitors these relationships to ensure they are mutually beneficial and to continuously refine the framework based on feedback and evolving needs. In addition to mentorship, the department regularly assess our Limited-Term Appointees (LTAs) and Contractually-Limited Term Appointees (CLTAs) on their teaching impact, student engagement, and contributions to program development. Overall, these initiatives reflect our long-term strategy for cultivating a sustainable and high-quality	The OVPAD is appreciative of the good work the department is doing to mentor and support LTA and CLTA faculty, a model for other academic units. While there is no formal process to transition instructors who hold LTA and CLTA positions to permanent faculty, OVPAD will continue to work with MCS and all campus departments to advance faculty hiring through our established faculty complement planning process. OVPAD will continue to help academic units to mentor LTA and CLTA faculty.	Ongoing; Vice-Dean, Faculty

			teaching workforce. Through mentorship, professional development, and targeted hiring practices, we aim to empower all faculty to deliver exceptional instruction and to actively contribute to the department's academic mission.		
	5.	"Recognize the effort required to coordinate temporary teaching workers by including this coordination activity as part of teaching load."	To better reflect the evolving complexity of instructional coordination, we propose revisiting the current definition of "coordination" within standard workload reviews. Presently, coordination is often measured primarily by student enrollment numbers, which can obscure the full scope of responsibilities borne by faculty members overseeing large-scale courses. We recommend expanding this definition to incorporate additional factors that contribute significantly to instructional management—most notably, the number of teaching assistants (TAs) and staff supervised, the volume and complexity of communication tasks, and the logistical intensity associated with course delivery. This broader recognition would acknowledge that the coordination of a course is not solely a function of student headcount but also of operational intricacies. By formalizing these elements in workload review, we can ensure that faculty contributions are equitably assessed and that support structures reflect actual teaching demands.	OVPAD will work with the department to determine the best use of faculty expertise in classroom and administrative roles. We appreciate the careful work in assessing workload and are committed to work with the department on these issues, within a tri-campus consultative process.	Ongoing; Vice-Dean Faculty

			In addition, we propose a targeted restructuring of the coordinator role in the largest courses. Rather than assigning a single individual to manage all aspects of coordination, responsibilities should be distributed across multiple faculty members with defined portfolios. This division of labour would not only reduce administrative burden on any one faculty member but also promote greater efficiency and responsiveness in course management. Such a model would allow faculty to focus on areas aligned with their strengths or interests, fostering a more effective instructional team environment. Additionally, it would provide a sustainable framework for scaling up support as course enrollments grow and complexity increases. Ultimately, we aim to create a more transparent, equitable, and effective approach to workload recognition—one that prioritizes both instructional quality and faculty well-being. This initiative will be explored in consultation with departmental leadership and faculty governance to ensure its practical viability and alignment with broader academic policies.		
The reviewers noted that faculty in certain MCS programs appear to carry heavier teaching loads than their colleagues in other programs within the Department, as well as compared	6.	"Work to align teaching loads between disciplines within MCS, as well as between MCS and departments in other campuses."	This particular goal has already been successfully accomplished as of this year. Currently, the teaching load is standardized uniformly across all three disciplines and across all three	OVPAD agrees with MCS that this goal has been achieved within a tri-campus context. We thank the department for its advocacy for fair treatment of its faculty members.	Completed

to faculty teaching in similar areas on the St. George and UTSC campuses. They recommended working with divisional and institutional leadership to explore strategies for ensuring the alignment of faculty teaching responsibilities and supporting equity, collegiality, and sustainability.			campuses, ensuring consistency and fairness in workload distribution.		
The reviewers expressed serious concern about the impact of space and infrastructure constraints on the robotics group, noting that these challenges have significantly hindered the group's morale with risks to faculty retention, graduate student recruitment, and long-term research sustainability. They recommended that leadership prioritize allocation of appropriate lab space and resources, engage in constructive dialogue with affected faculty, and explore opportunities for external partnerships to support the group's work.	7.	"Immediately prioritize the direct resourcing of new research space for the robotics group."	At the departmental level, we have made the strategic decision to prioritize the recruitment of postdoctoral researchers within the Robotics Group. This initiative reflects our commitment to strengthening our research capacity and advancing innovation in one of our most prominent and rapidly evolving areas of expertise. In addition to personnel development, we are actively engaged in the creation of a Robotics certification program aimed at providing students with specialized, industry-relevant skills. In addition, the Robotics Group has submitted a proposal to the Canada Foundation for Innovation (CFI). This application reflects our department's shared vision for the future of robotics research and our confidence in the group's potential to secure national recognition and support. Collectively, these initiatives are designed to revitalize morale within the department and create a robust	The OVPAD acknowledges the negative impact that the cancelation of the "F2" building has had on the Robotics group. OVPAD is finalizing a plan in consultation with the broader UTM community, including Vice-President & Principal and Facilities, Management, & Planning, to properly resource the robotics group with research space that suits their needs.	Immediate term; Vice-Principal Academic and Dean

			foundation for the sustained growth and visibility of robotics as a flagship research direction.		
	8.	“UTM administration engage in a constructive dialogue with the robotics group and establish a plan to address space resource allocation.”	At the departmental level, leadership maintains ongoing and active engagement with the Robotics group to ensure their research and teaching priorities are consistently recognized and supported. This collaboration involves regular communication to identify emerging needs, facilitate resource allocation, and foster a responsive academic environment. The department advocates on behalf of the group across institutional channels, underscoring the importance of aligning administrative decisions with the group’s evolving goals in both pedagogy and research. We wish to emphasize that the success of the Robotics group is foundational to the department’s broader research mission and significantly enhances UTM’s academic reputation. Robotics represents a strategic area of innovation and interdisciplinary impact, attracting high-quality students, competitive funding, and collaborative opportunities. The department views its continued investment in the Robotics group not only as a commitment to excellence but as a catalyst for driving long-term institutional growth.	As above, agreed, and we thank the department for its unwavering advocacy for the Robotics group.	

	9.	“Allocate additional lab space in existing buildings for the robotics group.”	The University has demonstrated substantial institutional support for robotics research. As part of the CFI proposal, dedicated research space tailored to the needs of the Robotics Group was provided. This investment goes a long way towards our goal of preserving and strengthening our Robotics Program.	As above.	
	10.	“Provide additional institutional funding, and provide support (grant writing, matching funds, etc) to the researchers in securing external funding.”	The University proactively supported the preparation of the Robotics Group’s Canada Foundation for Innovation (CFI) proposal, which significantly enhanced the quality and competitiveness of the submission. We are sincerely grateful for this dedicated support, which reflects a broader institutional commitment to ensuring that faculty-led proposals are well-resourced and professionally supported. This type of assistance plays a crucial role in enabling our researchers to pursue ambitious projects and secure external funding. Continued investment in this type of administrative and technical support will be instrumental in advancing our strategic research priorities and sustaining momentum in key areas such as robotics. The 2025 Toronto Robotics Conference, hosted by the University of Toronto Robotics	We acknowledge the excellent work by the department and other partners in securing funding for the Robotics group. OVPAD encourages the department and faculty members to continue to work with the OVPRI for all supports and resources related to external research funding. This includes the Robotics group and other PIs in the department.	Ongoing; Dept Chair with Vice-Principal, Research & Innovation

			Institute was held on July 15–16 at UTM. This year's conference was particularly significant for the Robotics Group at UTM, as it marks a major step forward in raising the profile of robotics research on campus. Hosting the event at UTM reflects the growing momentum and institutional support behind robotics as a flagship research area. The conference provides a valuable opportunity for the group to engage with leading experts, demonstrate its capabilities, and build strategic partnerships that will drive future growth and innovation.		
	11.	"Consider partnerships with industry or other researchers as additional routes to increased support."	We have identified two distinct yet complementary outreach priorities that we believe are essential for the department's continued growth and external engagement. The first priority focuses on building stronger connections with local industry in Mississauga, as well as with employers who regularly hire our undergraduate students. The proposed Senior Research Associate will work in close collaboration with the Career Centre and the Experiential Learning Office to establish sustained points of contact, develop pipelines for internships and other experiential learning opportunities, and gather feedback from industry to help ensure our curriculum remains relevant and aligned with current workforce needs. The second outreach priority is directed toward companies with an interest in our	We appreciate the initiatives already undertaken and planned by the department in this area. OVPAD encourages the department and faculty members to continue to work with the OVPRI for additional supports and resources related to research partnerships. We also encourage engagement with UTM Advancement.	Ongoing; Dept Chair with Vice-Principal, Research & Innovation, and Director, UTM Advancement

			research and in recruiting our highly qualified graduate students. We also plan to coordinate our efforts with tri-campus initiatives, particularly those led by the Department of Computer Science, including their annual research showcase and other partnership-building activities.		
The reviewers also broadly noted concerns regarding space constraints affecting the entire unit, observing that shared office arrangements may discourage faculty presence on campus and hinder opportunities for collaboration and student engagement. They recommended exploring strategies to address space limitations and support a more consistent faculty presence at UTM.	12.	"Allocate sufficient space to reduce the reliance on shared offices for faculty, or implement processes by which faculty can be encouraged to spend their time on UTM campus."	The department is currently facing a critical shortage of office space, and we are relying on the support of the UTM campus to help address this pressing issue. While we are actively exploring interim measures such as office sharing and the implementation of flexible workspaces, these solutions alone are insufficient to meet the growing demands of our academic and instructional staff. This challenge is becoming increasingly urgent due to rising enrolment numbers. As we look to the future, the department is committed to identifying and implementing a long-term, sustainable solution that will support both current needs and anticipated growth. We view collaboration with the UTM central administration as vital to achieving this goal.	Office space is indeed a critical need for MCS. Recently the Dean and the Vice-Dean Faculty met with all academic units to assess space needs. The acute faculty office space issue in MCS was raised again and this need is now prioritized by the Dean's Office as part of the UTM Capital Projects and Space Allocation MCAPS process.	Ongoing; Vice-Dean, Faculty
The reviewers raised concerns that the Department's technical staff, "while highly skilled, seemed heavily under-resourced," particularly given the unique and specialized technical requirements of many MCS courses.	13.	"Increase technical staffing to support undergraduate educational resources as well as supporting the research mandate of the institution."	We recognize and agree with the reviewers' concern regarding the under-resourcing of technical staff in the department, particularly considering the specialized infrastructure demands of many	We acknowledge the critical staffing needs of MCS in order to deliver on their teaching mandate. OVPAD will continue to work with MCS to assess staff / support levels and, as necessary, work with department to make appropriate	Medium term; Assistant Dean

They noted that these needs often exceed the capacity of central IT services and recommended exploring strategies to optimize technical staffing in support of both undergraduate teaching and research activity.			MCS courses. The complexity and scale of our undergraduate and research computing environments increasingly exceed the support capacity of central IT services, necessitating a dedicated and strategic response. Our dedicated robotics lab coordinator is an example of the value of a dedicated, specialized staff member. To address this issue, we are actively seeking approval and funding for an additional technical staff position. We are inspired by the Teaching Lab Coordinator role that has been successfully deployed in the Department of Computer Science (DCS). A similar role within our department would facilitate coordination of infrastructure, while also empowering our department's instructional teams to improve the reliability and pedagogical effectiveness of lab-based coursework. In addition, the creation of a Senior Research Associate position could support the department's strategic activities, including those led by members of the Centre for Numerical Analysis and Modeling (CNAM). The main responsibility of this role would be to coordinate and strengthen our outreach to industry partners. This position is important for advancing the department's research goals and for building stronger connections with external collaborators.	staff level requests through a campus multi-year resourcing process.	

The reviewers made several comments and recommendations related to equity, diversity, and inclusion. They noted that women are significantly underrepresented in the Computer Science program, and that high competitiveness in the program may disadvantage individuals with non-traditional backgrounds, potentially affecting student retention and success. They broadly recommended exploring and supporting initiatives to enhance diversity among both students and faculty, and emphasized the value of encouraging and resourcing EDI-related components of faculty research activity.	14.	"Expand initiatives to attract underrepresented groups in faculty hiring"	Expanding initiatives to attract underrepresented groups in faculty hiring requires a comprehensive and sustained approach, beginning with efforts to strengthen the academic pipeline. The department is committed to supporting programs and partnerships that encourage individuals from underrepresented backgrounds to pursue academic careers in mathematical and computational sciences. This includes outreach to high school and undergraduate students, mentorship and research opportunities for graduate students, and support for postdoctoral scholars. By investing in these early stages, we aim to help build a more diverse pool of future faculty candidates and contribute to broader systemic change in academia. In parallel, we recognize the importance of fostering an inclusive and welcoming environment that signals our commitment to EDI in the immediate term. Demonstrating that UTM and the MCS are places where underrepresented scholars can thrive is essential to attracting diverse applicants. We are working to ensure that our recruitment practices reflect inclusive values and that our departmental culture visibly supports equity. This includes highlighting EDI-focused initiatives, events, and achievements, and ensuring that prospective	OVPAD strongly supports MCS in these recruitment efforts, sharing best practices and connecting the department to other UTM departments working on similar initiatives, particularly those in the STEM fields. We acknowledge that a holistic approach encompassing the pipeline from high school student to faculty position is required and applaud the substantial careful thought that has already taken place in the department.	Immediate term; Vice-Dean, Faculty

			candidates see themselves represented and supported within our community. Improving communication around these efforts is also a key priority. We are taking steps to more effectively share information about EDI-related programs, events, and opportunities with both internal and external audiences. By increasing the visibility of our initiatives and celebrating the contributions of underrepresented groups, we aim to reinforce our commitment to inclusive excellence. These efforts, taken together, will help position the department as a leader in fostering a diverse academic environment and ensure that our hiring practices are aligned with our institutional values.		
	15.	"Expand initiatives to support underrepresented groups within student populations"	There is a persistent gender gap in science and technology. In recognition of the International Day of Women and Girls in Science on February 11, MCS will organize a special event aimed at celebrating and empowering women in STEM. The initiative will focus on learning about the contributions of women in mathematics, statistics, and computer science, and will feature a diverse group of inspirational role models. The event will provide opportunities for networking, informal conversations and mentorship among participants	The department has already done excellent work in this area as outlined in the departmental response. OVPAD supports the initiatives articulated in the department's self-study. We will connect department to the Office of the Registrar and Recruitment teams to identify and outline additional strategies to fulfill department goals. The focus of the department response is on female representation in the department and this is a critical need, but we also wish to support the department in other areas of possible underrepresentation by equity-deserving groups, including Black,	Immediate term; Associate Dean, Academic Experience; Registrar

			which will include high school students, as early exposure to positive role models and inclusive academic environments is critical to bridging the gender gap in STEM. Through this initiative, we aim to celebrate the achievements of women in science, and inspire the next generation of women scientists and scholars.	Indigenous, other racialized populations, people living with disabilities, and the LGBTQ2+ community.	
	16.	"Implement and celebrate initiatives that seek to grow equity, diversity, and inclusion."	The department is committed to advancing EDI through both structural and cultural initiatives. As part of this commitment, EDI considerations have been formally integrated into the PTR process, ensuring that contributions to EDI are recognized and valued in faculty evaluations. This represents a meaningful step toward embedding EDI principles into the core of our academic and professional practices. To further strengthen our efforts, we recognize the importance of improving communication around EDI-related events and initiatives. We aim to enhance the visibility of these activities among faculty, students, and staff by developing more effective channels for sharing information and celebrating achievements in this area. By doing so, we hope to foster a more inclusive and engaged community, where EDI efforts are not only implemented but also	OVPAD applauds MCS's EDI work, in particular the valuing of EDI work in annual evaluations. We can connect the department to other groups working in this area.	Immediate term; Dept Chair with Director, EDIO

			acknowledged and supported across all levels of the department.		
	17.	"Ensure the EDI committee has a clear mandate and is appropriately resourced."	To ensure the Equity, Diversity, and Inclusion (EDI) committee has a clear and actionable mandate, the department is committed to empowering it as a strategic body for advancing inclusive practices across teaching, research, and service. To ensure that these efforts are sustainable and transformative, the committee will be appropriately resourced with funding, administrative support, and dedicated time for members to carry out their work. As part of its broader engagement strategy, the department will strengthen existing partnerships and develop new ones with organizations such as local Indigenous communities and the Toronto Initiative of Diversity & Excellence (TIDE). Through these collaborations, the committee will facilitate workshops, host professional development events, and contribute to curriculum enrichment initiatives designed to embed equity and anti-racism in core academic activities. By reinforcing both mandate and support, the department affirms its commitment to institutional excellence through the lens of equity and accountability.	OVPAD will connect MCS to the UTM Equity Network and Nythalah Baker, Director of Equity, Diversity and Inclusion for guidance and support.	Immediate term; Dept Chair with Director, EDIO

The reviewers emphasized the importance of building departmental trust with central administration to ensure that structural challenges and other issues can be identified and addressed through appropriate support channels.	18.	"A key factor will be continuing to build trust with central administration such that faculty members feel they can bring structural challenges forward rather than allocating already overtaxed resources to solve the problems internally."	Fostering trust between faculty and central administration is essential to the department's ability to identify and address structural challenges proactively. When faculty feel confident that their concerns will be received constructively and lead to meaningful action, they are far more likely to raise issues early, enabling more strategic and collaborative problem-solving. This environment of trust helps ensure that long-term, system-level improvements are pursued in consultation with those closest to the work, rather than relying on temporary or fragmented solutions that stretch existing resources. We recognize that allocating departmental resources to resolve institutional issues is both unsustainable and inequitable, particularly when those resources are already under strain. Instead, we advocate for continued efforts to build institutional accountability and transparent communication channels with central administration. These efforts will empower faculty to serve not only as educators and researchers, but also as active contributors to the design of the systems that support academic excellence. By deepening mutual trust, we can move toward a shared commitment to institutional resilience and faculty well-being.	OVPAD acknowledges the challenges MCS has faced in recent years, particularly those around enrollment pressure and the cancelation of the F2 building with the direct impact on the Robotics group. We continue to be committed to rebuilding trust and facilitate clearer communication with other central administrative offices. We welcome the MCS's helpful recommendation on a more collaborative approach to space management. Recently the Principal has asked the Dean and Vice-Dean Faculty to plan a more active role in space management. It is likely the MCS recommendations or variants of them will be implemented in the next year.	Ongoing; Vice-Principal Academic and Dean

			In particular, the unexpected cancellation of the F2 building project in 2024 had far-reaching consequences for departmental operations, morale, and strategic planning. The decision disrupted long-standing infrastructure expectations, derailed expansion timelines, and significantly impacted our ability to accommodate future growth in research, teaching, and student engagement. The cancellation not only strained existing facilities, but also signaled a breakdown in communication between central administration and MCS, leaving faculty and staff feeling sidelined from the decision-making processes that affect their daily work. It has since become clear that restoring confidence in institutional planning must be a shared priority. To rebuild trust, we propose a series of concrete measures aimed at fostering transparency, collaboration, and sustained dialogue. First, we recommend establishing a joint planning forum in which faculty representatives participate directly in conversations about capital projects and infrastructure development. This inclusion will ensure that future plans reflect the pedagogical and research realities of the units affected. Second, we call for regular updates from Facilities and Planning Services on long-term physical campus strategy, with clear		

			documentation on timelines, funding constraints, and decision rationales. Third, we suggest the creation of a standing advisory group composed of faculty, staff, and administrators tasked with reviewing and communicating on the status of deferred or cancelled projects. By implementing these actions, central administration can begin to repair fractured relationships and reassert a shared commitment to institutional integrity and academic excellence.		
Other recommendations not prioritized in the Request for Administrative Response	19.	"Improve transportation options between campuses."	Transportation continues to pose a significant challenge for the department, directly impacting the efficiency of daily operations and the overall accessibility of our programs. The limitations of the current shuttle system affect faculty, staff, and students alike, creating logistical barriers that hinder scheduling, collaboration, and participation in academic activities. We recognize the urgent need to enhance transportation infrastructure and actively advocate for strategic improvements to address these ongoing concerns. Our requests include upgrading the existing shuttle service to offer more comfortable and reliable buses, thereby improving the commuting experience and supporting retention. Additionally, we ask to explore the development of new	OVPAD will work with MCS department to bring these concerns and suggestions to UTM VPP and CAO, whose offices oversee inter-campus transport.	Medium term; Vice-Principal Academic & Dean

			shuttle routes—most notably, a direct connection from the Kipling TTC station—to streamline access to campus and reduce transit-related delays. These enhancements will significantly benefit the department and the broader university community, reinforcing UTM's commitment to equity, accessibility, and operational effectiveness.		

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

The spokesperson for the reading group reported that the review summary accurately described the full review and that overall, they had found the review to be positive. The reading group reported that the Dean's administrative response had adequately addressed issues identified by the review and had presented a clear forward-looking action plan to address the identified issues. The reading group requested further clarification on several matters: job stability for Part-time and Contractually Limited Term Appointment (CLTA) faculty, Equity, Diversity, and Inclusion (EDI) initiatives, and space allocation for the Robotics group.

Bill Gough, Interim Vice-Principal (Academic) & Dean, UTM responded to the questions below:

1. CLTAs / LTAs:

- Part-time faculty could achieve continuing status after six years, providing job security.
- Converting part-time roles directly into full-time faculty positions was not allowed under collective bargaining agreements; all full-time hires went through a rigorous search process.
- Units could consider creating full-time and part-time positions for ongoing work, allowing current staff to apply.
- Mentorship programs existed to support part-time faculty, prevent overwork, and help career development; historically, some part-time staff eventually moved into full-time roles.

2. EDI:

- UTM implemented targeted hiring initiatives to increase Black and Indigenous faculty representation, though progress was discipline-dependent and pipelines remained a challenge.
- Broader diversity work included gender and racial equity, with efforts to encourage underrepresented students from high school through undergrad to consider careers in STEM fields.
- Emphasis on continuous sensitivity and sustained effort in implementing EDI initiatives.

Bryan Stewart, Vice-Dean, Academic Programs then addressed space concerns related to the Robotics research cluster, commenting that a planned new building was halted due to financial constraints, causing the robotics group (and others) to lose promised space. Since then, a robust plan had been developed to provide the necessary research space, which was not fully in place during the external review. Five dedicated research labs would be built across two adjoining buildings, designed through collaborative input from the robotics researchers and the facilities management and planning group (FMP), and managed through an external consultant. Additional flexible space was also planned for multiple users. Current occupants of the space would need to be relocated, and these negotiations were ongoing to ensure fair allocation. The space reallocation was expected to be completed by summer 2026, with construction starting summer 2026, and expected completion by 2027.

No follow-up report was requested.

4 Institutional Executive Summary

The reviewers praised the Department of Mathematical and Computational Sciences for their innovative undergraduate programs, noting the integration of pedagogical best practices, modern curricula, and experiential learning opportunities. They highlighted the collegiality and collaboration among faculty, describing them as engaged, committed, and innovative, with award-winning contributions to teaching and pedagogical research. They applauded the Department's research activity as "world-class," with standout strengths in robotics, information security, cryptography, and structured data analysis; they also emphasized the important role UTM faculty play in the University's strong international reputation in Mathematics. They commended the competent and knowledgeable staff who effectively support complex administrative tasks, student advising, and technical needs. Finally, they recognized the department's interdisciplinary structure and collaborative culture, noting strong connections within the Tri-Campus structure and with prestigious external partners.

The reviewers recommended that the following issues be addressed: exploring ways to increase students' engagement in research activity, including through more upper-year courses taught by research faculty and the development of structured research project opportunities; exploring ways to address pressures on program delivery and sustainability arising from recent significant enrolment increases, particularly in Computer Science; prioritizing the hiring of tenure-stream faculty as opportunities arise, exploring career support for instructors without continuing appointments, and considering ways to appropriately recognize faculty members' administrative efforts; working with divisional and institutional leadership to explore strategies for ensuring the alignment of faculty teaching responsibilities and supporting equity, collegiality, and sustainability; addressing concerns related to morale, faculty retention, student recruitment, and long-term research sustainability for the robotics group, including through prioritizing allocation of appropriate lab space and resources, engaging in constructive dialogue with faculty, and exploring opportunities for external partnerships to support the group's work; exploring strategies to address space limitations and support a more consistent faculty presence on campus; exploring strategies to optimize technical staffing in support of both undergraduate teaching and research activity; exploring and supporting initiatives to enhance diversity among both students and faculty, and encouraging and resourcing EDI-related components of faculty research activity; and continuing to build departmental trust with central administration to ensure that structural challenges and other issues can be identified and addressed through appropriate support channels.

The Dean's Administrative Response describes the 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

Progress checks and monitoring of the implementation plan will occur through the Chair's Annual Report to the Dean. The Dean will provide an interim report to the Vice-Provost, Academic Programs no later than 2027-28 on the status of the implementation plans.

The next review will be commissioned in 2030-31.

6 Distribution

On August 15th 2026, the Final Assessment Report and Implementation Plan was posted to the Vice-Provost, Academic Programs website and the link provided by email to the Vice-Principal Academic and Dean, University of Toronto Mississauga, 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.