

UTQAP Cyclical Review: Final Assessment Report and Implementation Plan

1 Review Summary

Program(s) Reviewed:	Geography, HBA (Specialist, Major, Minor) Geography, HBA (Specialist, Major, Minor) Geographical Information Systems, HBA (Major, Minor) Environmental Management, HBA (Specialist, Major, Minor) Environmental Science, HBA (Specialist, Major, Minor) Environmental Geoscience, HBA (Specialist) Sustainability, HBA (Minor) Environmental Law & Policy, HBA (Minor)
Unit Reviewed:	Department of Geography, Geomatics and Environment
Commissioning Officer:	Vice-Principal, Academic & Dean, University of Toronto Mississauga
Reviewers (Name, Affiliation):	<ul style="list-style-type: none"> • Professor K. Bruce Newbold, McMaster University • Professor Cynthia A. Brewer, Penn State University
Date of Review Visit:	October 27-28, 2022
Review Report Received by VPAP:	March 16, 2023
Administrative Response(s) Received by VPAP:	March 11, 2024
Date Reported to AP&P:	April 10, 2024

Previous UTQAP Review

Date: January 7-8, 2015

Summary of Findings and Recommendations

Significant Program Strengths

- Department is at the leading edge both internationally and nationally with respect to teaching innovation and experiential learning
- Excellent work by faculty in assessment of learning and in related pedagogical research
- High levels of student satisfaction
- Great student interest and rapid enrolment growth in GIS programs
- World-class research being conducted by human geographers
- Positive and effective internal and external relationships

Opportunities for Program Enhancement

- Strengthening the GIS curriculum, facilities, and supporting the faculty complement to better develop student knowledge and skills, and further develop excellence in the physical geography program
- Addressing challenges with respect to entering students' writing, numeracy, and spatial analytical skills
- Examining impact of enrolment growth on positive teaching delivery
- Enhancing access to student advising to aid students with program planning
- Attending to laboratory facilities to support faculty research in physical geography
- Further developing external relationships to support and showcase research and teaching activities
- Conducting additional strategic planning to identify research clusters and priority areas for hiring

Current Review: Documentation and Consultation

Documentation Provided to Reviewers

Terms of Reference; Department of Geography, Geomatics & Environment Self-Study, 2022; Previous Review Report and Administrative Responses; UTM Degree Level Expectations 2016; UofT Facts & Figures, 2020; UTM Divisional Academic Plan, 2017; UTM Vision Statement, 2017; UTM Academic Calendar 2021-22; UTM Viewbook, 2021-22; Tri-Campus Framework (Framework for a New Structure of Academic Administration for the Three Campuses); Access to all course descriptions; Access to the curricula vitae of faculty.

Consultation Process

As determined by the Commissioning Officer, the reviewers met with the Vice-Principal, Academic and Dean and Vice-Dean Teaching & Learning; Acting Chair, Associate Chair, Academic, Acting Associate Chair, Research, Dept of Geography, Geomatics & Environment, UTM, and Tri-Campus Graduate Chair; Undergraduate students; Graduate students; Junior and Senior Tenure Stream faculty members; Teaching Stream faculty members; Contractually Limited-Term Appointment faculty and Sessional Instructors; UTM Librarian Staff, and Administrative Staff in the Department of Geography, Geomatics & Environment, UTM.

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**:

- Overall quality
 - ▶ Very strong undergraduate programs, with large and increasing enrolments
- Objectives
 - ▶ The programs are consistent with UTM's mission, in developing students in becoming "engaged global citizens" while also providing learning that invites them to engage with the Mississauga region
- Admissions requirements
 - ▶ Enrolment in the major has increased significantly; overall student enrolment has also increased
 - ▶ Admission requirements seem appropriate, "allowing all students to seek geographic and environmental knowledge, but limiting advanced seminar, lab, and research experiences to qualified students"
- Curriculum and program delivery
 - ▶ Clear curriculum and learning outcomes are combined with a strong commitment to teaching
 - ▶ Unit has continued to emphasize and refine its undergraduate offerings
 - ▶ Programs are well-linked to department's research emphases and faculty expertise
 - ▶ Department has done intensive work to map GGE curriculum to Learning Outcomes; the curriculum is well-structured to support student success in meeting program outcomes
 - ▶ GGE programs include course options from many fields, such as Physics, Chemistry, Biology, Earth Sciences, Statistics, Economics, Computer Science, History, Anthropology, Political Science, Sociology and Philosophy
 - ▶ No indication during site visit discussions of concerns related to an over-reliance on sessional instructors

- Innovation
 - ▶ “In general, the curriculum is creative and innovative”
- Assessment of learning
 - ▶ Assessment methods are appropriate and correspond to degree level expectations
- Student engagement, experience and program support services
 - ▶ High level of success noted among undergraduate students in GGE programs
 - ▶ Students feel professors are accessible, attentive, and engaged
 - ▶ Department offers multiple experiential learning opportunities
 - ▶ “The strong advising and openness of GGE faculty to undergraduate student interaction fosters student success, collaboration, and belonging”
 - ▶ Student course evaluations reveal a high level of satisfaction
 - ▶ Several GGE programs are accredited, which helps to ensure the robustness and recognition of the programs in question, and increase the likelihood that students will find employment in their field after graduation
 - ▶ “The ability for students to receive professional certification through organizations such as APGO and EcoCanada is also critical for success in the labour force”
- Quality indicators – alumni
 - ▶ Undergraduate students secure employment following graduation in areas that are relevant to their degrees (such as planning, environmental areas, and GIS)

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

- Admissions requirements
 - ▶ Decline in enrolment in the Human Geography program noted (although reviewers note that this is consistent with trends at other North American universities)
- Curriculum and program delivery
 - ▶ “[S]plit appointments and administrative roles among the GIS faculty...reduces their number below the needs for this growing program”
 - ▶ Reviewers note some challenges/inefficiencies with the process for allocating TA hours, making it difficult for faculty members to plan course structure and evaluations in advance
- Student engagement, experience, and program support services
 - ▶ Reviewers note some lack of clarity in how program courses are listed online
 - ▶ Communicating with students noted as a challenge, with some struggling to access information about awards, ROPs and internships; and others feeling “inundated” by University communications

The reviewers made the following **recommendations**:

- Curriculum and program delivery
 - ▶ Opportunities noted for greater overlap and interaction between the Physical Geography and Environmental Science program streams
 - ▶ Reviewers recommend modernizing naming of the GIS programs/courses
 - ▶ Human Geography curriculum may benefit from some refocusing, to better align with current faculty expertise and numbers

- ▶ Reviewers observe that renaming introductory courses with “catchier” titles could be an effective means of attracting enrolments and increasing majors, offering relevant examples of approaches to course naming from peer institutions
- ▶ Consider adding a 100-level overview course in Geomatics
- ▶ “If teaching load is re-evaluated within the department (and teaching load is reduced), the delivery of courses will need to be carefully monitored to avoid increasing the reliance on sessional instructors”
- Innovation
 - ▶ “We recommend innovating on instructional modes moving forward, combining resident, online, and hybrid experiences for students”
- Student engagement, experience and program support services
 - ▶ Experiential learning opportunities offered are critically important to the program and should continue to be encouraged
 - ▶ Review online course listings and revise for clarity/accuracy where appropriate
 - ▶ Monitor how the new Writing Course for first year students is received, and how it promotes literacy and academic rigour in students moving forward
 - ▶ Students note desire for additional networking information related to career opportunities (though reviewers acknowledge the pandemic’s impact on group events)
 - ▶ Guiding students on where to access relevant information, and enhancing student advising supports are noted as future challenges to address
 - ▶ Undergraduate students note that they would benefit from access to more information about becoming graduate students
- Quality indicators – undergraduate students
 - ▶ Noting that approximately half of GGE students take more than four years to graduate, reviewers observe that it could be helpful to examine how this compares to UTM as a whole, and to U of T more broadly; and that it could be important to identify any financial implications for UTM associated with these completion times

2. Graduate Program(s) – n/a

3. Faculty/Research

The reviewers observed the following **strengths**:

- Overall quality
 - ▶ Faculty are productive, enjoy success in grant funding, and publish steadily in significant journals
 - ▶ Tenure stream faculty CVs are “truly impressive”
 - ▶ Teaching stream faculty CVs exhibit innovations in learning and program administration

- Research
 - ▶ Tri-campus graduate programs help to support the GGE undergraduate teaching agenda, while also raising awareness of opportunities for students to pursue graduate education
 - ▶ Faculty research is published in refereed journal and book chapters at a “brisk pace”
 - ▶ Faculty are advising graduate students, and mentoring them to publication
 - ▶ Faculty are attractive as graduate supervisors within the tri-campus structure
- Faculty
 - ▶ Teaching stream faculty are valued and supported
 - ▶ Faculty are generally well-distributed among research subfields and ranks

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

- Overall quality
 - ▶ Department’s current set of research clusters “ignores some of the exciting interdisciplinary opportunities among their emphases”
- Research
 - ▶ Faculty note concerns that teaching loads reduce their ability to be competitive with granting agencies
- Faculty
 - ▶ Teaching loads, class and student contact hours, and research agendas compete for faculty time and efforts
 - ▶ Faculty members emphasize a “desire for lower teaching loads and a desire to have equal teaching loads across all faculty among the tenure-line professors”, perceiving a disparity between loads for GGE and for other science programs
 - ▶ Some sessional instructors expressed concerns about a lack of access to past syllabi for existing courses that they are teaching, and indicated a lack of awareness about accessing TA supports and Skills Centre resources
 - ▶ Cross-appointed faculty members indicated a lack of clear guidance on how their tenure evaluation processes would be shared across units
 - ▶ Reviewers note some “churn” with GGE faculty moving in and out of leadership roles, some of which are quite demanding

The reviewers made the following **recommendations**:

- Overall quality
 - ▶ Consider re-envisioning department’s current research clusters to take better advantage of interdisciplinary opportunities, ensuring that newer professors are involved in these discussions. Reviewers cite examples of how research clusters are organized at peer institutions as potential models for consideration.
- Faculty
 - ▶ Reviewers supportive of departmental desire to prioritize hiring in geomorphology and environmental science, but note that these requests “must be considered in the context of other emergent needs, access to lab space, and budgetary restraints”

- ▶ Prioritize hiring at the Assistant Professor level in the Physical subfield, when opportunities permit
- ▶ “There is a need to clearly and equitably address the teaching load question faced by faculty members *without* compromising course offerings or increasing the reliance on sessional instructors”
- ▶ Reviewers recommend taking a “nuanced” approach to addressing faculty workload concerns, including exploring the potential calibration of teaching credit for activities such as leading field expeditions and undergraduate research experiences, and the lecture and lab portions of a course
- ▶ Reviewers recommended reviewing the departmental workload policy, and making adjustments if appropriate
- ▶ Responsibilities and expectations should be clearly partitioned between units and explained for pre-tenure cross-appointed faculty members
- ▶ Opportunity noted to enhance consistency of mentorship for new instructors, in particular graduate student instructors

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
 - ▶ Students, staff, and faculty all report high morale, despite pandemic challenges
 - ▶ Faculty are well-supported by staff, including a lab technician and IT specialist
 - ▶ GGE’s undergraduate society is strong, and spoke highly of support from the Department
 - ▶ Department is engaging with its students in innovative ways
 - ▶ GGE enjoys strong relationships with other academic units (e.g., biology, chemistry, computer science) where there is overlap in teaching instruction and/or research
 - ▶ GGE administrative staff are excellent and committed, work well as a team, and are greatly appreciated by students and staff
- Organizational and financial structure
 - ▶ Departmental structure is clear, consistent with similar units, and includes regular faculty and staff meetings
- Long-range planning and overall assessment
 - ▶ Department overall appears strong: the faculty is productive and responsible, and an emphasis is put on the undergraduate experience
 - ▶ Unit closely considered recommendations from previous review, and have taken steps to improve programs

- ▶ The department's plan to embrace its range of programs is clear from its 2020 name change that added 'Geomatics and Environment', "to clarify and broaden their Geography identity"
- International comparators
 - ▶ Reviewers highlighted the recent National Survey of Student Engagement (NSSE) findings, where GGE programs generally compare favourably with similar Canadian offerings (particularly at U15 institutions)

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

- Organizational and financial structure
 - ▶ Staff support for student services has not kept pace with enrolment
 - ▶ Current workload associated with student advising in the GGE office appears unsustainable
 - ▶ Departmental space issues have persisted since the last review; wet lab space for Physical Geography faculty in particular is "shared and limited"
 - ▶ Lack of lab space limits the ability to recruit new faculty
 - ▶ Challenges noted around computer lab space for GIS programs
 - ▶ Self-study notes a need for additional graduate student office space

The reviewers made the following **recommendations**:

- Relationships
 - ▶ GGE student society is encouraged to continue organizing events to promote inclusion and community within GGE, with Departmental support
 - ▶ Enhance connections with companies, agencies, and organizations to foster opportunities for undergraduates
 - ▶ "Maintaining connection with UTM alumni is also an effective path to further placements"
 - ▶ Explore approaches to ensuring staff retention, and encouraging professional development
- Organizational and financial structure
 - ▶ Department should work closely with UTM administration to explore securing new lab space, in light of ongoing campus renovations
 - ▶ Consider options for enhanced student advising supports, including additional staff within GGE and/or a centralized, Faculty-wide student advising system
 - ▶ Unit should consider flexible, hotelling-style space for its graduate students
 - ▶ Noting faculty desire to develop additional online offerings, reviewers encourage the unit to work with the University to identify where offering courses in an online environment could be "both innovative and successful"
 - ▶ Reviewers recommend ensuring that faculty are protected from "headaches" such as inadequate IT services and a lack of online-accessible or personal-computer GIS licenses
 - ▶ GGE encouraged to include representatives from undergraduate and graduate student bodies in departmental meetings (if this is not already normal practice)

- ▶ Consider approaches to providing enhanced student advising and mentoring, including exploring the possibility of strengthening central, division-wide advising supports
- ▶ Unit should continue to work with the Dean's office to assess current space utilization, and consider creative, flexible solutions to address needs
- International comparators
 - ▶ Reviewers note for the unit's consideration that other large geography departments are currently pursuing opportunities that include "online professional programs, describing distinctive integrative research emphases in plain language, and describing undergraduate study in plain language to attract students to Discovery Majors"
 - ▶ Reviewers list examples of how peer national and international geography programs describe themselves on their public-facing websites, to serve as inspiration in GGE's consideration of potential future directions (eg. re-envisioning current research clusters)

2 Administrative Response & Implementation Plan

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Vice-Principal Academic and Dean

March 7, 2024

Professor Susan McCahan
Vice-Provost, Academic Programs
Office of the Vice-President and Provost
University of Toronto

Re: Request for Administrative Response – External Review of the Department of Geography, Geomatics and Environment and its programs, University of Toronto Mississauga

Dear Susan,

Thank you for your letter of November 14, 2023 requesting the decanal administrative response to the review of the Master of Management in Innovation (MMI), which was held on October 27-28, 2022. I thank the review team (Professor Cynthia Brewer, Penn State University, and Professor Bruce Newbold, McMaster University) for meeting with faculty, students and staff in the program, and for their thorough report.

Overall, the reviewers found that the department is strong, with productive faculty, a high level of success among students, strong program enrolment and an emphasis on the undergraduate experience. They noted that the Department has “successfully emerged from the pandemic”, with good morale among students, staff and faculty despite the challenges of the previous three years. In their recommendations for the program, the reviewers suggest several ways to strengthen curriculum, improve communications related to faculty progression and tenure evaluation, enhance mentorship for new instructors, re-envision research clusters, support new faculty hires when opportunities permit, and enhance student advising and mentoring. They also noted some concerns around spaces and resources, and faculty workload planning.

In the enclosed table you will find a summary of responses to specific recommendations of the reviewers, which outlines the program and decanal responses, as well as an implementation plan identifying specific actions and timelines. This response was developed in consultation with the Chair of the Department, and with GGE faculty, staff and students in a Town Hall held on January 22, 2024. Progress checks and monitoring of the implementation plan will occur through the Chair’s Annual Report to the Dean.

The next external review of the Department of Geography, Geomatics & Environment is scheduled to occur in the **2029-2030** academic year, with an interim report submitted to your Office in **2026-27**.

Sincerely,

A handwritten signature in black ink, appearing to read "Nicholas Rule".

Nicholas Rule
Vice-Principal, Academic & Dean

Encl: 2022-23 UTQAP Review of the UTM Department of Geography, Geomatics & Environment - Review Recommendations (table)

CC: Laura Brown, Chair, Department of Geography, Geomatics and Environment, University of Toronto Mississauga
Daniella Mallinick, Assistant Dean, University of Toronto Mississauga
Martha Harris, Manager, Academic Programs, Reviews & Quality Assurance, University of Toronto Mississauga

2022-23 UTQAP Review of the UTM Department of Geography, Geomatics & Environment - Review Recommendations

NOTE* GGE has five programs: Physical Geography (PG), Human Geography (HG), Geographical Information Science (GIS), the Environment Program (ENV), which consists of Environmental Management and Environmental Science.

Request Prompt <i>verbatim from the request</i>	Re c.#	Recommendations from Review Report <i>verbatim from the review report</i>	Department Response	Dean's Response	Implementation Plan
<p>The reviewers made a number of recommendations related to strengthening the Geography, Geomatics & Environment programs:</p> <ul style="list-style-type: none"> Encouraging greater overlap and interaction between the Physical Geography and Environmental Science program streams; Consider refocusing curricula to correspond with current faculty expertise and numbers (particularly given declining enrolments in Human Geography); Consider renaming introductory courses with more appealing titles, to attract students; Encouraging the unit to work with the Dean's Office and University to appropriately determine where additional online offerings might be innovative and successful. 	1	<p>"...there could be greater overlap and interaction between the Physical Geography and Environmental Science program streams. The world is facing crucial, existential challenges that fall within the domain of the department, and contemporary science and evidence-based policy to address these challenges require convergent perspectives that span any single discipline." (p.3)</p>	<p>Environmental Science and Physical Geography (PG) are two distinct programs offered in GGE. ENV Science currently has a strong integration of physical geography courses within the ENV science stream, with nearly all ENV Science program requirements, including PG course options. The PG program does not require ENV courses, as it represents a more traditional discipline-oriented program that parallels our Human Geography (HG) program.</p>	<p>The Office of the Vice-Principal, Academic and Dean (OVPAD) supports the Department's review of the curriculum. The Programs and Curriculum Unit (PCU) is available to guide the program through curriculum changes in this area if needed. The Academic Planning and Policy (APP) unit is also available to assist the unit with enrolment planning.</p>	<p>Short-term [1 - 6 months]: The Physical Geography Program Advisor and the Environment Director will review the programs for additional course requirements/electives that can be shared between programs.</p>
	2	<p>"With the numbers of majors and minors in the Geography Arts programs (Human Geography) declining, from 200s to mid 100s, and other departmental programs growing, the curriculum may benefit from further refocusing to match current faculty expertise and numbers." (pp.6-7)</p>	<p>The department acknowledges the declining enrollments in some program streams and is proud of the growth in others. Considering the distinctive nature of our programs, faculty members often possess expertise specific to one program (like those in social science), making it challenging for them to effectively teach in other programs (such as science programs).</p> <p>When faculty join the department, they develop course(s) that align with their research interests and complements the existing curriculum of their program. Recent faculty hires in the GIS and ENV programs have developed courses that match their expertise and fill the crucial gaps in their program,</p>	<p>The Department can apply for Priorities funding which is available from the OVPAD to support strategic initiatives, as well as the Program Innovation Fund awarded through the Office of the Vice Provost, Academic Programs.</p> <p>If the Department chooses to pursue a Minor in Community Health, this can be pursued through the annual decanal call for Expression of Interest (EOI) for new programs and major modifications.</p>	<p>Short-term [6-12 months]: GGE will apply to the Program Innovation Fund for RA support to improve the awareness of student opportunities in the Department – including experiential learning and our hands-on field and lab-based courses.</p> <p>Medium-term [1-2 years]: All GGE programs will take part in mini-retreats to examine their curriculum, taking into account (PG) feedback from the student survey once complete; (HG) the inclusion of an upcoming faculty hire who will add 0.5 FCE to the HG</p>

		<p>leading to a transformation of the strengths and focus of the program (e.g., GGR444 Space Time Data Analysis, GGR381 Spatial Database, ENV435 Governing the Commons).</p> <p>The Department has an upcoming hire planned in HG (health geography). This will allow the HG program to refocus their curriculum and continue to develop plans for a Minor in Community Health which we hope will re-invigorate the HG program. Further to this, a new course debuting in 2024/25 focussing on Pandemics and Inequality (GGR301) is expected to draw wide interest.</p> <p>A strength of the PG program is the experiential learning components and the required hands-on training for program completion. However, enrollments have been declining in recent years. We propose a study of our undergraduate students to identify why there is lower engagement in our experiential learning opportunities and how to address that. The existing program 'streams' could be re-branded to better reflect the current curriculum, highlighting the faculty expertise and the relevant opportunities in the program (e.g. Northern ecosystems, Climate change, Urban hydrology).</p> <p>The GIS program recently updated their curriculum to include course offerings from computer science, which has contributed to the growth of the program. The ENV program needs to fill the voids in the faculty complement before a curriculum review/update could take place.</p> <p>Overall, GGE aims to increase awareness and perception of our programs. GGE has an</p>		<p>curriculum; (ENV) the inclusion of the needed faculty complement. <i>GGE will explore funding options for this implementation.</i></p> <p>Medium-term [1-2 years]: GGE will explore introducing a Minor in Community Health through the EOI process.</p> <p>Medium-term [1-2 years]: The GGE Outreach Committee will work with the Academic Advisor to develop material to highlight GGE's programs.</p>
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			<p>outreach committee that will work with the Academic Advisor to develop materials to bring attention to our courses/programs for students investigating university programs (e.g. adding lab tours during the UTM March Open House & UTM Fall Fair, ensuring that registrar advisors have current information on GGE programs) and to encourage 100-level students into our programs. The Department will also continue to host environment-related high school student groups in the Department to increase awareness of our programs and courses (e.g., EcoSource and Peel Environmental Youth Alliance).</p>		
3	<p>“Renaming introductory courses with catchier titles that are meaningful to today’s first-year students is also effective in attracting enrollments which lead to increased majors.” (p.7)</p>	<p>The department had examined this option before and previously had several ‘catchy’ names for courses that have since reverted to titles that reflect the current content (e.g., ‘Trains, Planes and Automobiles’ is now ‘Transportation Geography’; ‘Where in Canada’ is now ‘Geography of Canada’, ‘Where in the World’ is now split into Human and Physical Geography). We did not find the name changes influenced enrollment; instead, the decrease in the 100-level enrollment seemed to begin around 2015/16. The current names are the basic descriptors of the courses. For example, the content in ‘Physical Geography’ (GGR112) is substantially different from ‘The Environment’ (ENV100) and taking a more ‘current’ approach and renaming Physical Geography with an ‘Environment’ related title would not be suitable, though HG may consider renaming the first-year course as part of their overall planned re-evaluation of the program.</p>		<p>Short-term [6-12 months]: All GGE programs will examine their course titles and continue the overall rebranding of the department.</p>	
4	<p>“Faculty are encouraged to work with the university to offer online teaching at more advanced levels and where offering courses in an online</p>	<p>GGE has been at the forefront of online teaching pedagogy, offering the largest online course at UTM (ENV100) and now several others (e.g. ENV210, ENV311). A strong leader</p>	<p>Departments at UTM have been encouraged to review their curriculum for potential courses that may be offered online, to offer</p>	<p>Short-term [3-6 months]: GGE will pilot an online version of the introductory Remote Sensing course (GGR337) this summer.</p>	

		<p>environment could be both innovative and successful. We suggest that a more flexible approach would benefit students, given travel constraints and the need to be prepared for life-long learning in all modes.” (p.6)</p>	<p>of our online teaching design was Prof. Barb Murck, whose passing in 2022 left a hole in our department.</p> <p>Our GIS faculty agree that GIS courses are better taught in person due to the nature of interactions needed for problem-solving. There is concern around ensuring that the learning objectives are met equally whether online or in-person offerings. However, the GIS program expresses a willingness to explore online delivery for courses deemed feasible. Specifically, they have identified the introductory Remote Sensing course (GGR337) as a potential candidate for online adaptation, considering its emphasis on theory and concepts rather than intensive problem-solving.</p> <p>While many advanced-level PG and GIS courses are not suited to an online learning environment, GGE does offer some 200 and 300 level courses in HG and ENV that could be re-designed to run online if the faculty teaching them are interested in online pedagogical development.</p> <p>Recent policies at UTM allow for increased flexibility on how courses are offered, and we will be investigating these options for each program.</p>	<p>a more flexible option for students (particularly in the Summer session when many students do not reside in Toronto). GGE has been a leader at UTM in innovations in online pedagogy including GGR111, which is one of the only introductory level courses at UTM that is offered online asynchronously.</p> <p>Proposals for changes to mode of delivery will be reviewed during the curriculum governance process. The OVPAD is mindful that online delivery should be prioritized for courses that are both suited to online delivery for pedagogical purposes and that will have the most impact for students.</p>	<p>More GGE courses that suit the online learning environment will be piloted/proposed for flexible delivery in the 2025/26 curriculum cycle (e.g. GGR202, GGR210, GGR305).</p> <p>Medium-term [2-3 years]: GGE will explore the benefits and challenges of adding more upper-level courses for online/hybrid delivery.</p>
<p>The reviewers recommended that responsibilities and expectations around faculty progression and tenure evaluation be broadly communicated, in particular for pre-tenure cross-appointed faculty.</p>	<p>5</p>	<p>“We recommend innovating on instructional modes moving forward, combining resident, online, and hybrid experiences for students.” (p.15)</p>	<p>GGE has consistently organized an annual workshop within the department, featuring panellists from the administrative team and seasoned faculty members with valuable insights to guide junior faculty on tenure progress. These workshops effectively address common or unique questions and concerns from the junior faculty.</p>	<p>The OVPAD supports the Department’s approach to supporting their cross-appointed faculty and ensuring this faculty member receives details about the tenure process.</p>	<p>Short-term [3-6 months]: GGE will proactively engage in discussions with all Departments that share faculty members with GGE. The objective is to establish clear, standardized guidelines for all academic HR processes. The Department will include these shared faculty members in the discussion to enable transparency.</p>

		for pre-tenure cross appointed faculty members.” (p.10)	<p>To date, GGE has successfully navigated two shared appointments, one with IMI and another with Political Science, both achieving tenure without any confusion. In the current year, a faculty member shared with CPS has been approved for continuing status, which also went smoothly.</p> <p>Currently, there is only one shared CS faculty member approaching the review process.</p> <p>A recent Memorandum of Agreement (MOA) has also been established with IMI, formalizing teaching and PTR arrangements between the two departments.</p>		
The reviewers observed opportunities to enhance the consistency of mentorship for new instructors; in particular, graduate student instructors.	7	“...consistency with mentoring new instructors, particularly graduate student instructors, could be improved.” (p.9)	<p>Sessional Lecturers/Course Instructors are critical for us to fill gaps in our program course offerings, and many of these instructors are new to GGE. <i>All new instructors in GGE are assigned a mentor.</i> In 2022, more direct communications between the mentors and the Associate Chair, Academic began to help encourage meaningful interactions between the mentors and the new instructors. Further, a new ‘Instructor Resources’ guide and workshop were developed, and all new instructors are strongly encouraged to attend. GGE-specific policies are covered, a list of ‘who does what role’ in the department is provided, and participants receive a tour of the department spaces. Feedback has been overwhelmingly positive, including comments about how supported they felt compared to sessional lecturing at other institutions.</p>	<p>The OVPAD supports the Department’s approach to mentoring sessional instructors. New sessional instructors are invited to new faculty orientations</p> <p>The Teaching Learning Collaborative (TLC) and the Robert Gillespie Academic Skills Centre are also resources for pedagogical development and instructor support.</p>	This has been implemented . The current approach has been successful, and the Department will continue to develop materials and provide a supportive community for new instructors.
The reviewers recommended that the department consider re-envisioning its current research clusters to take better advantage of interdisciplinary opportunities. They emphasized that newer	8	“The set of research clusters the department is currently using, however, seem redundant with the four subfields...This set ignores some of the exciting interdisciplinary opportunities among their emphases.	We acknowledge the need for reconsideration of the research clusters to reflect better the evolution of the disciplines and the developing research interests of faculty and opportunities for collaboration. Research clusters are developed primarily in the graduate division	The OVPAD supports the Department’s approach to assessing research clusters.	Short-term [6-12 months]: GGE Program Advisors (in consultation with their program faculty) will examine the unit-level research clusters on the GGE website to include newer faculty better while

<p>professors should be involved in this process, and cited examples of how research clusters are organized at peer institutions as potential models.</p>		<p>A next step we recommend is to involve the newer professors in re-envisioning these to a reduced and enthralling set.” (p.11)</p>	<p>rather than in GGE. The Tri-Campus Geography Graduate program is undergoing a UTQAP Review in the coming year. Restructuring of the research clusters at that level may be factored in. GGE does have five related research clusters listed on our website, which can be updated to better include recent faculty hires.</p>		<p>still aligning at the Tri-campus level.</p>
<p>The reviewers were supportive of the unit’s desire to prioritize hiring in geomorphology and environmental science when opportunities permit, though noted that these requests should be considered “in the context of other emergent needs, access to lab space, and budgetary restraints.”</p>	9	<p>“The department expressed a desire to hire additional faculty with specialization in geomorphology and environmental science. These requests are important and would assist with rounding out the faculty profile, but also must be considered in the context of other emergent needs, access to lab space, and budgetary restraints.” (p.4)</p>	<p>This recommendation carries through from our 2014 External Review. The Department recognizes the limited number of positions available at UTM and the challenges of allocating a growth hire when program enrollments do not currently reflect the need (Geomorphology). While we are working to rebuild our PG enrollments, a geomorphology/GIScience faculty is an ideal solution to fill the gap in the PG program while alleviating some of the pressures on the GIS faculty.</p> <p>With the loss of a key faculty member in 2022 (Professor Barb Murck) we now have a critical need to replace that teaching-stream position in environmental science. We hope in the next five years both needs for the ENV faculty complement can be addressed as they are critical to supporting the growing ENV programs.</p>	<p>The OVPAD will work with the Department to monitor enrolment in the PG program. The forthcoming Vice-Dean, Undergraduate (to be appointed July 1, 2024) will work with the Department to review the PG and ENV for new courses or student opportunities that capitalize on existing teaching and research strengths of current faculty. Potential collaborations or shared resources in PG or other programs that will benefit GIS will also be explored.</p> <p>The Department may proceed through the faculty complement planning process to request new faculty positions that align with criteria set by the OVPAD complement planning advisory committee. In the interim, sessional faculty are available to support course teaching in geomorphology. The OVPAD will work with GGE to think through the advantage of a tenure stream hire in geomorphology vs. a sessional instructor</p>	<p>Short-term [1-6 Months]: The Department will request a new faculty hire in ENV through the 2024 complement planning request process.</p> <p>Long-term [1- 5 years]: GGE will continue to request environmental science and geomorphology (/GIScience) specialized faculty.</p>
<p>The reviewers recommended taking a nuanced approach to</p>	10	<p>“there is a need to clearly and equitably address the teaching load</p>	<p>We emphatically agree with the reviewers. We recently examined the number of required</p>	<p>The OVPAD agrees that the GIS program is intensive, and the high</p>	<p>Short-term [1-12 months]: The 2024/25 timetable will be</p>

<p>engaging with faculty workload concerns (in developing your response, you may wish to work with the Office of the Vice-Provost, Faculty and Academic Life).</p>		<p>question faced by faculty members <i>without</i> compromising course offerings or increasing the reliance on sessional instructors.” (p.3)</p>	<p>courses for each program if we were to align workload with other hybrid SSc/Sci Departments while continuing to offer the courses required for students to complete their degree requirements.</p> <p>The student to faculty ratio is concerningly high for GIS faculty, with a current FCE:FTE ration of 153 for GIS courses. As our tenure-stream faculty also teach graduate courses, the FTE is further reduced. Many GIS courses have large enrollments, which impacts students’ learning experience. Upper-level GIS courses carry out group projects that require the instructors’ involvement beyond what TAs can handle. The Department will begin exploring options for multiple course offerings in the academic year. This will require Sessional Lecturers.</p>	<p>faculty engagement benefits the program. As a high demand program that aligns with UTM’s strategic goals, it is important that GIS remains supported with faculty. The OVPAD will work with the Department to review workload concerns and understand how teaching load will improve ability to offer better courses and programs.</p>	<p>submitted shortly with our first request for two offerings of a high-demand GIS course with a sustained waitlist (GGR321). Multiple offerings of other large GIS courses may be proposed for 2025/26.</p> <p>Short-term [6-12 months]: All programs will conduct a detailed analysis of course offerings and curriculum against faculty workload. GGE will continue consultations with the cognate units regarding equitable workload at the graduate level as the Tri-Campus curriculum review occurs.</p>
	11	<p>“We recommend a more nuanced approach than one-load-fits-all. Rather than consider most courses as equal, we recommend increasing the amount of teaching credited for taking students into the field (e.g., perhaps 15 field students equals one course taught). The lecture and lab portions of a course could each accumulate teaching credits. To encourage and acknowledge the teaching involved with leading undergraduate research experiences (ROP), a set number of accumulated ROP credits, such as ten, could be set to equal a course. Very large courses could be further expanded in their teaching credit. These approaches would encourage and reward the intensive involvement of experiential</p>	<p>We acknowledge the pressing need to better account for the teaching contributions of faculty who teach courses’ lecture and lab components (e.g. upper-level GIS courses and intense field-based PG courses). These faculty teach substantially more hours than others.</p> <p>We agree that very large courses should be expanded. In particular, the model of one faculty member teaching 1200 students as in ENV100 is not sustainable. ENV100 is an essential breadth course at UTM that allows students from all disciplines to meet their science distribution requirement and aligns with UTM’s Sustainability Strategic Plan. The return to multiple section offerings of this course, with in-person and online delivery options, is planned. GGE will discuss with other Departments that offer large 100-level courses</p>	<p>The OVPAD will assist the unit with strategic enrollment planning through appropriate data.</p> <p>The Programs and Curriculum Unit (PCU) is available to guide the Department through curriculum changes in this area if needed. The Academic Planning and Policy (APP) unit is also available to assist the unit with enrolment planning.</p> <p>OVPAD will work with the Department to assist them in considering the academic rationale for a reduction in workload and how such a reduction will enrich the student learning experience and contribute to enhancing the quality of programs and courses.</p>	<p>Short-term [1-6 months]: The ENV Director will propose new offerings for the 2025-26 calendar year, to revise the offering structure of ENV100.</p> <p>Medium-term [6-12 months]:</p> <p>OVPAD will work with the unit on long range planning to align program goals and complement planning.</p>

		<p>learning in all areas of geography, not only the physical subfield, and would acknowledge the extra effort by the most research-active faculty.” (pp.11-12)</p>	<p>and formulate a more manageable approach to our ENV100 offerings.</p>	<p>OVPAD will work with the department to address enrolment challenges in physical geography and how the proposed new geomorphologist position will contribute to increasing enrolments and enhancing curriculum.</p>	
<p>The reviewers observed that staff support for student services has not kept pace with enrolment. They recommended considering ways to provide enhanced student advising and mentoring, including exploring the possibility of strengthening central, division-wide advising supports. They also noted student desire for more networking information related to career opportunities.</p>	<p>12</p>	<p>“The current workload associated with student advising in the GGE office that the Academic Counsellor handles is not sustainable. One option is to hire an additional office member that can relieve some of this pressure while providing additional support in the office. A second option is a centralized, faculty-wide advising system for students. More than likely, pieces of both options will be required (i.e., faculty-wide advising and additional Department advising given the large student enrollment and the need to provide program specific guidance). The department should consider the merits and costs of each but move quickly to avoid staff burn-out.” (p.4)</p>	<p>The Department benefitted from a two-year term position (50%) as a ‘Student Support Assistant’ to help address immediate staffing concerns in 2023. This position will end in Spring 2025. With the primary focus on student support for our very large ENV100 course, the workflow for this position was also to include tasks to help alleviate the strain on the GGE Academic Advisor.</p> <p>The department will conduct a detailed evaluation of the term position after 1 year and develop a plan moving forward at the completion of the 2-year term. The need for a 100% staff position to support ENV100 (and ideally the other large courses, e.g. JGE378, ENV311) is becoming increasingly evident, as the 50% position in its current structure is not conducive for supporting students or assisting with the student-related administrative management of the course (e.g. no work hours some days to respond to student /TA concerns; limited hours during peak strain times of the course such as the in-person test). Continuity will become crucial between multi session and summer offerings of ENV100 where the Administrative TA Hours (Head TA) will not be beneficial as TA’s change term to term.</p>	<p>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 and Principal, and the Strategic Planning Advisory Committee (SPAC). The Department may submit a request for consideration by this committee.</p> <p>In addition, UTM is actively considering ways to enhance student advising and mentoring, through its Advancing Academic Advising project, which launched in fall 2023. This is a coordinated, cross-portfolio effort to support student success, including improving retention and graduation rates; supporting students’ learning, wellbeing, belonging, and academic progress; centring equity and inclusion; and using evidence-based approaches that steward UTM’s resources. The project is led by the Office of the Vice-President & Principal, with</p>	<p>Medium-term [1 year]: The GGE Chair and ENV Director will consult with other Departments offering large 100-level courses to gain insight into course support practices and request a permanent staff position through the SPAC process.</p>

				participation from Student Affairs, the Registrar's Office, OVPAD, and academic units.	
	13	<p>"While partially an outcome of the pandemic and the inability to have group events, students did note a desire for more networking information related to career opportunities." (p.9)</p>	<p>GGE has always had a very active student society, internship, networking nights, experiential learning – even during the pandemic. The students surveyed had just experienced 1.5 years of learning online and were only just returning (or joining) the in-person community in GGE. Only the upper-year students had any experience with the pre-pandemic in-person activities offered through GGE. With respect to networking, our faculty regularly invite guest speakers from a wide range of employment (academia, government, private sector) as well as visits from ECO Canada, the accrediting body for the ENV programmes.</p> <p>Opportunities are available, and many of these events have been shared through student email listserv, departmental social media, and individual course announcements in lectures or on Quercus; however, encouraging students to engage in them has been challenging. We will investigate the disconnect between available opportunities and lack of engagement. GGE will continue to support honoraria for guest lectures in our courses as long as our budget allows. We will also continue to support student organization activities.</p>	The OVPAD supports the Department's approach.	<p>Medium-term [6-12 months]: GGE will apply to the Program Innovation Fund to hire an RA to investigate how to grow/improve the awareness of student opportunities in the Department. This will include career networking, experiential learning opportunities, and general extra- and co-curricular activities for students in the department.</p>
The reviewers noted space concerns for GIS programs, graduate students, and Physical Geography faculty in particular; and recommended assessing current spaces and considering	14	<p>"Many [GIS] students work on their own computers or can use open-source tools not tied to dedicated lab seats. Expanding the range of tools to meet student access will require re-envisioning some spatial data science</p>	The GIS faculty feels that the reviewers misinterpreted their messages regarding the IT service or Citrix. We are confident that student access to systems and lab space meets current needs.	The OVPAD supports the Department's plans for use of spaces.	Implemented.

creative, flexible solutions to address needs.		courses and fast and flexible technical support.” (p.14)			
	15	“GGE leadership is encouraged to take a close look at how current graduate space is utilized on a daily/weekly basis as it was not clear if the office space is fully utilized...Rather than trying to create new space, hotelling desk spaces should be strongly considered given the much greater ease of working remotely as demonstrated over the past few years.” (p.14)	We have a new graduate space in the Davis building currently under construction that should be ready for use in spring 2024. This space is being configured with ‘hotelling desk spaces’ to provide flexible space for the graduate students as needed. As the external review took place when the return to in-person work was beginning, many graduate students did not yet feel comfortable returning to the campus space. However, it is now heavily occupied during the regular term.		Implemented. New graduate space will be complete in 2024.
	16	“Physical geography faculty in GGE have a strong need for additional lab space. The department should work closely with the OVPAD to secure new lab space as on-going renovations on campus free up space in the building.” (p.3)	Four of the five PG faculty (Profs. Dual, He, Lehnerr, & Porter) share lab space and are in serious need of space to reduce overcrowding. This has been an annual space request from GGE, also identified as a need in the previous external review in 2014. However, space limitations on campus have been a challenge. A request for space was included in the most recent 2023 MCaPS request from GGE, and we are awaiting news.		Medium-term [1 –2 years]: Research space will be shifted following outcomes of MCaPS process.
	17	“the need to commit lab space in the Davis Building before hiring a physical geographer in geomorphology is a challenge that is important to be met by the administration.” (p.14)	A non-field-based geomorphology faculty is an ideal solution to the lack of available lab space – ideally with cross-specialization in GIS and geomorphology.	OVPAD will work with the Department to address enrolment challenges in physical geography and how the proposed new geomorphologist position will contribute to increasing enrolments and enhancing curriculum.	Long-term [1-5 years]: OVPAD will work with the unit on long range planning to align program goals and complement planning.
Other recommendations not prioritized in the Request for Administrative Response	18	“We recommend changing the name of the GIS programs to a modern phrasing.” (p.6)	The GIS program faculty agree and are reviewing their course and program names. Suggested changes thus far: changing the	The OVPAD supports the department’s review of the curriculum. The Programs and	Short-term [1- 6 months]: GGE will submit proposals for the GIS

			program title to <i>GeoSpatial Data Science</i> , GGR278 <i>Geographical Information System to Introduction to GIScience</i> , and GGR321 <i>Geographic Information Processing to Advanced GIScience</i> .	Curriculum Unit (PCU) is available to guide the program through curriculum changes in this area if needed.	program name changes for the 2025-2026 Calendar.
19	“Adding a 100-level overview course in Geomatics is also recommended to grow this popular emphasis, and to also invite more students to include spatial thinking and spatial apps in other domains.” (p.7)	We do not have the faculty capacity to develop and teach a 100-level GIS course. Offering a 100-level GIS course could attract more students to GIS and help students to develop spatial thinking skills. However, this may have the unintended consequence of filtering students away from our growing major and minor programs before the second year. At a future time when there is faculty capacity, the GIS program will examine a potential 100-level GIS/spatial data science intro course that is decoupled from our major/minor programs.			Long-term: The GIS Faculty do not have the capacity to explore additional courses. However, this can be reconsidered if capacity in the program changes in future.
20	“It is disappointing that an assistant professor had to grapple with poor IT services at the university level and a lack of online-accessible or personal-computer GIS licenses. We recommend that assistant Professors be protected from these headaches.” (p.10)	Our understanding is that this was an isolated incident. This is not normal; GGE has an in-house technical expert to assist with licences and other GIS technical matters.		The OVPAD is pleased to hear that this was an isolated incident and encourages the Department to escalate items that are affecting the progress of early career faculty for swift resolution.	Implemented

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

The spokesperson for the reading group reported that the review summary accurately reflected the full review, and that the Dean's administrative response had adequately addressed many issues that had been identified. The reading group noted that the Self Study indicated that less than 50% of students graduated in four years which suggested that approximately 50% of students required at least one additional year to graduate. Thus, the group sought further clarification regarding the proportion of the GGE program graduation rates compared to UTM and U of T more broadly, and the financial implications for UTM associated with the longer time to completion within the context of the Strategic Framework.

Nick Rule, Vice-Principal (Academic) & Dean, University of Toronto Mississauga responded that UTM was committed to improving their graduation rates overall. He noted that UTM normally assessed graduation rates in the standard six-year time-frame, and that UTM's six-year graduation rate was generally acceptable. There were a variety of factors that could impact students delayed completion of studies: students would typically enroll in GGE programs later in their academic studies, and many would also take on internships, which could contribute to a slowing their progress.

No follow-up report was requested.

4 Institutional Executive Summary

The reviewers praised the department's very strong undergraduate programs, with large and increasing enrolments in recent years; as well as the innovative curriculum, clear learning outcomes, strong commitment to teaching, and high levels of student success. They noted that the unit closely considered previous review recommendations, and has taken steps to improve its programs; and that it underwent a name change in 2020 to better reflect its identity. Faculty are productive, responsible and appear well-distributed across ranks, and prioritize the undergraduate student experience; and the tri-campus graduate programs help to support GGE's teaching agenda, while also raising student awareness of opportunities to pursue graduate education. Students, staff and faculty report high morale despite pandemic-related challenges; there is a strong undergraduate student society; and students generally report very high satisfaction with the programs, and with faculty's accessibility, attentiveness and engagement. Finally, the reviewers commended the department's multiple experiential learning opportunities, noting that students secure post-graduation employment in areas that are relevant to their degrees.

The reviewers recommended that the following issues be addressed: strengthening the GGE programs by: encouraging greater overlap and interaction between the Physical Geography and Environmental Science program streams; refocusing curricula to correspond with current faculty expertise and numbers; renaming introductory courses with more appealing titles; and

working with the Dean's Office and University to appropriately determine where additional online offerings might be innovative and successful; broadly communicating responsibilities and expectations around faculty progression and tenure evaluation, in particular to pre-tenure cross-appointed faculty; enhancing the consistency of mentorship for new instructors; re-envisioning current research clusters to take better advantage of interdisciplinary opportunities; prioritize hiring in geomorphology and environmental science when opportunities permit; taking a nuanced approach to engaging with faculty workload concerns; considering ways to provide enhanced student advising and mentoring; and assessing current spaces and considering creative, flexible solutions to address needs.

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

5 Monitoring and Date of Next Review

Progress checks and monitoring of the implementation plan will occur through the Chair's Annual Report to the Dean. The next external review of the Department of Geography, Geomatics & Environment is scheduled to occur in the 2029-2030 academic year, with a midway report submitted to your Office in 2026-27.

The Dean will provide an interim report to the Vice-Provost, Academic Programs no later than the 2026-27 academic year on the status of the implementation plans.

The next review will be commissioned in the 2029-30 Academic Year.

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 Vice-Principal, Academic & Dean, UTM, 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.