



FOR INFORMATION

PUBLIC

OPEN SESSION

TO: Committee on Academic Policy and Programs

SPONSOR: Sioban Nelson, Vice-Provost, Academic Programs

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PRESENTER: See above

CONTACT INFO:

DATE: October 14 for October 27, 2015

AGENDA ITEM: 1(b)

ITEM IDENTIFICATION:

Semi-Annual Report on the Reviews of Academic Units and Programs,
April 2015 – September 2015

JURISDICTIONAL INFORMATION:

“The Committee...has general responsibility...for monitoring, the quality of education and the research activities of the University. In fulfilling this responsibility, the Committee works to ensure the excellent quality of academic programs by...monitoring reviews of existing programs....The Committee receives annual reports or such more frequent regular reports as it may determine, on matters within its purview, including reports on the ...[r]eviews of academic units and programs.” (*Committee on Academic Policy and Programs (AP&P) Terms of Reference, Sections 3, 4.9*)

Within the *Accountability Framework for Cyclical Review of Academic Programs and Units*, the role of the AP&P is to undertake “a comprehensive overview of review results and administrative responses.” The AP&P “receive[s] semi-annual program review reports including summaries of all reviews, identifying key issues and administrative responses,” which are discussed at a “dedicated program review meeting with relevant academic leadership.” (*Policy for Approval and Review of Academic Programs and Units*). The AP&P’s role is to ensure that the reviews are conducted in line with the University’s policy and guidelines; to ensure that the Office of the Vice-President and Provost has managed the review process appropriately; to ensure that all issues relative to the quality of academic programs have been addressed or that there is a plan to address them; and to make recommendations concerning the need for a follow up report.

The compendium of review summaries is forwarded, together with the record of the Committee’s discussion, to the Agenda Committee of the Academic Board, which determines whether there are any issues warranting discussion at the Board level. The same documentation is sent to the Executive Committee and the Governing Council for information.

GOVERNANCE PATH:

1. **Committee on Academic Policy and Programs** [for information] (October 27, 2015)
2. Agenda Committee [for information] (November 3, 2015)
3. Academic Board [for information] (November 19, 2015)
4. Executive Committee [for information] (December 7, 2015)
5. Governing Council [for information] (December 15, 2015)

PREVIOUS ACTION TAKEN:

Governing Council approved the *Policy for Approval and Review of Academic Programs and Units* in 2010. The *Policy* outlines University-wide principles for the approval of proposed new academic programs and review of existing programs and units. Its purpose is to align the University's quality assurance processes with the Province's Quality Assurance Framework through establishing the authority of the University of Toronto's Quality Assurance Process (UTQAP).

The Semi-Annual Report on the Reviews of Academic Units and Programs (October 2014 – March 2015) was previously submitted to the Committee on Academic Policy and Programs on March 31, 2015.

HIGHLIGHTS:

External reviews of academic programs and units are important mechanisms of accountability for the University and a vital part of the academic planning process. Academic reviews are critical to ensuring the quality of our programs through vigorous and consistent processes that assess the quality of new and existing programs and units against our international peers.

Summaries of the external review reports and the complete decanal responses of seven external reviews of units and/or academic programs are being submitted to the AP&P for information and discussion. Of these, three were commissioned by the Dean of the Faculty of Arts and Science, three by the Vice-Principal, Academic and Dean, UTM, and one by the Dean of the Faculty of Medicine. The signed administrative responses from each Dean highlight action plans in response to reviewer recommendations.

Overall, the themes raised in these reviews echoed those in previous compendia: the excellent quality of our programs, the talent and high calibre of our students, and the impressive body of scholarship produced by our faculty. In addition, this set of reviews highlighted significant inter-divisional collaborations in support of student learning and curricular innovations to meet student needs and interests.

As always, the reviews noted areas for development. These included support for mentorship and advising, and increased lab space and instructional technology, often in relation to enrolment growth. The reviews made important recommendations on how these matters could be improved. The administrative responses from the Deans address these issues and others.

Additional reviews of programs are conducted by organizations external to the University. Reviews of academic programs by external bodies form part of collegial self-regulatory systems to ensure that mutually agreed-upon threshold standards of quality are maintained in new and existing programs. A summary listing of these reviews is typically presented in the Appendix; however, there are no such reviews to report for this period.

FINANCIAL IMPLICATIONS:

Not applicable.

RECOMMENDATION:

This item is for information and feedback.

DOCUMENTATION PROVIDED:

Compendium of Reviews of Academic Programs and Units, April – September 2015



UNIVERSITY OF
TORONTO

OFFICE OF THE VICE-PROVOST,
ACADEMIC PROGRAMS

REVIEWS OF ACADEMIC PROGRAMS AND UNITS

April – September 2015

**Report to the Committee on Academic Policy and Programs
October 27, 2015**

REVIEWS OF ACADEMIC PROGRAMS AND UNITS

April – September 2015

Report to the Committee on Academic Policy and Programs

October 27, 2015

Decanal Reviews

Faculty of Arts & Science

- Department of Computer Science and its programs
 - Undergraduate: Computer Science, Honours Bachelor of Science (B.Sc., Hons.): Specialist, Major, Minor
 - Graduate: Applied Computing, Master of Science in Applied Computing (M.Sc.A.C.); Computer Science, Master of Science (M.Sc.), Ph.D.
- Human Biology Programs
 - Undergraduate: Genes, Genetics and Biotechnology, B.Sc., Hons.: Specialist, Major; Global Health, B.Sc., Hons.: Specialist, Major; Health and Disease, B.Sc., Hons.: Specialist, Major; Neuroscience, B.Sc., Hons.: Specialist, Major; Health Care Ethics, B.Sc., Hons.: Major; Human Biology, B.Sc., Hons.: Major; Environment and Health, B.Sc., Hons.: Specialist, Major
- Jewish Studies Programs
 - Undergraduate: Jewish Studies, B.A., Hons.: Specialist, Major, Minor

Faculty of Medicine

- Institute of Medical Science
 - Graduate: Biomedical Communications, Master of Science in Biomedical Communications (M.Sc.B.M.C.)

University of Toronto Mississauga

- Department of English and Drama and its programs
 - Undergraduate: Canadian Studies, B.A., Hons.: Major, Minor; English, B.A., Hons.: Specialist, Major, Minor; Theatre and Drama Studies (joint with Sheridan College), B.A., Hons.: Specialist; Theatre, Drama and Performance Studies, B.A., Hons. (Maj, Min)
- Department of Geography and its programs
 - Undergraduate: Geography, B.A., Hons.: Specialist, Major, Minor; Geography, B.Sc., Hons.: Specialist, Major, Minor; Geographical Information Systems, B.Sc., Hons.: Major, Minor; Environmental Management, B.A., Hons.: Specialist, Major, Minor; Environmental Science, B.Sc., Hons.: Specialist, Major, Minor

- Management of Innovation Program
 - Graduate: Master of Management of Innovation, M.M.I.

Appendix: Externally-commissioned reviews of academic programs, April – September 2015

Review Summary

Program(s) Reviewed:	Computer Science, B.Sc., Hons.: Specialist, Major, Minor Applied Computing, Master of Science in Applied Computing (M.Sc.A.C.) Computer Science, M.Sc., Ph.D.
Division/Unit Reviewed:	Department of Computer Science
Commissioning Officer:	Dean, Faculty of Arts & Science
Reviewers (Name, Affiliation):	1. Professor Jim Kurose, University of Massachusetts 2. Professor Alan Mackworth, University of British Columbia 3. Professor Eva Tardos, Cornell University
Date of review visit:	February 3-5, 2014

Previous Review

Date: March, 2005

Summary of Findings and Recommendations:

The reviewers evaluated the Department to be the top in computer science in Canada, with an internationally recognized program.

1. Undergraduate Programs: Computer Science, B.Sc., Hons.: Specialist, Major, Minor; Computer Science - Artificial Intelligence, B.Sc., Hons.: Specialist; Computer Science – Foundations, B.Sc., Hons.: Specialist; Computer Science - Information Systems, B.Sc., Hons.: Specialist; Computer Science Software Engineering, B.Sc., Hons.: Specialist; Computer Science and Economics, B.Sc., Hons.: Specialist; Computer Science and Physics, B.Sc., Hons.: Specialist; Computer Science and Statistics, B.Sc., Hons.: Specialist; Human-Computer Interaction, B.Sc., Hons.: Specialist

The reviewers observed the following strengths:

- High quality of teaching
- Major revisions to core curriculum
- Enhanced research opportunities for students

The reviewers identified the following areas of concern:

- Challenge of increasing student quality given declining enrolments in computer science across North America

The reviewers made the following recommendations:

- Increase visibility of the undergraduate program and Professional Experience Year option
- Allocate a part-time staff member to focus on student recruitment

2. Graduate Programs: Computer Science, M.Sc., Ph.D.; Knowledge Media Design collaborative program, M.Sc., Ph.D.

The reviewers observed the following strengths:

- Program strengthened through graduate expansion

The reviewers identified the following areas of concern:

- Increase in time to completion
- Variation in understanding of degree requirements by students and advisors
- Casual process for transferring from M.Sc. to Ph.D. program
- Deficiencies in recruitment activities directed at international students

3. Faculty/Research

The reviewers observed the following strengths:

- High quality of faculty and outstanding research reputation
- Excellent junior faculty recently hired

The reviewers identified the following areas of concern:

- Some relatively weaker areas, especially systems and programming languages/software engineering
- Need of mentoring program for junior faculty
- Impact of possible retirement of senior theory faculty

4. Administration

The reviewers observed the following strengths:

- Chair's leadership has guided Department through period of rapid growth
- Interdisciplinary collaboration with cognate units

The reviewers identified the following areas of concern:

- Space issue (location in three buildings) "...has a significant adverse impact on the effectiveness, efficiency, and culture of the department."
- Limited resources available to technical support staff

The reviewers made the following recommendations:

- Increase collaboration with other units, including the Faculty of Information Studies
- Increase the technical support staff complement

Last OCGS Review(s) June 5-6, 2007

Date(s):

Current Review: Documentation & Consultation

Documentation Provided to Reviewers:

Terms of Reference; Self-Study; FAS External Review Report

Consultation Process:

The reviewers met with the Dean of the Faculty of Arts and Science; Vice-Dean, Graduate Education and Program Reviews; Chair of the Department of Computer Science; unit heads of cognate departments; junior and senior faculty members; tri-campus faculty; administrative staff; and undergraduate and graduate students.

Current Review: Findings & Recommendations

1 Undergraduate Program

Computer Science, B.Sc., Hons.: Specialist, Major, Minor

The reviewers observed the following strengths:

- Overall quality
 - Well-conceived, growing program is a “gem” of the University
- Objectives
 - Revised, flexible curriculum enables students to achieve stated learning outcomes
- Admissions requirements
 - Appropriate admissions requirements
- Curriculum and program delivery
 - Curriculum changes in line with similar changes in peer institutions
 - Great guidance provided to students on ways to leverage curriculum flexibility
 - New focus areas help students follow coherent course of study
 - Strong elective course offerings
 - Very high demand for courses by computer science and non-computer science students
 - Students’ favourable view of the Professional Experience Year program
- Quality indicators
 - Overall student satisfaction with the program
 - Graduates have very good career opportunities and high rate of employability
 - Top students receive job offers from sought-after companies and are admitted to competitive graduate programs worldwide
- Faculty resources
 - Senior Lecturers doing outstanding job of teaching introductory courses with high enrolment; they receive high ratings by students and are recipients of teaching awards
 - Senior Lecturers repurposing innovative teaching methods used in Massive Open Online Courses (MOOCs) in program courses

The reviewers identified the following areas of concern:

- Curriculum and program delivery
 - Department is unable to meet student demand for courses
 - Many courses reach their enrolment limits

- Students not always able to enrol in courses needed to complete their program; this may lead to increased time to graduation
- Student desire for greater assistance in obtaining summer internships
- Static number of students gaining research experience due to limited faculty complement
- Quality indicators
 - Reported overcrowding in second-year courses
 - Failure of Department to facilitate student interaction with tenure-track, research faculty in early years of their program
 - Desire of some students for greater on-campus recruiting by computer science oriented companies
- Enrolment
 - “Explosive growth” in enrolment combined with decreased faculty complement
- Support
 - Some students expressed concern about student advising provided by the Department
- Faculty resources
 - Significant decrease in faculty complement over past ten years
 - Limited resources impact strength of the program
 - Heavy workload of teaching stream faculty
 - Inadequate teaching assistant support
- Physical resources
 - Outdated educational computing environment
 - Insufficient computing resources and furniture to meet student needs
 - Student dissatisfaction with inadequate computing environment, particularly in light of the higher program fees they pay

The reviewers made the following recommendations:

- Curriculum and program delivery
 - Increase breadth of courses offered to meet student need
 - Develop a computer science career fair, building relationships within industry
- Quality indicators
 - Address overcrowding in courses
- Faculty resources
 - Hire more faculty to meet student demand for courses
- Physical resources
 - Modernize computing labs to improve students’ learning environment
 - Consider students’ personal equipment (laptops, etc.) when designing updated facilities

2 Graduate Program

Applied Computing, Master of Science in Applied Computing (M.Sc.A.C.); Computer Science, M.Sc., Ph.D.

The reviewers observed the following strengths:

- Overall quality
 - Excellent reputation and visibility of program
 - Innovative, new professional master's program shows promise
 - Tri-campus graduate program location on the St. George campus appears to work well
- Admissions requirements
 - Appropriate requirements for each program
- Curriculum and program delivery
 - Breadth requirements for each program are appropriate, aside from one concern of flexibility
 - Master of Science in Applied Computing (M.Sc.A.C.) program enables students to apply knowledge gained in courses to settings outside the classroom
 - One-third of courses are cross-listed with undergraduate courses, demonstrating alignment with Faculty plan
- Quality indicators
 - Highly competitive program attracts excellent students; good admissions yield rate
 - Student satisfaction with graduate supervision provided to them
- Enrolment
 - Slow and deliberate increase in M.Sc.A.C. enrolment

The reviewers identified the following areas of concern:

- Overall quality
 - Tri-campus graduate program location on the St. George campus is somewhat inconvenient for teaching assistants and faculty who commute between two campuses
- Admissions requirements
 - Requirement to complete the M.Sc. prior to entering the Ph.D. program may be a disincentive to prospective students and is not typically found in peer institutions
- Curriculum and program delivery
 - Breadth requirement revisions implemented in 2010 have not gained full faculty support
 - They appear to pose difficulties for students who prefer to focus on trans-disciplinary topics
 - Wide variation in workload across courses
 - Student dissatisfaction with range of courses offered; lack of course offerings in central topics
 - Irregular and infrequent offering of courses poses difficulties for students in completing their programs
- Quality indicators
 - Yield rate for Ph.D. program at its lowest in past ten years
 - Quality of domestic students appears to have decreased
 - Attrition and time to completion rate are source of concern
- Students
 - Students in some research groups are isolated due to physical separation from others

- Student funding
 - Funding package is not competitive with peer institutions and does not cover median time to completion rate of seven years
 - Faculty expressed concern about the limited funding for international students
- Support
 - Inconsistent monitoring of student progress

The reviewers made the following recommendations:

- Admissions requirements
 - Focus emphasis on Ph.D. direct entry program
 - Permit and encourage well-qualified students to transfer to the Ph.D. program before completing the M.Sc. program
- Curriculum and program delivery
 - Re-examine breadth requirements to allow for greater interdisciplinary flexibility
 - Take steps to bring in line listed course offerings with those actually offered
- Quality indicators
 - Consider the relationship of course scheduling to degree completion time
 - Increase monitoring of student progress and improve tracking

3 Faculty/Research

The reviewers observed the following strengths:

- Overall quality
 - Ongoing reputation as a top Department worldwide
 - Department is strong overall
 - Commendable practice of encouraging course projects that reach out to and engage the local community
 - Collaborative initiatives with OCAD University (game design program) and Undergraduate Capstone Open Source Projects
 - Faculty members serve leading roles in Canadian research networks such as GRAND, BIN and NECSIS

The reviewers identified the following areas of concern:

- Overall quality
 - Department in great danger of falling position in international publication and citation rankings
 - Significant investment will be needed to enable Department to meet its potential
- Research
 - Concern from 2005 review still exists that not all research areas are equally strong
 - Faculty members expressed concern of declining strength in most research areas
 - Cost of research computing is viewed by faculty as being too high; inability of some research groups to afford technical staff

- Faculty
 - Very significant decrease of faculty complement (25%) over past nine years combined with lack of hiring
 - Prominent research faculty have recently retired or are nearing retirement
 - Teaching load is heavier than that at peer institutions, disadvantaging junior faculty
 - Faculty view teaching relief policies as being unclear and applied inconsistently
 - Some junior faculty expressed desire for more proactive approach to nominating faculty for awards and obtaining grants

The reviewers made the following recommendations:

- Research
 - Follow Departmental strategic plan to regain strength in traditional areas and maintain its high standing
- Faculty
 - Engage in strategic planning process to identify high-priority areas for hiring and develop a multi-year plan to carry out and reach the goals set
 - Hire new faculty who can contribute to transformation of Department's role within the University
 - Hire new faculty to strengthen core disciplinary areas
 - Hire new faculty who can develop new partnerships, leveraging research excellence in support of knowledge and technology transfer, as well as teaching and curricular innovation

4 Administration

The reviewers observed the following strengths:

- Relationships
 - Number of joint research initiatives and joint appointments with cognate departments
 - Good relationship between Chair and those of cognate units
 - Strong administrative coordination among the three campuses
 - Senior Lecturers' contributions to the computer science community through educational publications documenting innovative teaching methods
 - Departmental members organize and participate in wide variety of local and provincial outreach activities
- Organizational and financial structure
 - Staffing for educational computing has increased over past four years
- Planning / Vision
 - Good team work among Departmental leadership team
- Department/unit/programs relative to the best in Canada/North America and Internationally
 - One of the top computer science departments worldwide, with excellent, world-class research

The reviewers identified the following areas of concern:

- Relationships
 - Poor morale of faculty, students and staff
 - Undergraduate concerns have not been responded to or addressed
 - Administrative staff, graduate students, and faculty feel excluded from decision making processes
 - Administrative staff are concerned about poor internal communication processes
 - Concern expressed about the quality of teaching provided by the Department to cognate units
 - Cognate units voiced uncertainty about the future of specific topic areas
- Organizational and financial structure
 - Resources have been stretched “beyond the breaking point” due to decreased faculty complement and increased student enrolment
 - Undergraduate students feel that the higher program fees they pay are absorbed by the Faculty of Arts & Science and are not reinvested in the Department
 - “Dysfunctional” arrangement of departmental space across four buildings and 11 floors has resulted in poor communication, collaboration, and wasted resources
 - Differences in quality of space among research groups
 - Insufficient funding for maintenance and renovation of teaching and networking equipment
 - Perception that research funding is subsidizing teaching costs
 - Administrative staff concern about inadequate departmental record-keeping and central information systems
 - Limited employment security for “Point of Contact” staff who support research labs, due to funding issues
 - Heavy workload of technical staff prevents them from fully supporting teaching initiatives
 - Despite recent growth in educational computing staffing, complement has not kept up with “explosion” in student enrolment in computer science courses
 - Graduate students expressed concern about staff turnover in the graduate office
- Planning / Vision
 - Poor long-term planning of information technology infrastructure and resources
- Department/unit/programs relative to the best in Canada/North America and internationally
 - Decline in Department’s position in world rankings

The reviewers made the following recommendations:

- Relationships
 - Steps must be taken to address the climate of inter-personal relationships and to improve morale of faculty, students and staff
 - Strengthen communication among Departmental members through regular meetings and use of internal calendar tools

- Organizational and financial structure
 - Address serious space and facility concerns as part of Department's strategic planning process
 - Consider including space swaps and repurposing of existing space as means of remedying space challenges
 - Centralize administrative computing infrastructure through adoption of existing systems within the University
 - Address shortfalls in research computing facilities
 - Consider using multi-year contracts to address employment continuity concerns of Point of Contact staff
- Planning / Vision
 - Develop a five-year plan for research and educational computing facilities
 - Examine the server-based virtual computing environments that have been adopted by other University divisions
 - Carry out long-term Departmental financial planning with the Faculty of Arts and Science
 - Develop a long-term plan to address enrolment pressures
 - Enhance internal and external websites

ADMINISTRATIVE RESPONSE – Appended



UNIVERSITY OF TORONTO
FACULTY OF ARTS & SCIENCE

25 September 2015

Professor Sioban Nelson
Vice-Provost Academic Programs
University of Toronto

Re: Review of the Department of Computer Science and its undergraduate and graduate programs

Dear Sioban,

Along with the faculty, staff and students of the Department of Computer Science (DCS), I am grateful to the external reviewers for their assessment of the Department and its undergraduate and graduate programs, which include the Computer Science BSc (Special, Major, Minor), the Computer Science MSc and PhD, and the Masters of Applied Computing (MAsc).

The external review committee clearly acknowledges the strength and aspirations of the department, stating at the outset that “DCS has consistently been ranked as one of the top CS departments in the world, and is deeply imbued with a strong sense of what true world-class research excellence means.” While its top-10 international ranking is based largely on its award-winning research programs, its ambition for excellence in both its undergraduate and graduate programs is equally high. The review committee clearly recognizes the impact DCS has both inside and outside of the university, as reflected by their comment that “the Department – its faculty, students and staff - has brought excellence and distinction to the University of Toronto, and helped build the knowledge economy of the city, province and country.”

The excellence of this top-ranked department notwithstanding, the review report raises a number of serious issues and challenges. As per your letter, I am writing to address the areas of the review report that you identify as key. The response to these items is separated into short- (current-3 months)/intermediate- (3-12 months)/long-(12+months) term action items for the Department, where appropriate. Through various group meetings, the Department and the Faculty have discussed the reviewers’ comments. A number of changes have been instituted over the past few months to respond to their suggestions.

Curriculum & Program Delivery

• The reviewers focused on the resurgence in undergraduate student demand and expressed serious concern about the limited undergraduate course offerings, overcrowding in undergraduate courses, delayed feedback on student work, the lack of undergraduate student interaction with tenure-track research faculty, the limited involvement of undergraduate students in research, and lack of initiatives to connect students with potential employers.

The reviewers stated that the Department of Computer Science (DCS) has “put a well-conceived, modern undergraduate Computer Science program in place, and its courses are in extremely high demand by both CS majors and by students across the University.” At the same time, the reviewers emphasize the urgent need to invest in these programs and to increase the faculty complement in order to meet student demand and expand course offerings.

As an area of study, Computer Science has had a cyclical history at the University of Toronto. The Department has faced an increase in student demand in the last few years and this is reflected in the number of students currently enrolled in both the major and specialist programs. The increase in demand did not build up over time but happened within a short time period which meant rebalancing the Department’s teaching capacity and course offerings. Prior to the review, we had already begun to look at the effects of the enrollment increase on the Department and its programs.

The rise in student demand has been mitigated, in part by the Faculty’s renewed efforts of engagement with our colleagues in the Faculty of Applied Science and Engineering, and the Provost’s office to develop an inter-divisional teaching (IDT) framework to address the significant amount of service teaching provided by one Faculty to the students enrolled in programs at the other. The Department has historically offered approximately 11 half-course equivalents per year to engineering students. The IDT discussions facilitated a re-consideration of these courses and led to their transfer to the Faculty of Applied Science and Engineering in 2013/14, relieving DCS from this teaching obligation. The funding associated with this transfer was provided by the University, with no reduction in resources to the DCS.

In addition, the Faculty and the DCS began an intensive engagement aimed at quantifying the DCS resources. This engagement followed the change in enrolment trends that had slowly begun inching up since 2010 and started to move upwards sharply in 2011/12 and 2012/13. The collaboration between the Department and the Faculty identified short-term teaching requirements, and long term faculty renewal issues. The DCS is also reviewing its current policies on teaching releases, originally developed during the programs period of low student demand.

New faculty lines have been allocated to the DCS to help address enrolment increases and enhance faculty complement. The Faculty Appointments Committee recommended in 2013/14 that a total of 7.5 FTE faculty lines be approved for the DCS (2.0 FTE Teaching Stream; 5.5 Tenure Stream). The renewal of faculty complement will reduce pressures on the undergraduate programs, instructors and students. The Department has successfully completed the hiring for 3.0 FTEs and hopes to complete the remaining 4.5 FTEs this academic year. The Department has also received an additional allocation of 3.5 FTE Limited-Term Lecturers this year, and 2.0 FTE CLTA professorial appointments to provide short-term stable teaching capacity while DCS completes the tenure and teaching stream searches. The Dean’s Office in collaboration with the DCS will continue to monitor the teaching capacity available to ensure the programs are moving in a positive direction.

Short-term response:

- DCS is completing several academic searches this year. If any searches are not successful, these will be carried over to 2015-16. Limited-term lecturer positions will be used to bridge ongoing academic searches.

Short-term to Intermediate-Term response:

- DCS plans to submit requests for future faculty lines to the Faculty Appointments Committee

• The reviewers also expressed concern about the limited number of graduate courses offered each year, the infrequent and irregular offerings of certain courses and absence of courses in specific areas and the rigidity of the graduate breadth requirements.

At the graduate level, the Committee states that “the PhD graduate program enjoys excellent external visibility and reputation; a new professional Master’s program promises to extend the reach of its graduate offerings.”

As noted by the reviewers, the tri-campus nature of the program attracts faculty from east and west, who have research labs and graduate students on the St George campus. These faculty members, alongside the approved professorial hires will provide increased graduate teaching and supervisory capacity.

The reviewers also note the rigidity of the graduate breadth requirements. According to the Chair, this has been a contentious issue in the department for many years. As the discipline of computer science expands its interdisciplinary boundaries into other fields, graduate students seek the flexibility to satisfy more of their course requirements with courses in other disciplines. While such flexibility is essential to attract and train interdisciplinary students in CS, some faculty believe such flexibility comes at the cost of a CS student’s “core” training. The current breadth requirements were the result of a compromise five years ago amongst those who believed these requirements were too strong and those believing they were not strong enough. At that time, the department agreed the breadth requirements should be revisited in a few years. This review provides the opportunity to begin new discussions on this issue and to consider the reviewers’ recommendation that “the breadth requirements should be reconsidered to allow more interdisciplinary flexibility.” This is one of the issues that the incoming DCS Graduate Chair will address.

Short-term response:

- Under the leadership of the Graduate Chair, the breadth requirements will be reviewed. The results of this review will be reported to the Vice-Dean, Graduate Education & Program by the end of the 2015-16 academic year. Any changes to requirements as the result of the review will be brought forward through appropriate governance processes.

- *The reviewers noted a possible decline in the quality of graduate students and limited funding for international students, and they identified graduate time to completion and attrition rates, including the fact that about half of the students who withdraw from the Ph.D. do so after 3.5 years in the program.*

The time to completion in DCS has averaged 5.6 years over the past 4 years, which is in keeping with the 4-year average for the science sector of 5.4 years. In the last few years DCS has seen longer times to degrees with the class of 2014 taking an average of 5.9 years. There are many factors at play and the University's School of Graduate Studies is looking into this trend and will provide recommendations. Computer Science graduate students are also in a disciplinary field that is enjoying an extraordinary labour market advantage. Top students have lucrative financial opportunities in a growing industry that rewards innovation and often takes time away from completing their degrees.

Short-term response:

- The DCS has adopted a new set of PhD program check points, designed to accelerate student progress and provide more timely feedback to students. This efficacy of this new process will be closely monitored.

Research

- *The reviewers observed that the Department is weak in a number of specific disciplinary areas and is in great danger of falling in international publication and citation rankings.*

The DCS has seen its international ranking fall in the last few years, due to retirements and departures both to industry and other universities. A field as continually changing as computer science will deal with declines in specific discipline areas over a shorter period of time. The Department is already working with the Faculty to address the complement concerns which in turn will help to address the lack of international publication and citation rankings from faculty.

Faculty

- *The reviewers expressed concern about poor faculty morale in the Department. They specifically commented on the lack of engagement of many faculty, particularly more senior colleagues. Other issues raised include poor internal communications, the isolation or siloing of specific groups, and a perceived gap between senior leadership and the administrative team. They noted the impact of limited faculty renewal on the department.*

The Department is aware of the problem of poor faculty morale. Complement issues and the division of staff and faculty among three buildings have contributed to this problem. In addition, Computer Science is a rapidly changing field, which can lead to a cultural divide existing between more senior and more junior faculty members. The Department expects that increases in complement and efforts to address space challenges, as discussed in other sections, will significantly improve Department morale.

Short-to-Intermediate response:

- The DCS will work with the Dean's Office to find ways to engage both faculty and staff in decision-making as well as talk attendance. Stronger communication at all levels will help to keep department members connected with each other.

Resources and Planning

- *The reviewers highlighted concerns about the physical fragmentation of the Department across four buildings and its impact on communication and collaboration. They also emphasized the need to modernize and rethink its laboratory space to meet student needs.*

The DCS is housed over four buildings and as the reviewers noted "this arrangement is a long-lasting and ongoing major problem." The Faculty is aware of the space concerns and has been working on finding both short-term and long-term solutions through our Office of Infrastructure Planning.

Short-Term response:

- The Faculty is engaging with the DCS to update the Department's space assessment. Based on this assessment, the Faculty will identify opportunities to reorganize and consolidate space in a manner that better suits DCS needs.

Long -Term response:

- The Faculty is working on plans for a potentially new site which would bring together the DCS. Discussions with the University's Campus & Facilities Planning Office began earlier this year.
- *The reviewers expressed an overarching concern about the Department's stretched resources.*

The department's budget is established on a historical base budget mechanism, which has recently been reviewed. The historical allocations, adjusted for faculty and administrative positions and contractually mandated increases to compensation and benefit rates, as well as allocations made under specific funding envelopes, has been validated. The resources review corrected a historical misallocation of funds with a one-time-only allocation and a modest increase to the base.

The Department emerged from a 4-year period of financial deficit at the end of 2012/13. The last 3 years have seen a rise in discretionary operating funds, accruing the equivalent of 12% of the base budget. The Department is in good financial shape, and the Chair is in a position to strategically allocate resources for academic to undergraduate or graduate education and research.

Short-term response:

- Funding for one time only, a base adjustment, Limited Term teaching appointments, and tenure searches have been allocated to the Department, as previously outlined.

To conclude, we appreciate that the external reviewers identified the Department's strengths and noted areas of development. The Department and the Faculty have already begun to move forward with plans to address the recommendations as presented by the reviewers.

Sincerely,

A handwritten signature in black ink that reads "David Cameron". The signature is written in a cursive, slightly slanted style.

David Cameron,
Dean and Professor of Political Science

cc. Ravin Balakrishnan, Chair and Graduate Chair, Department of Computer Science

Review Summary

Program(s) Reviewed:	Human Biology Undergraduate Programs (in the Faculty of Arts and Science) Genes, Genetics and Biotechnology, B.Sc., Hons.: Specialist, Major Global Health, B.Sc., Hons.: Specialist, Major Health and Disease, B.Sc., Hons.: Specialist, Major Neuroscience, B.Sc., Hons.: Specialist, Major Health Care Ethics, B.Sc., Hons.: Major Human Biology, B.Sc., Hons.: Major Environment and Health, B.Sc., Hons.: Specialist, Major
Division/Unit Reviewed:	n/a
Commissioning Officer:	Dean, Faculty of Arts and Science
Reviewers (Name, Affiliation):	1. Professor Lawrence Spriet, Human Health and Nutritional Sciences, University of Guelph 2. Professor Michael Timko, Department of Biology, University of Virginia
Date of review visit:	March 20-21, 2014

Previous Review

Date: October 23-24, 2006 (together with collaborative Life Science programs)

Summary of Findings and Recommendations:

1. Undergraduate Programs: Genes, Genetics and Biotechnology, B.Sc., Hons. (Specialist); Global Health, B.Sc., Hons. (Specialist); Health and Disease, B.Sc., Hons. (Specialist); Neuroscience, B.Sc., Hons. (Specialist); Health Care Ethics, B.Sc., Hons. (Major); Human Behavioural Biology, B.Sc., Hons. (Specialist); Human Biology, B.Sc., Hons. (Major)

The reviewers observed the following strengths:

- Programs fulfill significant need
- Good quality of students
- Contributions of basic medical sciences and other departments

The reviewers identified the following areas of concern:

- Large, diffuse program goals
- Large number of students lack academic home
- Need for more upper-level courses and need for laboratory experience for Human Biology

Major students

The reviewers made the following recommendations:

- Develop clear objectives for the programs
- Control enrolment to allow for consistency with available resources
- Provide more academic advisors for students
- Provide students with more quantitative data about program outcomes; survey program graduates

2. Graduate Programs: n/a

3. Faculty/Research

The reviewers observed the following strengths:

- Enthusiasm of faculty with respect to the programs is evident

The reviewers identified the following areas of concern:

- Limited resources available to allow for new hires

The reviewers made the following recommendations:

- Provide program with resources to hire additional faculty (permanent and/or cross-appointed from departments)

4. Administration

The reviewers observed the following strengths:

- Valuable relationship with New College
- Admirable energy and vision of the Director

The reviewers identified the following areas of concern:

- Challenge of obtaining faculty resources from various units

The reviewers made the following recommendations:

- Continue revenue sharing between Faculty of Arts and Science and Faculty of Medicine
- Provide the Director with increased administrative support
- Continue valuable relationship with New College

Last OCGS Review(s) n/a

Date(s):

Current Review: Documentation & Consultation

Documentation Provided to Reviewers:

Terms of Reference; Self-Study; FAS External Review Report

Consultation Process:

The reviewers met with the Dean of the Faculty of Arts and Science and the Vice-Dean, Graduate Education and Program Reviews; Vice-Dean, Teaching and Learning; Principal and Vice-Principal, New College; Associate Dean, Academic Affairs and Graduate Coordinator,

School of Public Health; Interim Vice-Dean, Graduate & Life Sciences, Faculty of Medicine; Director of the Program; junior and senior faculty members; administrative staff; and undergraduate students.

Current Review: Findings & Recommendations

1 Undergraduate Program

Genes, Genetics and Biotechnology, B.Sc., Hons. (Specialist, Major); Global Health, B.Sc., Hons. (Specialist, Major); Health and Disease, B.Sc., Hons. (Specialist, Major); Neuroscience, B.Sc., Hons. (Specialist, Major); Health Care Ethics, B.Sc., Hons. (Major); Human Biology, B.Sc., Hons. (Major); Environment and Health, B.Sc., Hons. (Specialist, Major)

The reviewers observed the following strengths:

- Overall quality
 - Programs offer great deal of choice and are popular with students
 - Inclusive curriculum reflects goal of meeting broad student interests
- Admissions requirements
 - High admission averages for both Specialist and Major programs
- Curriculum and program delivery
 - Unique, interdisciplinary approach to teaching and shared responsibility for the programs
 - Valuable collaboration between the Faculty of Arts and Science and the Faculty of Medicine in delivering the programs
- Quality indicators
 - Programs attract very high quality students from diverse national and international geographical regions
- Enrolment
 - Substantive student demand for program

The reviewers identified the following areas of concern:

- Curriculum and program delivery
 - Lack of clear plan in development of curriculum
 - Extensive overlap among many Specialist and Major programs
 - Students have impression that some courses have very similar curriculum
 - Inter-divisional teaching structure impacts ability to effectively manage curriculum
 - Limited effort to engage students in large lecture classes
 - Experiential learning is not sufficiently integrated into the curriculum
 - “Woefully inadequate” research opportunities for students
 - Some departments seem to view students in Human Biology programs as being of insufficient quality or dedication and do not provide them with research opportunities

- Quality indicators
 - Increased enrolment of more than 30% since 2005-06; program currently has over 3,200 students
 - High enrolment and limited availability of some courses contribute to student difficulty in completing programs within four years
 - 80-90% of students complete their programs within seven years
 - Programs are not considered to be very rigorous or to serve as entry points for academic science careers
 - Programs seem to be popular among students seeking higher grade point averages needed for admission to second-entry, health profession programs
 - Current approach to student learning in large classes is not desirable
 - Minimal exposure to laboratories is a significant constraint on student learning
 - Student concern about the quality of teaching assistants; some students make use of external tutoring services to augment variable quality of teaching
 - Student disappointment in quality of upper-year courses
 - Student concern that instructors of upper-year courses may lack relevant knowledge
- Support
 - Students have very limited opportunity to develop meaningful relationship with faculty due to large size of programs and courses
 - Non-existent mentoring of students due to other demands on faculty time
 - Inadequate provision of learning support and advising on academic and career planning
- Program Administration
 - Ability of students to independently change their program of study online poses administrative challenges for those coordinating courses and laboratories
- Faculty resources
 - Student concern of having to take multiple courses with the same faculty member over a range of topics
 - Small faculty complement unable to offer sufficient experiential-based learning opportunities
 - Faculty appear to have no free time to develop new pedagogical strategies due to heavy teaching load
- Physical resources
 - Limited teaching and laboratory training resources affected by relationship with other units

The reviewers made the following recommendations:

- Admissions requirements
 - Develop means of improving student entry requirements and performance in programs
- Curriculum and program delivery
 - Examine existing programs with a view to eliminating redundancies
 - Explore possibility of combining some Major programs, enabling flexibility and improved experience for students and releasing valuable resources

- Consider whether some programs would be better managed by other units, with guaranteed access for qualified Human Biology program students
- Manage range of course offerings more effectively, particularly if enrolment growth continues
- Incorporate greater use of online technologies and interactive simulation tools for student use outside of class time
- Use class time for more discussion and problem-based learning
- Strive to minimize factors contributing to delays in student completion of programs; improve student access to required courses
- Increase dramatically the number and diversity of laboratory and other experiential based courses, especially in upper years
- Increase research opportunities for students
- Quality indicators
 - Make substantive changes in order to provide highest quality of education to largest number of students
 - Develop a plan to improve student learning experience in large lecture classes and laboratories
 - Identify means of tracking performance of students in Major programs over time
- Support
 - Create a centre within the program to provide academic and career advice for students
- Faculty resources
 - Ensure that faculty teaching specialized upper-year courses possess relevant training and background
 - Engage faculty in student advising, focusing on career choice and planning

2 Graduate Program

n/a

3 Faculty/Research

The reviewers observed the following strengths:

- Faculty
 - A core group of faculty provide majority of teaching in the programs
 - Teaching contributions from other units help meet teaching needs

The reviewers identified the following areas of concern:

- Research
 - Current research programs by core faculty are largely non-existent, however this is not unusual given their teaching responsibilities in the program
 - Association of core faculty in the Department of Ecology and Evolutionary Biology does not facilitate research collaboration

- Faculty
 - Small number of core faculty have led to large class size of core courses
 - The programs would be unable to function without the provision of intra- and inter-divisional teaching
 - Some faculty are required to offer courses outside of their area of expertise, which negatively impacts the quality of the courses; they are unable to adequately train advanced students

The reviewers made the following recommendations:

- Research
 - Enable core faculty to choose their home departments where research collaboration might occur more naturally
- Faculty
 - Re-evaluate teaching load and course distribution among faculty
 - Increase faculty complement to ensure that the program's academic mission is met
 - Discuss implementation of joint hires among units who contribute to the programs
 - Explore exchange of teaching services between Human Biology program faculty and other departments offering specialized courses

4 Administration

The reviewers observed the following strengths:

- Relationships
 - Teaching contributions by the Faculty of Medicine are essential to success of the programs
- Planning / Vision
 - Current Chair possesses the enthusiasm and vision to address challenges in program quality
 - Chair is prepared to engage in discussions regarding rebalancing of programs

The reviewers identified the following areas of concern:

- Relationships
 - Lack of written agreements between the Human Biology programs and partner units outlining faculty teaching responsibilities and contributions
 - The location of the programs within New College limits their future progress
- Organizational and financial structure
 - Lack of home department to advocate for much needed resources
 - Programs are poorly funded and supported, yet have broad curricular responsibilities
 - Faculty of Arts and Science is unable to properly care for and champion program of such large size
 - Unclear whether Faculty of Arts and Science has necessary resources to improve program quality through integration of experiential learning into the curriculum

- Unclear whether program funding is linked to enrolment
- Administrative staff are required to serve multiple functions; their roles are not clearly defined
- Due to lack of a home Department, teaching assistants do not work directly in the areas being taught
- Planning / Vision
 - Chair may be faced with departmental resistance to change and may not have sufficient authority to implement necessary changes

The reviewers made the following recommendations:

- Relationships
 - Develop written agreements with partner units outlining their contributions to the programs; specify teaching commitments to enable appropriate planning and assessment
- Organizational and financial structure
 - Address needs for improved faculty and administrative staff space, as well as enhanced laboratories
 - Augment resources for administrative staff to ensure that the program's academic mission is met; a program of this size should have double or triple the number of existing staff
 - Develop more clearly defined roles for the administrative staff
- Planning / Vision
 - The Chair should work with senior administration in the Faculty of Arts and Science to develop five-year strategic plan
 - Clearly articulate financial commitments and administrative support that will be provided to enable improvement of programs' infrastructure
 - Senior administration in the Faculty of Arts and Science must provide the Chair with strong support as he works to improve the programs
 - Provide the Chair with mentorship and managerial and leadership training to ensure he can serve as an effective leader

ADMINISTRATIVE RESPONSE – Appended



UNIVERSITY OF TORONTO
FACULTY OF ARTS & SCIENCE

September 30, 2015

Professor Sioban Nelson
Vice-Provost Academic Programs
University of Toronto

Re: Review of the Human Biology Program and its undergraduate programs

Dear Sioban,

Along with the faculty, staff and students of the Human Biology Program (HMB), I am happy with the external reviewers' evaluation of the Program and its undergraduate programs: Genes, Genetics and Biotechnology, B.Sc., Hons. (Specialist, Major); Global Health, B.Sc., Hons. (Specialist, Major); Health and Disease, B.Sc., Hons. (Specialist, Major); Neuroscience, B.Sc., Hons. (Specialist, Major); Health Care Ethics, B.Sc., Hons. (Major); Human Biology, B.Sc., Hons. (Major); Environment and Health, B.Sc., Hons. (Specialist, Major). The reviewers praised the Program's interdisciplinary nature and its ability to attract high quality undergraduate students from across Canada and internationally.

HMB is unique within the Faculty of Arts & Science. As discussed in its self-study, since 1999, HMB has been an extra-departmental program in the Faculty of Arts & Science and has a long-standing history of offering a selected range of interdisciplinary life science undergraduate programs of study in a collaborative academic environment. By most accounts, Human Biology Specialist and Major programs are quite popular with students and have made a considerable impact on life sciences education at the University of Toronto. As per your letter of 30 January 2015, I am writing to address the areas of the review report that you identify as key. The response to these items is separated into short-(current-3 months)/intermediate- (3-12 months)/long-(12+months) term action items for the Department, where appropriate. Through various group meetings, the Program has discussed the reviewers' comments. A number of changes have been instituted over the past few months to respond to their suggestions.

Curriculum & Program Delivery

• *The reviewers emphasized the need to re-assess the five Specialist and seven Major programs and to consider, guided by a clear academic rationale, reducing the number of programs and overlap in the curricula. In doing this, the program might consider the factors leading to a decline in enrolment in the specialist programs.*

Nevertheless, the reviewers comments on the Program's interdisciplinary education, which provides undergraduate students the ability to study, in a broader sense, the "advances of scientific inquiry and practice and their impacts on people and culture nationally and globally." The reviewers identified several areas in need of review, including the lack of specific admissions requirements and redundancy across some Majors. The historical development of the program is most likely the cause of this, especially the dramatic enrolment increases in the 2000's, which led to increases in program and course offerings to meet student demand.

Beginning in 2013, and as part of the development of the HMB self-study, the Director began an intensive curriculum review of the programs. The curriculum renewal process was divided into various phases and addressed the following: 1. Defining what is human biology in a modern scientific context and how it serves the needs of UofT undergraduate students; 2. Developing competencies required for an undergraduate science education in human biology to support a renewed framework and program mapping for programs; and 3. Consulting on program mapping to refine the quality of the learning objectives that are specific to each program. Throughout the process, the Director of the Program consulted with all invested members, through various meetings, including the Life Sciences Curriculum Planning Committee, who advises on curriculum matters relating to Life Sciences programs.

A revision of the Majors and Specialists was among the top priorities for quality enhancement following the external review. As a result HMB re-evaluated each of the courses listed in its calendar with the goal of ensuring that courses are listed because of their pedagogical merit rather than historical convenience. During this process, HMB also carefully considered their ability to offer such a large range of programs (12 in total) given the expertise of the unit and ability to offer rigorous programming through partnerships with other departments. While several programs have healthy enrolments and are relatively popular with life science students, others were showing signs of declining interest or relatively weak content. The enrolment decline in the specialist program is likely attributable to a trend seen through all Arts and Science programs. Rather than specializing in a specific field, students are combining two related fields to provide them with greater depth and more opportunities in pursuing their academic goals. Below are several of the changes already made by HMB to its programs:

1. One of the first changes made was to freeze enrolment in the Health Care Ethics Major in 2014-2015. This was a very small Major (only 11 students total were enrolled in 2013-2014) and program requirements were largely unstructured and insufficient to fully satisfy a Major in this field.
2. Major modifications were made to seven HMB programs: Genes, Genetics and Biotechnology (Specialist and Major) – now named the General and Applied Genetics programs; Health and Disease (Specialist and Major); Neuroscience (Specialist and Major) and Human Biology (Major). Changes to these programs were mindful of what students consistently view as the major strengths of the programs: interdisciplinary content and flexible course offerings. The major modifications balanced these two priorities but also ensured program objectives are clearly defined, that core competencies are addressed (critical thinking, quantitative reasoning, etc.), and that human biology research serves as a guiding principle for the renewed framework of these programs. The revised programs include several improvements and innovations that we believe will contribute to their success: all students regardless of their Major or Specialist are now required to have introductory genetics and statistics courses to ensure that they have a firm foundation for the diversity of upper year courses that require a basic knowledge in these areas. All Specialist students are now required to complete a senior year research project course to further enhance their experience in critical analysis and discovery, and also take at least one course in bioethics to promote knowledge translation in an area of social significance. After extensive consultation within the program and with cognate units, the major modifications to these seven programs were approved at the February 12, 2015 A&S Faculty Council.

We commend the Director and all HMB faculty for their work to date on these program changes. Students in these seven programs will now benefit from clarified learning objectives, improved streaming of course offerings and clearer progression of program requirements through each year of the programs.

In addition to these program changes, HMB also plans to move forward on a number of other changes to reassess the number and mix of programs offered over the short- and intermediate-term.

Short-term response:

- Given that admission to the Health Care Ethics Major was suspended last year, the process to begin closure of the program will begin in fall 2015.

Intermediate-to long -term response:

- Two remaining sets of HMB Programs will undergo intensive curriculum review (Global Health Specialist and Major; Environment and Health Specialist and Major). The Director will conduct curriculum reviews of these programs in 2015/16 using the same process that was applied to the seven programs that previously underwent review and subsequent Major Modifications.
- The Global Health Programs may be modified in coordination with the other initiatives within A&S and with other Inter-Divisional partners. The Director will continue to work with the Vice-Dean, Teaching & Learning as these initiatives develop.
- The Environment and Health Programs will be reviewed in collaboration with the School of the Environment. Currently these are joint Programs, however there is relatively little HMB course content included in them. The curriculum review and discussion will centre on the rationale for maintaining HMB involvement in these Programs.
- As part of the renewal process, an advisory committee has been established to help maintain the excellence in the program curriculum and teaching. The Director, along with the advisory committee will work to establish MOAs with other units who provide teaching and research opportunities for Human Biology students to maximize their experience.

Quality Indicators

- *The reviewers expressed concern about the impact of a number of factors on quality and academic rigour including large class size, the small number of core faculty members, faculty teaching courses in which they have limited expertise, duplication of course content, and the limited emphasis in course offerings on laboratories, experiential opportunities, and research.*

Certain areas of study in the University attract a large number of undergraduate students and the ability to limit enrollment in first year courses is not always possible. Small tutorial group sessions, as well as small lab courses are offered through the Human Biology Programs and is an important part of the experiential learning for science students, which is quite impressive considering the size of the HMB faculty complement. In their assessment of the lab courses, we believe the reviewers overlooked the following: HMB normally offers seven lab courses and eight independent study/research courses with a primary supervisor from different contributing departments. HMB students also have access to cross-listed lab courses in cognate programs. At

the same time, HMB has offered, in past years, experiential learning opportunities for students to travel to Namibia, Belize, Dominican Republic, in addition to introducing community engaged learning components into three courses. The Director of HMB notes that as the program increasingly engages with alumni, it is becoming clear that many HMB graduates have achieved success in their careers. Many are entering professional programs and graduate schools, establishing careers in a wide-variety of industries; this is a measure of HMB's success in preparing these students.

There is no clear empirical evidence that teaching quality and academic rigor are compromised in HMB courses and programs by large class sizes or the small number of core faculty. All core teaching faculty were recently appointed to the rank of Senior Lecturer (new Associate Professor, Teaching). Successful appointment to Senior Lecturer implies that their National and International peers viewed their teaching as excellent. Moreover, in the NSSE 2011 survey HMB students rated their **Level of Academic Challenge** no differently than students from comparable institutions (HMB Multiple Fields 53.9; U15 Multiple Fields 54.5), suggesting academic rigor is not compromised.

HMB recognizes the concern regarding core faculty teaching outside their area of expertise and is addressing this concern in two ways. First, the Program streamlining initiated in 2014/15 is reducing the breadth of course offerings. In addition, HMB is submitting 12 courses for deletion in the upcoming Curriculum Review cycle. Second, the modernization of teaching agreements both with units in FAS (in particular Cell & Systems Biology, Ecology & Evolutionary Biology, Psychology, Statistical Sciences, and Anthropology) and outside of FAS (Medicine, Dalla Lana School of Public Health, Kinesiology & Physical Education, UTM) will increase the capacity of qualified experts to teach more specialized HMB courses.

HMB faculty have made excellent progress in developing new and innovative methods of online content delivery and student interactions, while HMB has been working closely with Cell & Systems Biology, Ecology & Evolutionary Biology and the FAS to expand and modernize lab course offerings for HMB students in the planned renovations of the RW teaching labs. These resources will enhance the quality of the courses and in some cases allow for increased course enrolment. Finally, the renewed, and streamlined, framework for each of our POSTs will provide an improved guide for student course selection and rationale for fulfilling program objectives.

Short-term to intermediate-term response:

- The Program has been working closely with the Dean's Office and the Departments of Cell & System Biology and Ecology & Evolutionary Biology to expand and modernize lab course offerings for HMB students in the planned renovations of the Ramsey Wright teaching labs. HMB has contributed financially to the teaching lab renovations in Ramsay Wright and will therefore have the opportunity to increase the number of spots available to their students for lab course instruction by 65% in most courses and will be able to increase offerings of higher level lab courses in the program. The renovated HMB teaching labs are targeted to be in operation by September 2016.
- The Program is working with the Dean's Office in Arts and Science to develop new strategies to enable non-FAS faculty members to take advantage of various undergraduate funds, including the Dean's International Initiative Fund (DIIF) and the International Course Module program (ICM) thereby increasing international learning

opportunities for students. The Program will continue to partner with New College to enhance existing initiatives.

- The Program has partnered with the Faculty of Medicine to organize the Undergraduate Research Day to showcase undergraduate research opportunities available to HMB students.

Students

• *The reviewers expressed concern about the impact of the large numbers of students, including the lack of opportunities for mentoring relationships with faculty and limited academic advising and career planning.*

The mentoring of undergraduate students is a priority for the Program and for the Faculty of Arts and Science. The reviewers' concern that the large number of students limits academic and career advising is not unique to the Human Biology Program, but is one that the Faculty and the University are working to address. Currently, Human Biology students have a dedicated student advisor and the Program Administrator also provides additional advising when needed. The Associate Director spends a portion of his time mentoring students and the Colleges are also available to advise when needed.

Short-term response:

- The Program has recently participated in the b2B program (backpack to Briefcase) and in several workshops, including the Science as a Critical Practice. The Program is expanding its involvement with the b2B program and will offer a minimum of 10 events this academic year (hosted directly by HMB, co-hosted with Cell & Systems Biology, or by the FAS Office of Advancement).
- The Program is currently undergoing a review of its Academic Staffing Complement (described below) that may increase Student Advising capacity.
- The recent Major Modifications to the majority of HMB programs resulted in streamlined course offerings, which has reduced the need for student advising on course selection and program progression.

Intermediate-term response:

- The Program has submitted a 2014-15 STEP Forward Proposal for a pilot project that will benefit students through the development of formal faculty advisorship relationship. The initiative, which was successful, will be delivered in 2015-16 and will include all senior faculty members and the Director.

Faculty

• *In addressing the teaching responsibilities of core faculty in the programs, the reviewers expressed concern about their limited engagement in research and recommended that core faculty be appointed to units where proximity to active researchers would promote collaboration.*

The last few years have seen the Human Biology faculty at the forefront of developing and testing new pedagogical approaches, especially in the form of technology enhanced learning. The resources for these initiatives have been provided through peer-reviewed grants. In the last three years HMB faculty have acquired over \$300,000 in grant funds for 22 projects. These pedagogical research activities are at the forefront of teaching innovation and include such things

as the development of fully online synchronously delivered courses using newly designed active learning activities.

Short-term response:

- The HMB Director has consulted with the core HMB Lecturers and Associate Professors regarding their home appointments. Based on those consultations the Director has initiated formal discussions with the Department of Cell and Systems Biology regarding the possibility of appointing them to this unit, which aligns closely with their previous research experience and current teaching programs
- HMB recently hired a Lecturer (for a 2-year term). This new Lecturer brings expertise in neuroscience, imaging and clinical research to the Program, and thus both complements current teaching strengths and expands the breadth of expertise.

Resources

• *The reviewers praised the interdisciplinary approach to teaching of the Human Biology Programs and the important contributions of multiple units, but felt that the informal nature of the agreements with the Faculty of Medicine and other units and the lack of a formal “home” leaves these large and important programs without a champion and with an unstable foundation.*

We recognize that the Program’s interdisciplinary nature has meant that numerous invested units are involved in the teaching of the Program’s courses. As one of the largest undergraduate programs, with just over 3200 students, it is a priority for the Program and FAS to take the necessary steps to address the reviewers’ concerns that the Program needs a stable foundation going forward.

Short term response:

- The HMB Administrative Staffing Complement is currently under review. This process between FAS HR, FAS Vice-Dean of Teaching and Learning, and HMB Director is examining both the total number of administrative staff positions, and their organization. This process should be complete with changes implemented by late 2015.

Intermediate-to-long term response:

- The Director will work with the FAS Dean’s Office to formalize agreements with FAS units and the Faculty of Medicine, which will help to address resource and complement issues.

• *The reviewers observed the need for improved faculty and administrative staff space and an increased number and diversity of laboratories, needs that might typically be met by a strong home unit.*

The Program’s current space is located within New College. Their relationship with the College has been a long and valued one for both the Program and the College. As the Program has grown, so has its need for additional administrative space. The Faculty Office for Infrastructure Planning has been working to provide space audits for all FAS units and Human Biology is a priority.

Short-term response:

- The Program will be able to use dedicated HMB laboratory space within Ramsay Wright, which will be available in 2016 academic year. This space will almost double the capacity for lab course offerings.

Intermediate-to-long term response:

- The Director will work with the FAS Office of Infrastructure Planning to determine what their space requirements are and what is currently available as temporary options.

To conclude, we appreciate that the external reviewers identified the Program's strengths and noted a few areas of development. The Program has already begun to move forward with plans to address the recommendations as presented by the reviewers.

Sincerely,



David Cameron,
Dean and Professor of Political Science

cc. Melanie Woodin, Director, Human Biology Program

Review Summary

Programs Reviewed:	Jewish Studies, B.A., Hons.: Specialist, Major, Minor
Division/Unit Offering Program:	Faculty of Arts and Science (Programs housed in the Anne Tanenbaum Centre for Jewish Studies)
Commissioning Officer:	Dean, Faculty of Arts and Science
Reviewers (Name, Affiliation):	<ol style="list-style-type: none">1. Professor Deborah Dash Moore Frederick G.L. Huetwell Professor of History and Director, Frankel Center for Judaic Studies University of Michigan2. Professor Ira Robinson Department of Religion Concordia University
Date of review visit:	January 12 – 13, 2015

Previous Review

Date: January 8, 2008

Summary of Findings and Recommendations:

1. Undergraduate Programs: Jewish Studies

The reviewers observed the following strengths:

- Model interdisciplinary program
- Breadth of course offerings

The reviewers identified the following areas of concern:

- Students' difficulty in accessing courses from other units

The reviewers made the following recommendations:

- Aid students in enrolling in courses needed for their programs

2. Graduate Programs: n/a

3. Faculty/Research

The reviewers observed the following strengths:

- Internationally known, highly regarded scholars

The reviewers identified the following areas of concern:

- Challenge in filling appointment in medieval Judaism/philosophy
- Need for continuing appointment to teach Hebrew language at all levels

The reviewers made the following recommendations:

- Continue efforts to fill Grafstein Chair in Medieval Judaism/Philosophy
- Prioritize hiring a continuing faculty member to teach Hebrew language

4. Administration

The reviewers observed the following strengths:

- Strong relationship with Jewish community

The reviewers identified the following areas of concern:

- Leadership succession planning

Last OCGS Review(s) Date(s): n/a

Current Review: Documentation & Consultation

Documentation Provided to Reviewers:

Terms of Reference; Self-Study; Faculty CVs; FAS External Review Report and Administrative Response

Consultation Process:

The reviewers met with the Dean, Faculty of Arts and Science; Vice Dean, Graduate Education and Program Reviews; Director, Jewish Studies Program; junior and senior faculty members; administrative staff; Jewish Studies program undergraduate students.

Current Review: Findings & Recommendations

1 Undergraduate Program

Jewish Studies, B.A., Hons.: Specialist, Major, Minor

The reviewers observed the following strengths:

- Overall quality
 - Impressive program provides focused educational experience
 - Uniformly high level of teaching
- Curriculum and program delivery
 - Program structure addresses student needs and enables flexibility in meeting learning outcomes and degree objectives
 - Compelling course offerings; four categories reflect major international trends
 - Students appreciative of high-calibre courses
 - Introductory courses use novel ways to attract students to the field

- Creative use of collaborative, engaging teaching models
- Course delivery encourages interdisciplinary focus
- Responsiveness to student needs through internships and service learning in Jewish community organizations
- Assessment of learning
 - Evaluation of course effectiveness reflects best practices
- Quality indicators
 - Articulate, intelligent, motivated students
 - Appropriate completion rates and time-to-completion
 - Students' appreciation of the discipline and acquisition of transferable skills
 - Students express pride in Program's positive value
 - Numerous opportunities for frequent student-faculty interaction
- Support
 - Staff actively engage with students, inviting them to consider enrolling in a Program after taking one or two courses
- Physical resources
 - Centre has created welcoming space that is heavily used by students

The reviewers identified the following areas of concern:

- Curriculum and program delivery
 - Collaborative teaching model relies on voluntary teaching and coordination and doesn't include tutorials

The reviewers made the following recommendations:

- Curriculum and program delivery
 - Consider offering regularly taught upper-level courses in Major and Minor Program
- Student funding
 - Provide generous student financial aid, given available resources

2 Graduate Program

n/a

3 Faculty/Research

The reviewers observed the following strengths:

- Overall quality
 - High calibre of scholarship by faculty from range of disciplines
- Research
 - Faculty are leaders in their fields
 - Highly productive, world-class faculty publish regularly in top journals

- Faculty publications read by both academics and lay people
- Graduate students collaborate with faculty on research projects

The reviewers identified the following areas of concern:

- Research
 - Although research assistant opportunities for undergraduate students are available, most are filled by graduate students
- Faculty
 - Not all fields needed for a well-rounded program have been covered

The reviewers made the following recommendations:

- Faculty
 - Consider prioritizing appointments in Yiddish and Hebrew literature, modern Jewish history, and Sephardi/Mizrachi studies
 - Further support postdoctoral fellows through orientation program for Centre
 - Examine ways of giving additional recognition and rewards to teaching-stream faculty

4 Administration

The reviewers observed the following strengths:

- Relationships
 - Faculty, students and staff are enthusiastic about Centre's accomplishments
 - Students value passion demonstrated by faculty and efforts of staff
 - Students have strong sense of belonging and community
 - Active Jewish Studies Student Union provides wide variety of programming
 - Program's vision widely held by stakeholders
 - Program administrators carefully cultivate relationships with cognate units
 - Expanding relationships with Hebrew University of Jerusalem and European institutions enable students to study and research abroad
 - International visiting scholars enrich Centre's activities
 - Centre has significant impact on local and national Jewish community
- Organizational and financial structure
 - Centre has successfully addressed recent changes to financial structure
 - Resources are very well-managed
 - Undergraduate Coordinator has effectively advanced Program
- Planning / Vision
 - Faculty will be considering a proposal to change the status of the Centre for Jewish Studies from an EDU: C to an EDUC: B
 - Impressive development and fundraising initiatives

- Department/unit/programs relative to the best in Canada/North America and internationally (reputation/profile)
 - At forefront of major North American Jewish Studies programs
 - Enrolment in programs is more than double that of peer institutions

The reviewers identified the following areas of concern:

- Organizational and financial structure
 - Increased demands on staff over past few years due to expanded resources
 - Greater space needed to support growing Program

The reviewers made the following recommendations:

- Organizational and financial structure
 - Examine opportunities to access larger venue and seminar room for Centre's activities
 - Consider addressing increased demands on staff, perhaps through additional position
 - Explore means of further supporting Undergraduate Coordinator
- Planning / Vision
 - Consider creating an institute for advanced Jewish studies in future to further foster research and collaborative projects

ADMINISTRATIVE RESPONSE – Appended



UNIVERSITY OF TORONTO
FACULTY OF ARTS & SCIENCE

September 25, 2015

Professor Sioban Nelson
Vice-Provost Academic Programs
University of Toronto

Re: Review of the Anne Tanenbaum Centre for Jewish Studies & its undergraduate programs

Dear Sioban,

Along with the faculty, staff and students of the Anne Tanenbaum Centre for Jewish Studies, I am extremely pleased with the external reviewers' evaluation of the Centre and its undergraduate programs: Jewish Studies, B.A., Hons. (Specialist, Major, Minor). The reviewers found the Centre and its programs to be quite impressive, integrating Jewish Studies into the University of Toronto community successfully, while providing an "intimate and focused educational experience."

The reviewers spoke highly of the Centre's "sense of belonging", where "everybody knows your name". Through the embracing of the "positive value of Jewish studies", the Centre and its programs have attracted students from diverse backgrounds and disciplines, coming together to learn in relatively intimate course settings with a great sense of energy and enthusiasm shared by those involved with the Centre.

Curriculum & Program Delivery

• *The reviewers note that the Centre has grown over the years in terms of its course offerings. They also highlight some suggestions for curricular and faculty complement growth to ensure the program's status as a "well-rounded Jewish Studies program".*

The reviewers noted that the University of Toronto is one of the leaders in Jewish Studies and its programs stand "at the forefront in North America in terms of breadth and comprehensiveness of its offerings". In order to maintain this status, the Centre and the Faculty see the need to provide consistency to the programs and the courses offered.

Short-term response:

- The Centre will consult with the Department of History on working to fill the Zaks Chair in Jewish History on a continuous basis, therefore allowing for more consistent course offerings in European Jewish History and Modern Israel's History.

Intermediate-to long -term response:

- The Faculty of Arts and Science and the Anne Tanenbaum Centre will consult and discuss the possibility of submitting a proposal to change the status of the Centre, currently an EDU:C.
- The Centre will approach cognate units to develop a proposal for an appointment in Hebrew and Yiddish Literature.

Long-range Planning

• *The reviewers suggested that steps be taken to further strengthen the Program by providing an orientation for postdoctoral fellows and greater support and recognition of staff and teaching-stream faculty.*

Short-term response:

- The Centre has begun to address the reviewers' concerns with respect to providing an orientation to the postdoctoral fellows. The Director of the Centre will meet with the fellows to help them adjust to the University and its community, as well as provide guidance on how best to prioritize their responsibilities and work during their fellowships.

Intermediate-term response:

- The Director will consult within the Centre on ways to best support and recognize staff and teaching stream faculty.
- *The reviewers also contemplated ways in which the Centre might foster additional research and collaborative projects and accommodate visitors and public events.*

The fostering of research is a priority for both the Centre and the Faculty of Arts and Science. The reviewers' suggestions on how to foster additional research were welcomed.

Short-term response:

- The Centre has begun to support additional working groups and reading groups throughout the academic year.
 - The Centre has provided funds to enable smaller scale events proposed by affiliated faculty members in Slavic, Medieval Studies and Near and Middle Eastern Civilizations.
 - The Director has established a Jewish Studies faculty colloquium for faculty to present working papers to each other. The current plan is to schedule four presentations in diverse areas of Jewish Studies to ensure it becomes a vital part of the Centre's culture.
- *The reviewers also make some suggestions regarding staffing to support the program.*

Intermediate-term response:

- The Director will consult with the Dean's Office to discuss the current support provided to the Program and prepare a plan to address the administrative needs of the Program.

To conclude, we appreciate that the external reviewers identified the Program's strengths and noted a few areas of development. The Program has already begun to move forward with plans to address the recommendations as presented by the reviewers.

Sincerely,



David Cameron,
Dean and Professor of Political Science

cc. Anna Shternshis, Director, Anne Tanenbaum Centre for Jewish Studies

Review Summary

Program Reviewed:	Master of Science in Biomedical Communications (MScBMC)
Division/Unit in which program(s) is housed:	Institute of Medical Sciences
Commissioning Officer:	Professor Trevor Young, Dean, Faculty of Medicine Professor Amy Mullin, Vice-Principal and Dean, University of Toronto Mississauga
Reviewers (Name, Affiliation):	1. Professor Steven Harrison, Department of Medical Illustration, Georgia Regents University 2. Professor Bonnie Sadler Takach, Department of Art and Design, University of Alberta 3. Professor Nadine Wathen, Faculty of Information and Media Studies, The University of Western Ontario
Date of review visit:	February 25-26, 2015

Previous Review

Summary of Findings and Recommendations:

1. Undergraduate Programs:

n/a

2. Graduate Programs: Master of Science in Biomedical Communications

The reviewers observed the following strengths:

- Program is role model for others in biomedical communications and visualization
- Attracts high quality, well-prepared students
- Program objectives reflect high standards
- Excellent program completion rates

The reviewers identified the following areas of concern:

- Minimal exposure to observation of surgery constrains possible student projects
- Student desire for more timely information about funding opportunities

The reviewers made the following recommendations:

- Consider offering additional electives, broadening student training
- Explore ways to enable students to observe additional surgical procedures
- Gather and provide information to students on funding before they begin the program

3. Faculty/Research

The reviewers observed the following strengths:

- Active faculty are productive in valuable fields
- Outstanding record of grant awards

The reviewers identified the following areas of concern:

- Research opportunities somewhat limited for faculty who don't hold doctorate
- Planned program growth may impact time available to faculty to conduct research

The reviewers made the following recommendations:

- Continue to publish and present in non-traditional academic fields

4. Administration

The reviewers observed the following strengths:

- Strong support from senior administrators
- Necessary physical resources are in place to support program

The reviewers identified the following areas of concern:

- Relationships with clinical faculty may be affected somewhat by move to UTM

The reviewers made the following recommendations:

- Maintain presence on St. George campus, facilitating interactions with clinical faculty and access to hospital sites

Last OCGS Review Date: 2007-08

Current Review: Documentation & Consultation

Documentation Provided to Reviewers:

Terms of Reference; Self-Study Report; Schedule; Faculty of Medicine Strategic Academic and Research Plans; Documentation from OCGS Review in 2007-08—Period Appraisal Brief, Consultants' Report, Response to Consultants, OCGS Final Approval.

Consultation Process:

The reviewers met with the following:

1. Vice-Dean, Graduate and Life Sciences Education, Faculty of Medicine (Dean's Delegate) and Vice-Principal, Academic and Dean, University of Toronto Mississauga
2. MScBMC Program Director
3. Faculty – Department of Biology, UTM and Faculty of Medicine (Cross-Appointed)
4. MScBMC Students
5. Research – Associate Dean, Research, Faculty of Medicine, Vice-Principal, Research, UTM, and Associate Chair, Research, Department of Biology, UTM
6. Graduate Education – Vice-Dean, Graduate, UTM and Senior Lecturer, Educational Developer and Instructional Designer, The Robert Gillespie Academic Skills Centre, UTM
7. Administrative Staff – Graduate Program Officer and Manager, Department of Biology, UTM, and Biology Liaison Librarian, UTM
8. MScBMC Alumni
9. Master's Research Project Consultants (Basic and Clinical Scientists) – Departments of Immunology, Chemical Engineering and Applied Chemistry, Surgery

Current Review: Findings & Recommendations

1 Undergraduate Program

n/a

2 Graduate Program

Master of Science in Biomedical Communications

The reviewers observed the following strengths:

- Overall quality
 - Longstanding program with significant impact
 - Excellent, interdisciplinary, professional program that fills a key niche
- Objectives
 - Program aligns with University mission, Faculty's and unit's academic plan
 - Unique program tied to visual knowledge translation research and practice
 - Degree level expectations clearly outlined and reflect discipline's standards
 - Increasing visibility through use of student projects in other programs, research dissemination, and public education
- Admissions requirements
 - Admissions requirements are appropriate for program's learning outcomes
- Curriculum and program delivery
 - Careful planning and input of curriculum developer is evident
 - Appropriate, effective program structure and curriculum
 - Learning activities map well with learning outcomes
 - Faculty are fully engaged in innovative program delivery

- Anatomy and Surgery Departments play crucial role in aiding development of students' core competencies in medical illustration
- Students take part in range of learning opportunities made available to them
- Curriculum includes research methods course to aid students with Master's Research Project (MRP)
- Quality indicators
 - Attracts excellent applicants
 - Quality of students competitive with that of similar programs in terms of awards and recognition and quality of work
 - Rigorous application process contributes to excellent student completion rates
 - Demanding, intensive, innovative program
 - Students very satisfied with program relevance and career preparation
 - Graduates are "high-functioning and highly employable"
 - Alumni find interesting, well-paid employment, become entrepreneurs, and hire program graduates
- Student funding
 - Good student funding for professional program
 - Student optimism about ability to repay debt after graduation
- Support
 - Students provided with supportive learning environment
 - Students able to access faculty; staff are keen to support students and faculty
- Faculty resources
 - Adequate faculty complement given program size
- Physical resources
 - High quality UTM facilities meet needs of students and faculty

The reviewers identified the following areas of concern:

- Admissions requirements
 - Concern about sufficient intake of visual arts students
- Curriculum and program delivery
 - Student comments on repetition of some topics across courses
 - Faculty seek guidance on integrating collaborative learning into curriculum
 - Students would need greater training in research methods to evaluate efficacy of their research projects; minimal time to prepare publication-worthy research
- Enrolment
 - Future growth constrained by UTM facilities and faculty workload
- Support
 - Some faculty seek guidance on advising students in selecting their field and MRP topic
- Physical resources
 - Limited IT support for program at UTM
 - Issues with physical space in Fitzgerald Building
 - Quiet work space needed by students and faculty

The reviewers made the following recommendations:

- Admissions requirements
 - Explore ways to admit more students with visual arts background
- Curriculum and program delivery
 - Determine if some topic repetition among courses is cause for concern
 - Further enhance program through inclusion of typographic and information design principles
 - Explore more opportunities for student research
 - Discuss curation of student and faculty projects – these are valuable resources which can be shared with internal and external community
- Assessment of learning
 - Consider explicitly mapping assessment methods to learning activities
 - Consider further incorporating student self-assessment in program
 - Consider use of self- and peer-evaluation of team project management
- Support
 - Encourage faculty to seek best practices on student advising
- Program Development
 - Explore development of new doctoral programs – professional and/or research-based doctorate
 - Examine possibility of adding major in undergraduate health communications to existing minor program
- Physical resources
 - Provide further IT support for program at UTM
 - Address concerns about quality of physical space in Fitzgerald Building

3 Faculty/Research

The reviewers observed the following strengths:

- Overall quality
 - Strong, evolving research culture
- Research
 - Large-scale faculty research collaborations under way
 - High level of scholarly output despite heavy teaching and supervisory loads
 - Faculty use of MRP work for teaching, research and publication in basic medical science units
- Faculty
 - Strong sense of collegiality and common purpose

The reviewers identified the following areas of concern:

- Faculty
 - Little room for unforeseen events affecting faculty complement

The reviewers made the following recommendations:

- Research
 - Continue to conduct scholarly research (such as that arising from MRPs) to contribute to evolution of discipline and best practices

4 Administration

The reviewers observed the following strengths:

- Relationships
 - Extremely high morale among all stakeholders; visible enthusiasm of faculty, staff, and students
 - Strong student/faculty partnerships
 - Numerous existing collaborations with other units (especially with Department of Surgery and Division of Anatomy) and opportunities for further growth
 - Active, ongoing participation in annual “Exchange Seminar” with peer institutions
 - Program stature benefits from faculty, student and alumni provision of service to and involvement in Association of Medical Illustrators
 - Strong impact on local industry and economy
- Organizational and financial structure
 - Relatively stable budget and resources, following significant transitions in recent years
- Planning / Vision
 - Good support for Director
 - Active and engaged alumni association
- Department/unit/programs relative to the best in Canada/North America and internationally (reputation/profile)
 - One of only four accredited programs of its type in the world; equal to its American peers

The reviewers identified the following areas of concern:

- Organizational and financial structure
 - Potential risk tied to interdisciplinary aspect of program – Faculty of Medicine (St. George Campus) is graduate home, and Biology Department (UTM) is undergraduate/administrative home
 - Significant resources required to support program
 - Development of new ideas and initiatives by faculty may be inhibited by concern that program is not revenue-generating
- Planning / Vision
 - Possible advancement/fundraising opportunities may not yet have been adequately explored
 - Program expansion would require consideration of space availability

The reviewers made the following recommendations:

- Relationships
 - Maintain strong relationships with key Faculty of Medicine units, ensuring curricular strength
 - Continue to develop new, formal relationships with other units
 - Further develop relationships with industry, facilitating student employment and advancement initiatives
- Organizational and financial structure
 - Maintain physical presence on St. George Campus
 - Consider additional means of revenue generation
 - Examine additional advancement strategies such as infrastructure grants and endowed chairs
- Planning / Vision
 - Develop vision statement and link to promotional materials
 - Increase program profile through further communication of success stories to internal and external community, creating additional development opportunities

ADMINISTRATIVE RESPONSE – Appended

Friday, September 11, 2015

Sioban Nelson
Vice-Provost, Academic Programs
University of Toronto
Simcoe Hall, Room 224
27 King's College Circle
Toronto ON M5S 1A1

Re: Joint Administrative Response to External Review Report for the MScBMC Program

Dear Professor Nelson,

The Faculty of Medicine, University of Toronto and University of Toronto Mississauga are pleased to provide a response to the External Review Report for the Biomedical Communications Graduate Program (MScBMC), prepared by professors Steven Harrison, Bonnie Sadler Takach, and Nadine Wathen. This report follows a two-day site review in late February 2015, during which the reviewers met with various stakeholders involved in the program (students, alumni, faculty, administrators), and toured facilities on the St. George and UTM campuses.

Overall, the report is highly positive, and it fairly reflects the program's current faculty, curriculum, student body, infrastructure, and administrative environment. We are grateful for the comprehensive review and helpful comments going forward. It is especially gratifying that the reviewers remarked on the pedagogical and translation value of the scholarly work of BMC students and faculty, and noted its impact on the university and community. We would also like to thank Associate Professor Nicholas Woolridge, Director of Biomedical Communications for his outstanding leadership of the BMC Program over the past several years.

We will now respond to some specific observations and concerns raised.

Curriculum/Program Delivery:

1. The reviewers felt that learning activities already align well with learning outcomes, but assessment methods need to be more explicitly mapped to learning activities, so both are aligned with learning outcomes. The Program has initiated a series of strategic and curriculum planning retreats to address this issue; this would include a comprehensive review of DLEs to map learning objectives to curricular implementation and assessment.

2. The reviewers noted that concern was expressed about students with 25% course work in art-related disciplines not qualifying for admission, resulting in a perception of failure to accommodate the visual art background required to excel as a medical illustrator. It was suggested that students with a strong art background and abilities could take additional science courses in readiness for the program. The Program will more clearly indicate on its web site that a potential SGS non-standard application path exists for visual studies students.

3. The reviewers comment that this is an excellent program that can further distinguish itself by explicitly teaching typographic and information design principles, including the use of information hierarchy and cueing. The Program is currently reviewing and exploring revisions to its curriculum, and will seek to bring forward themes relating to legibility, readability, and typographic design considerations.

Research:

The reviewers state that enhancing the research culture in the program, including evolving research support opportunities and ways for students to more formally engage with evaluating their work, is a potential area of focus. This could include exploration of opportunities for doctoral studies. The Program agrees and plans to discuss the feasibility of options for doctoral level study, including a professional doctorate, at upcoming curriculum planning events. It is also discussing ways to encourage more MScBMC students to pursue the evaluation option within the existing Master's program. One crucial aspect of increasing research supervision capacity is finding adequate space for those students at UTM. BMC's current footprint in the HSC building is at capacity, and new space for graduate students will require either a reconfiguration of that space or new space elsewhere at UTM.

Resources:

The reviewers noted the faculty members' sensitivity to the fact that the program is not currently revenue generating.

1. There is a major concern regarding the resources required to design a new cadaver dissection anatomy course for BMC students as they will no longer be able to access the Structure/Function curriculum in undergraduate medicine. The Program will investigate alternate sources of revenue to fund this new course.

2. Another resource concern noted was the need for enhanced IT support at UTM for the Program. We agree that improved IT support either centrally delivered or via increased funding within the program, is needed. The Program is also looking into digital archiving options existing at U of T.

3. The final resource concern noted related to substandard space at the Fitzgerald Bldg. This will be addressed in the fall of 2015 with the impending move to newly renovated space at 263 McCaul St.

Long Range Planning:

The reviewers commented that ongoing attention is required to ensure that the strong and vital links with key Faculty of Medicine units, especially Anatomy and Surgery, are maintained. The Program currently enjoys a very close working relationship with Biology (UTM), IMS, and the Division of Anatomy, and strong relationships with Surgery, Immunology, and Human Biology, which it will seek to maintain as a priority. The reviewers also commented on the importance of the Program pursuing further opportunities for revenue generation to support new programming, such as through increased fundraising efforts and expansion of undergraduate programs. The Program plans to propose a new undergraduate major program in the next 1-2 years.

Conclusions:

The reviewers concluded that the program has many strengths, including a very high level of engagement and dedication from faculty, staff, students, alumni and the various partners with whom the faculty and students interact. They state that the new space at UTM is of high quality and well-suited to the needs of students and faculty. Importantly, they stated that there is a clear link between the program and the local economy – alumni are starting new companies and hiring BMC graduates and BMC grads are acting as liaisons to new industries. Finally, there is Administrative goodwill – the program enjoys support from senior leaders at both UTM and U of T's Faculty of Medicine. As one of only four accredited Medical Illustration programs in the world, applicants and current students are competitive with other medical illustration schools in terms of awards and recognition, quality of work and employment past graduation. The quality of education/training is at or above that of other similar programs.

Proposed Implementation Plan:

Curriculum & Program Delivery

Initiative	Timeline	Lead
Indicate on web site that SGS “non-standard applicant” process exists for visual studies students	6-12 months	Unit
Review DLEs to map learning objectives to curricular implementation and assessment	6-12 months	Unit
Review and revise curriculum to eliminate unproductive repetition, make research project process more flexible and manageable, and in light of industry changes	1-2 years	Unit
Explore opportunities for implementing peer and self assessment, in individual and group projects	1-2 years	Unit
Explore feasibility of new program options (undergrad programs, certificates, doctoral programs)	1-2 years	Unit
Design, propose, and implement undergraduate major program	1-2 years	Unit

Research

Initiative	Timeline	Lead
Establish pathway for doctoral studies within IMS context	underway	Unit
Encourage more MScBMC students to evaluate and publish research; tied to curriculum renewal, above	3-5 years	Unit
Continue to seek original and collaborative research opportunities; evolve discipline	underway	Unit
Ensure adequate space is allocated for research activities	1-2 years	UTM Dean

Resources

Initiative	Timeline	Lead
Maintain links with Medicine, St. George campus	ongoing	Unit
Maintain contacts with industry	ongoing	Unit
Enhance IT support on UTM campus	1-2 years	UTM Dean
Increase efforts around advancement, awards	1-2 years	Unit
Address concerns with Fitzgerald space	6-12 months	Unit/IMS
Address revenue and expense issues	1-3 years	UTM Dean

Long-Range Planning

Initiative	Timeline	Lead
Develop vision statement and strategic plan, and link to program promotion	6-12 months	Unit
Explore feasibility of new program options (undergrad programs, certificates, doctoral programs) (see above)	1-2 years	Unit
Seek to increase program profile via media, social media, collaborations, etc.	3-5 years	Unit



Amy Mullin,
Vice-Principal Academic and Dean, UTM



L. Trevor Young,
Dean, Faculty of Medicine and Vice-Provost, Relations with Health Care Institutions

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Review Summary

Program(s) Reviewed:	English, B.A., Hons.: Specialist, Major, Minor Theatre and Drama Studies, B.A., Hons.: Specialist – joint with Sheridan College Theatre, Drama and Performance Studies, B.A., Hons.: Major, Minor Canadian Studies, B.A., Hons.: Major, Minor
Division/Unit Reviewed	Department of English and Drama, University of Toronto Mississauga (UTM)
Commissioning Officer:	Professor Amy Mullin, Vice-Principal Academic and Dean, UTM
Reviewers (Name, Affiliation):	1. Professor Christopher Innes Department of English York University 2. Professor Cynthia Wall Chair, Department of English University of Virginia
Date of review visit:	March 5-6, 2015

Previous Review

Date: October 11-12, 2007

Summary of Findings and Recommendations:

1. Undergraduate Programs: English, B.A., Hon. (Specialist, Major, Minor); Canadian Studies B.A., Hon. (Major); Theatre and Drama Studies, B.A. Hon. (Specialist) (joint with Sheridan College); Theatre, Drama and Performance Studies, B.A., Hon. (Major, Minor)

The reviewers observed the following strengths:

- Sound curriculum represents traditional literature and newer approaches
- Small, fourth-year seminars provide fora for instructors to share world-class, scholarly research with undergraduate students
- Successful joint Drama program with Sheridan College
- Student Advisory Committee valuable tool for fostering community

The reviewers identified the following areas of concern:

- Important, emerging fields not being taught
- Support provided by teaching assistants hasn't kept pace with growth in student enrolment

2. Graduate Programs: n/a

3. Faculty/Research

The reviewers observed the following strengths:

- First-rate faculty with teaching and research profiles comparable to much larger national and international departments
- Faculty have large number of external research grants
- Faculty viewed by international peers as engaging in most up-to-date disciplinary thinking

The reviewers identified the following areas of concern:

- Understaffed Department; this inhibits ability to successfully fulfill its mission
- Non-tenured faculty conduct majority of teaching; "feeling of a two-tiered structure"
- Insufficient recognition of faculty contributions to Research Opportunity Program (ROP)

The reviewers made the following recommendations:

- Substantially expand faculty complement to keep pace with increased student enrolment and minimize negative impact on programs
- Develop initiatives to more fully integrate all categories of appointees into the Department
- Recognize and promote ROP as means of disseminating faculty research

4. Administration

The reviewers observed the following strengths:

- Organizational structure functions well; largely due to Chair's leadership
- Staff of view that Department currently operates well

The reviewers identified the following areas of concern:

- Significant administrative burden on the Chair
- Availability of technical support and inadequate computer resources
- Poor quality of space and facilities

The reviewers made the following recommendations:

- Distribute administrative responsibilities more evenly
- Formalize some procedures that have been implemented
- Prioritize provision of enhanced Departmental space

Last OCGS Review(s) Date(s): n/a

Current Review: Documentation & Consultation

Documentation Provided to Reviewers:

Terms of Reference
Department of Geography Self Study, 2015
Previous Review Report and Administrative Responses
UTM Degree Level Expectation Guidelines
UofT Facts & Figures, 2013
UTM Divisional Academic Plan
UTM Academic Calendar, 2014-2015
UTM Viewbook, 2015-2016
UofT Domestic Viewbook, 2015-2016
Tri-Campus Framework

Consultation Process:

The reviewers met with the Vice-Principal Academic and Dean; the Vice-Dean Undergraduate; the Chair of the Department of Geography, UTM; junior and senior faculty members; graduate and undergraduate students; and administrative staff.

Current Review: Findings & Recommendations

1 Undergraduate Program

English, B.A., Hons.: Specialist, Major, Minor; Theatre and Drama Studies (TDS), B.A., Hons.: Specialist – joint with Sheridan College; Theatre, Drama and Performance Studies, B.A., Hons.: Major, Minor; Canadian Studies, B.A., Hons.: Major, Minor

The reviewers observed the following strengths:

- Overall quality
 - Impressive quality of both English and Drama programs; they have very strong relationship
 - Program success due to program offerings and faculty quality and dedication; quite unique program of drama and theatre history spans medieval period to present
- Curriculum and program delivery
 - Excellent curriculum balances traditional literature and innovations
 - Welcome reintroduction of required survey course for Specialists and Majors
 - Third-year, “topics” courses further expose students to subjects introduced in previous years and to cutting-edge faculty research
 - Innovations in teaching of writing and use of new writing technologies are encouraged
 - “Beautiful” writing pedagogy is evident in first-year courses
- Student learning beyond the classroom
 - Very strong range of research-intensive, undergraduate courses, including ROPs and independent studies courses
- Quality indicators
 - Impressive quality and number of students in both English and TDS specialist programs
 - Despite decreased enrolment over past five years, graduation rates remain stable

- Consistently strong enrolment in English major program
- TDS program has potential to attract non-humanities students
- Significant proportion of honours students relative to total UTM population
- Completion rates of English and Theatre, Drama and Performance Studies majors exceed those of larger UTM departments
- High level of student satisfaction, particularly with tutorials and training in close reading and writing
- Students appreciate learning about teaching assistants' training
- Faculty resources
 - Chair has used various strategies to develop teaching assignments that meet needs of students and faculty
- Program Development
 - Student and faculty enthusiasm for establishment of Minor in Creative Writing program

The reviewers identified the following areas of concern:

- Curriculum and program delivery
 - Junior faculty feel excluded from curriculum decision-making process
 - Faculty would like to separate curriculum structure from that of St. George campus (STG)
 - Student and faculty desire for greater diversity of courses in other literatures, catering to student interests
 - Canadian literature is under-represented in curriculum
 - Junior faculty would like greater preparation of upper-year students, through core first-year course
 - TDS students would like more variation in course offerings, including playwriting and directing courses
 - Average enrolment in writing sections is 25
 - Low enrolment in *Colonial and Postcolonial Writings* course
- Quality indicators
 - Some students have seen differences in teaching effectiveness across courses
- Enrolment
 - Student-faculty ratio too high for teaching writing and critical thinking
- Faculty resources
 - Students may not be taught by tenure-stream faculty until third year
 - Some faculty have fewer opportunities to teach preferred courses, due to faculty complement size and student demand

The reviewers made the following recommendations:

- Curriculum and program delivery
 - Strengthen curriculum development through more inclusive and collaborative decision-making process, in particular, seek input from junior faculty
 - Consider separating UTM curriculum from that of STG

- Better reflect diversity of student body in course offerings
- Explore increasing enrolment in *Colonial and Postcolonial Writings* course by:
 - Exposing students earlier to genre through increased anglophone literature content in introductory course; expand offerings in upper years
 - Renaming the course
- Quality indicators
 - Consider student suggestions for strengthening course evaluation process:
 - Have students complete evaluations in class
 - Use written instead of online evaluations
 - Provide space for comments on online form
 - Inform students of importance and use of evaluations
- Program Development
 - Build on Department's strengths by proceeding with plans to develop Minor in Creative Writing program
 - Program would aid in student recruitment and contribute to sense of community
 - Increase prestige and publicity of Department through Writers-in-Residence series
 - Consider expansion of TDS program through increased support

2 Graduate Program

n/a

3 Faculty/Research

The reviewers observed the following strengths:

- Overall quality
 - Many faculty are leading scholars in their fields
- Research
 - Departmental research strengths in areas such as book history, textual edition, theatre history, critical theory, and early modern studies
 - High level of productivity; faculty consistently receive significant external research grants
 - Overall, faculty feel well-supported by both internal and external grants

The reviewers identified the following areas of concern:

- Research
 - Currently no Departmental endowed Chairs
 - Humanities applications are increasingly less likely candidates for SSHRC awards
- Faculty
 - Concern that not all past appointments have been replaced
 - Very small TDS faculty complement

- View that development of strong sense of UTM community has been limited by current size and mix of faculty complement
- Some faculty concern about gender/equity issues:
 - Some unhappiness with advancement opportunities for female faculty
 - Limited number of female and visible minority faculty and limited expertise in aboriginal literatures
- Junior faculty would like their teaching evaluation to include more peer evaluation and strengthened course evaluation processes

The reviewers made the following recommendations:

- Research
 - Continue to support funding opportunities for and efforts by humanities scholars
 - Consider establishing Departmental Canada Research Chair
 - Explore ways to recognize scholarly achievements of all categories of appointees
- Faculty
 - Continue long-term planning to attain full faculty complement, reflecting balance across all categories of appointments
 - Consider need for appointments in English and TDS programs - leadership role in Drama will need to be filled in future and a generalist with expertise in theory and dramatic history would be an asset
 - Examine issue of diversity in faculty complement
 - Raise awareness of importance of inclusivity and sensitivity to gender and equity issues
 - Develop additional ways to demonstrate respect and support for all categories of appointees

4 Administration

The reviewers observed the following strengths:

- Relationships
 - Successful merger of English and Drama programs has resulted in more unified Department
 - Overall, strong morale among departmental members, who report being treated with “dignity, respect, and support”
- Organizational and financial structure
 - Functional arrangement of competent staff shared with other departments; planned co-location will be helpful
- Planning / Vision
 - Departmental Chair’s leadership appreciated by faculty and staff
 - Chair has served critical role in advancing relations between English and TDS
- Department/unit/programs relative to the best in Canada/North America and internationally (reputation/profile)
 - Excellence in scholarship and teaching

- U of T English Department highly ranked internationally

The reviewers identified the following areas of concern:

- Relationships
 - Majority of Department, especially junior faculty, would like increased transparency and collaboration in decision-making
 - Perception of instances of sexism shared by students and some faculty
 - Many faculty identified need for stronger sense of community at UTM and opportunities for students to engage more with senior faculty
 - Limited number of informal spaces where students and faculty can meet
- Organizational and financial structure
 - Heavy workload of TDS staff
- Planning / Vision
 - Staff desire for English and TDS relationship to continue to be championed by future Chair

The reviewers made the following recommendations:

- Relationships
 - Facilitate examination and discussion of gender and equity issues by all members of the Department - faculty, staff, and students
 - Increase transparency of and collaboration in Departmental decision-making
 - Strive to build stronger sense of community within Department through formal and informal events such as speaker series
 - Continue outreach efforts on value of humanities
- Organizational and financial structure
 - Consider hiring additional TDS technical staff member; this could contribute to increased revenue stream
 - Expand revenue generation, donors, and good publicity for TDS programs, building on excellent performances in the community
- Planning / Vision
 - Examine ways in which departmental work might be delegated
 - Consider appointing an Associate Chair and Undergraduate Director, enabling Chair to focus on further building Department

ADMINISTRATIVE RESPONSE – Appended



UNIVERSITY OF
TORONTO
MISSISSAUGA

OFFICE OF THE DEAN

September 10, 2015

Professor Sioban Nelson
Vice-Provost, Academic Programs
Simcoe Hall
University of Toronto

Dear Sioban,

I am writing to provide an administrative response to the External Review of UTM's Department of English and Drama, which was held in March 2015. I am pleased with the largely favourable review which highlights the high level of student satisfaction, the quality of the faculty, and the collegial nature of the department. I am troubled, as you were, by some observations about possible inequities within the department and students' concerns about sexist behaviour in the classroom. In consultation with the Chair, I was reassured that some of the concerns raised by reviewers are being addressed.

Curriculum & Program Delivery

The reviewers made a number of recommendations for strengthening the curriculum by creating common first year experiences and through more diverse offerings in upper years. As well, they suggested ways to engage the whole Department in curriculum development.

It would be difficult to implement such a course as a "common first-year experience" since many students taking first-year English do not go on to enrol in English major or specialist programs. However, the department will explore whether a 200-level course of this nature would make sense, as a prerequisite for all 300- and 400-level courses, weighing the pedagogical value and the potential impact on enrolment.

The reviewers noted that the coverage of Canadian literature appeared under-represented and that a number of faculty were in favour of expansion.

The department is mystified by the reviewers' expectation that a department of its size should be offering more courses in the area of Canadian literature. The department notes that Canadian literature is covered in more courses regularly offered than any other national literature except for British. The department currently has a tenured faculty and 3 sessional lecturer III's who are Canadian literature specialists, all of whom offer several courses over the course of the year.

While the reviewers praised the "beautiful" pedagogy used in the Department's writing innovations, they expressed concern that the size of writing sections might limit their effectiveness.

The reviewers assert that writing workshops are more effective at 10 – 12 students, not in tutorials with caps of 25 students. The Dean will explore options for reducing tutorial size in specific first-year courses, particularly in light of UTM's strong commitment to improving students' writing.

Faculty

The reviewers commented on the importance of building a strong core of continuing faculty, enabling student interactions with them earlier in the programs, while maintaining an appropriate balance across all categories of appointment.

The department is strongly committed to increasing its faculty complement and believes that the ratio of students to full-time continuing faculty is not strong in relation to other English departments. On the other hand, the department has a strong cohort of sessional lecturers, some at the highest level, who make considerable contributions to the programs and enjoy strong student evaluations. Increasing faculty complement is an important priority at UTM, and allocation of complement will continue to support areas of high student demand, taking into account pedagogical approaches.

The reviewers referenced the matter of promotion of female faculty members in the Graduate Department of English. They seemed to have understood that female faculty were not being advanced, and they suggested that the diversity of faculty be considered in any future appointments.

The comments regarding the delayed promotion of female colleagues could not pertain to UTM faculty. All eligible female colleagues in English at UTM have been promoted to full professor or are currently undergoing a promotion review.

The Department Chair agrees that the department needs to build a more diverse faculty. This has been a key consideration in all recent searches, and three out of the five recent searches resulted in the appointment of a female colleague. The department has unfortunately not succeeded in diversifying its entirely Caucasian faculty to reflect the diversity of our student population, despite making efforts to do so. This will continue to be a priority in upcoming searches.

The reviewers spoke of the need for all faculty within the Department to feel valued, including teaching-stream members and sessional instructors, and they suggested that further steps be taken to promote a culture of respect and recognition.

Although CLTAs and sessional lecturers in the department do not have access to the same research support structures that continuing faculty can draw on, the department makes every effort to support all eligible SSHRC applications by term-limited and sessional colleagues. Term-limited colleagues are treated as full faculty members in terms of membership on committees, department meetings, and departmental research funds. However, the Chair agrees that the department needs to do more and will explore assigning mentors to new CLTAs and including sessional lecturers on some committees, on a volunteer basis.

Relationships

The reviewers expressed concern that “mild to disturbing” instances of sexism in two classroom incidents had been perceived by students and faculty within the Department.

The chair was deeply distressed to read about the two sexist incidents, and has taken a number of steps to address the situation, including meeting with both instructors to discuss the incidents to ensure that similar incidents will not occur again (or be left unaddressed again). At the Department’s first faculty meeting in the fall, to which all instructors will be invited, UTM’s Equity and Diversity Officer will give a presentation and offer advice on how to ensure that classrooms function as safe spaces. Both the Chair and a colleague have spoken to the students who reported the two incidents, and are actively maintaining open lines of communication to make sure that the department can discover and address similar situations, should they occur again in the future, with greater expediency and effectiveness.

The reviewers found that a greater sense of community and shared responsibility among Departmental members would be a benefit. They suggested encouraging interactions in the new space and examining ways in which departmental work might be delegated.

Departmental cohesion has long been a challenge for this unit, as for many other units at UTM where many faculty members’ primary research activity occurs outside of UTM. The Chair is in the process of taking action on some of the reviewers’ suggestions. He will establish a new Academic and Social Events committee, with representation from all levels of faculty and from the English and Drama Student Society, to plan a series of co-curricular events and lectures. He plans to invite at least one well-known outside speaker a term, with the goal of bringing together faculty and students, but also of attracting colleagues from the other two campuses to UTM. This past semester, the new bistro in Deerfield Hall has become something of a gathering place – a senior colleague and the entire cohort of pre-tenure faculty have started having lunch there together once a week. The chair will encourage and support similar efforts next year.

In general the chair agrees that enhanced participation in decision-making processes will lead to a greater investment in UTM as a location of academic, intellectual, and social activity. Developing an English curriculum that has a more campus-specific identity could be an important aspect of this, though it is important to note that several UTM faculty reacted very negatively to the report’s suggestion that UTM’s curriculum be severed from that of the UTSG English department. This is a question that will require extensive consultation and debate within the department.

Please let me know if you have any questions about this response.

Sincerely,



Amy Mullin
Vice-Principal, Academic and Dean

Review Summary

Program(s) Reviewed:	Geography, B.A., Hons.: Specialist, Major, Minor Geography, B.Sc., Hons.: Specialist, Major, Minor Geographical Information Systems, B.Sc., Hons.: Major, Minor Environmental Management, B.A., Hons.: Specialist, Major, Minor Environmental Science, B.Sc., Hons.: Specialist, Major, Minor <i>[Note: Geocomputational Science, B.Sc., Hons.: Specialist - admissions to this program was suspended as of August 31, 2013]</i>
Division/Unit Reviewed:	Department of Geography, University of Toronto Mississauga (UTM)
Commissioning Officer:	Professor Amy Mullin, Vice-Principal Academic and Dean, UTM
Reviewers (Name, Affiliation):	1. Professor Sara McLafferty Department Head, Geography and GIScience University of Illinois at Urbana-Champaign 2. Professor Martin Sharp Chair, Department of Earth and Atmospheric Sciences, University of Alberta
Date of review visit:	January 7-8, 2015

Previous Review

Date: December 8-9, 2008

Summary of Findings and Recommendations:

1. Undergraduate Programs: Geography, B.A., Hons.: Specialist, Major; Geography, B.Sc., Hons.: Specialist, Major; Geographical Information Systems (GIS), B.Sc., Hons.: Major; Geocomputational Science, B.Sc., Hons.: Specialist; Environmental Management, B.A., Hons.: Specialist, Major, Minor; Environmental Science, B.Sc., Hons.: Specialist, Major, Minor

The reviewers observed the following strengths:

UTM Department of Geography and its programs, Summary of 2014-15 UTQAP Review

- Strong teaching and administrative staff demonstrate remarkable engagement with and dedication to students
- Balanced and coherent programs delivered through excellent teaching
- Thoughtful curriculum design

The reviewers identified the following areas of concern:

- GIS program has suffered due to loss of faculty member
- Strengthened math requirements needed for physical geography and GIS programs

The reviewers made the following recommendations:

- Re-examine math requirements
- Consider increasing number of summer and field courses offered as well as more lab-based courses

2. Graduate Programs: n/a

3. Faculty/Research

The reviewers observed the following strengths:

- Faculty research productivity and reputation
- Faculty work together collegially with respect to research infrastructure

The reviewers identified the following areas of concern:

- Distribution of faculty complement given number of junior faculty and those approaching retirement

The reviewers made the following recommendations:

- Fill vacant positions
- Hire remote sensing specialist to significantly strengthen GIS program

4. Administration

The reviewers observed the following strengths:

- Admirable department culture; strong sense of identity
- Unusual strength in community-based research and community building
- Appropriate distribution of resources

The reviewers made the following recommendations:

- Develop new academic plan

Last OCGS Review(s) Date(s):n/a

Current Review: Documentation & Consultation

Documentation Provided to Reviewers:

Terms of Reference

UTM Department of Geography and its programs, Summary of 2014-15 UTQAP Review

Department of Geography Self Study, 2015
Previous Review Report and Administrative Responses
UTM Degree Level Expectation Guidelines
UofT Facts & Figures, 2013
UTM Divisional Academic Plan
UTM Academic Calendar, 2014-2015
UTM Viewbook, 2015-2016
UofT Domestic Viewbook, 2015-2016
Tri-Campus Framework

Consultation Process:

The reviewers met with the Vice-Principal Academic and Dean; the Vice-Dean Undergraduate; the Chair of the Department of Geography, UTM; junior and senior faculty members; graduate and undergraduate students; and administrative staff.

Current Review: Findings & Recommendations

1 Undergraduate Program

Geography, B.A., Hons.: Specialist, Major, Minor; Geography, B.Sc., Hons.: Specialist, Major, Minor; Geographical Information Systems, B.Sc., Hons.: Major, Minor; Environmental Management, B.A., Hons.: Specialist, Major, Minor; Environmental Science, B.Sc., Hons.: Specialist, Major, Minor; [*Note: Geocomputational Science, B.Sc., Hons.: Specialist - admissions to this program was suspended as of August 31, 2013*]

The reviewers observed the following strengths:

- Overall quality
 - Commitment to high-quality teaching, provision of experiential learning components, international experiences, and research in pedagogy
- Objectives
 - Programs are closely aligned with University's mission and Departmental academic plans
 - Careful attention paid to learning outcomes
- Admissions requirements
 - Appropriate admissions requirements
- Curriculum and program delivery
 - Diverse programs and well-designed curricula
 - Exceptional commitment to excellence in teaching and pedagogical innovation
 - Outstanding experiential learning activities offered through field, research and internship opportunities

- Field days provided to students as alternative to field school
- International programs greatly enrich students' academic experiences
- Research Opportunity courses provide good preparation for students
- Assessment of learning
 - Faculty conduct excellent assessment of learning and publish in journals concerning pedagogy, curriculum, and assessment methods
- Quality indicators
 - Students are extremely positive about their experiences
- Enrolment
 - Excellent teaching activities have contributed to increased enrolment in all programs
 - High student interest in GIS with rapid growth in enrolment
- Support
 - Student adviser provides very good service despite extraordinarily high workload
- Faculty resources
 - Outstanding teaching record evidenced by dedicated and high-quality instructors
 - Faculty contribute to campus-wide initiatives to strengthen students' basic skills

The reviewers identified the following areas of concern:

- Curriculum and program delivery
 - Need for clear sequence of GIS courses that build student skills and training in industry-standard GIS software
 - Student concern expressed about course availability in some sub-disciplines
 - Students experience some challenges in planning programs due to yearly variation in course offerings and changes to program requirements
 - Departmental resources strained by efforts to provide experiential learning opportunities for growing student body
 - Rapid enrolment growth challenges ability of faculty and teaching assistants to work closely with individual students on writing skills
 - Instructors face challenges balancing time spent on basic writing skills and disciplinary content
 - Limited funding for provision of field schools may disadvantage students in relation to graduates from other institutions
- Assessment of learning
 - Further innovation in assessment constrained by limited resources
- Quality indicators
 - Reported student deficiencies in writing, numeracy, and spatial analytical skills; is campus-wide issue
- Enrolment
 - Rapid enrolment growth presents significant resource challenges
 - Large class sizes limit ability of faculty and teaching assistants to work closely enough with individual students to strengthen writing skills

- Support
 - Single student advisor responsible for more than 1200 students
 - Some students expressed need to be proactive in order to obtain good advising
- Program Administration
 - Growing administrative tasks due to increased enrolment pose challenges for staff
- Physical resources
 - Inadequate lab space and outdated equipment for physical geography and GIS programs contribute to challenge in meeting teaching and research needs
 - Server instability and inadequate bandwidth pose barriers for student completion of GIS coursework
 - Computing resources have not kept pace with enrolment growth
 - Loss of dry space used for equipment preparation and cleaning in support of field activities

The reviewers made the following recommendations:

- Curriculum and program delivery
 - Update GIS curriculum, providing complete coverage of geospatial technologies and methods and training in industry-standard software
 - Examine more logical course sequence, offer GIS programming course, and better integrate GIS teaching
 - Continue efforts to develop physical geography as area of excellence, given changes at other two campuses
 - Consider increasing resources to support writing-intensive, upper-year, experiential learning, and lab-based courses, as well as sufficient levels of instructor-student interaction
 - Seek external funding to support delivery of field schools, strengthening student experiences
- Quality indicators
 - Explore implementation of campus-wide writing class for entering students
- Program Administration
 - Consider increasing administrative staff to manage heavy workload
- Physical resources
 - Upgrade information technology and lab facilities to support delivery of programs

2 Graduate Program

n/a

3 Faculty/Research

The reviewers observed the following strengths:

- Research

- Faculty are leaders in publications on pedagogy and assessment methods
- Research activity in line with career stages of faculty – highly-accomplished senior faculty and junior faculty with promising careers
- Good research profile in human geography, environmental studies, and GIS
- Faculty publish regularly and make strong research contributions in their fields
 - Number of their peer-reviewed publications are co-authored with students
- Possibility of becoming centre of research excellence in physical geography and human-environment interactions
- Strong, research-based local and international collaborations
- Faculty
 - Current complement reflects efforts to build faculty in response to recent growth in enrolment; faculty are progressing through the ranks appropriately
 - Excellent contributions of teaching-stream faculty despite heavy load
 - New faculty very satisfied with support provided through transition to full teaching load, mentors, assistance with grant applications, and access to internal research funding
 - Appropriate plans for future hires in areas of geomorphology, urban social geography, and environmental health and justice

The reviewers identified the following areas of concern:

- Research
 - Research in physical geography limited by lab facilities
 - Concern that shared lab space being used for incompatible activities; however, facilities will permit separation of wet chemistry activities from others
 - Limited office space for sessional instructors
- Faculty
 - Some faculty expressed concern of impact of high teaching loads on their research

The reviewers made the following recommendations:

- Research
 - Further address lab and office space constraints to aid new faculty in achieving research success
- Faculty
 - Explore options to aid faculty in balancing research and teaching demands
 - Consider strong need to strengthen GIS curriculum and research when planning future hires
 - Discuss challenge of meeting both teaching needs and developing research clusters

4 Administration

The reviewers observed the following strengths:

UTM Department of Geography and its programs, Summary of 2014-15 UTQAP Review

- Relationships
 - Very good morale among faculty, staff, and students; sense of pride in Department's achievements
 - Constructive, respectful working environment
 - "Positive and effective internal and external relationships" are one of Department's most impressive strengths
 - Strong research relationships both within the UTM campus and with colleagues at other U of T campuses, particularly in human geography; collaborations in physical geography are being developed by new faculty
 - Faculty have strong community relationships and effectively leverage those ties, enabling extensive student involvement in research projects
- Organizational and financial structure
 - Transparent and participatory budgeting and decision-making processes
- Planning / Vision
 - Strong, consultative leadership
- Department/unit/programs relative to the best in Canada/North America and internationally (reputation/profile)
 - Department's "collective commitment to teaching innovation and experiential learning...is at the leading edge both internationally and nationally"

The reviewers identified the following areas of concern:

- Organizational and financial structure
 - Teaching quality for expanded student body may be at risk without appropriate resource allocation

The reviewers made the following recommendations:

- Relationships
 - Explore benefits of shared lab space in facilitating further cross-disciplinary collaborations
- Organizational and financial structure
 - Increase administrative staff support needed due to enrolment growth and expansion of research and experiential learning activities
- Planning / Vision
 - Engage in further strategic planning to identify research clusters, key hiring areas, and opportunities for research and teaching excellence
 - Further develop alumni and corporate relationships, increasing external funding and student internship and employment opportunities
 - Seek other funding sources to support field courses, study abroad opportunities, and equipment

- Continue with efforts to host events showcasing research and teaching activities to alumni and corporations

ADMINISTRATIVE RESPONSE – Appended



July 8, 2015

Professor Sioban Nelson
Vice-Provost, Academic Programs
Simcoe Hall
University of Toronto

Dear Sioban:

I am writing to provide an administrative response to the External Review of UTM's Department of Geography, which was held in February of 2015. I am pleased with the largely favourable review, which highlights the strengths of the department while providing useful observations regarding some challenges facing it. This department has responded to a decade of enrolment growth and faculty growth and renewal with a spirit of innovation, cohesiveness, and optimism. As noted in the report, one of its hallmarks is its extraordinary commitment to experiential learning in a variety of forms: internships, field trips and courses, and research opportunities.

Curriculum and Program Delivery

The reviewers made a number of observations and suggestions about improvements to the GIS curriculum and facilities and encouraged continued efforts to develop excellence within physical geography.

To improve the GIS curriculum, the department will develop a new second-year course that introduces students to the foundations of mapping and cartography. In addition, it will introduce an advanced statistics courses at the third-year level. Both courses will train students in standard software.

With respect to physical geography, the department has recently made a number of hires in this area and has identified as a priority a future hire in geomorphology. However, in order to accommodate growth in this area, the department needs to acquire additional research space, something that is highly limited at UTM at the moment. The department also remains open to the possibility of becoming the graduate home to physical geography or introducing a new graduate stream in physical geography, reflecting its commitment to an integrated physical-human approach to the study of geography.

The reviewers commented on the challenges experienced by students with respect to writing, numeracy, and spatial analytical skills, noting this appeared to be a campus-wide issue

There are campus-wide concerns about numeracy and writing issues which we are addressing through investment in academic staff in our Robert Gillespie Academic Skills Centre (RGASC) who focus on these areas and through decanal funding to promote various initiatives to address improvement in these skills. Each year, I offer funding to instructors who have developed viable strategies for improving students' writing. This is a highly developed program that most departments at UTM participate in.

would note that Geography is particularly committed to skills development among its students: for example, in the past round of funding of writing development projects, more applications were received from this department than any other (and all were funded). We recently hired a lecturer in RGASC whose focus is English language learning, principally aimed at students whose first language is not English. In addition, we have a lecturer in RGASC who specializes in numeracy and our Department of Mathematical and Computational Sciences offers a number of remedial supports to students in its courses, including a Math Help Desk and series of instructional videos and online diagnostics. A working group was formed in 2013 to explore options for improving students' writing, including the possibility of a first-year composition course and entrance testing, but the group concluded that the approach we have been taking – to fund discipline-based and focused approaches to writing development – is both the most practical methodology and the approach best supported by the research.

Resources

The reviewers addressed both the extraordinary strides made and the challenges posed by ongoing enrolment growth, teaching innovation, and expanded experiential activities. They cautioned that associated pressures of faculty, staff, and teaching assistants would “make it difficult to maintain the very positive aspects of the way in which teaching is delivered in Geography at UTM.

The challenges and opportunities created by rapid enrolment growth have been the reality for departments across UTM in the past decade. As of 2013-14, UTM had the highest faculty: student ratio at the U of T. Despite a challenging fiscal environment, we have invested heavily in faculty complement and infrastructure to maintain quality in undergraduate and graduate programming. The department has made 4 hires in the past 2 years which should help to consolidate its faculty complement. We continually monitor administrative staffing levels in the department to ensure that its needs are being met, including adequate support for its priority initiatives, such as experiential learning and writing improvement.

The reviewers commented on the fact that one staff member was responsible for advising over 1200 students and they noted some student concern about planning programming and obtaining advising.

It was not clear from the report whether these two observations were related, that is, whether students felt they had limited access to advising because of the demands on the undergraduate counsellor. Regardless, I would note that we have assessed the student counselling resources in this department and concluded that Geography is reasonably well served in relation to other departments. Other departments with equal and larger numbers of FCEs have a similar level of staffing as Geography and are functioning well. The department might wish to explore possibilities for re-assigning duties within its current staff envelope to provide support to the undergraduate counsellor during peak periods.

The reviewers highlighted limitations in laboratory facilities, loss of dry space used for preparation of field equipment, and office space for new, promising faculty, all of which require attention. However, they were encouraged by the commitment to support new faculty in developing successful research careers

The senior administration at UTM works hard to ensure that incoming faculty are well supported in terms of start-up, adequate facilities, and mentoring. Office space is at a premium in general, but its availability has not inhibited hiring in this department nor will it do so in the next few years, though availability of research space may. The department abandoned some underutilized dry space and has not found a replacement for it. There is dry space in the Rock Lab at UTM that is currently available and I will explore whether Geography should take over this space. There is also currently a project underway that will create new wet lab teaching space for the department.

The reviewers observed the potential for strengthened external relationships and outlined the possible benefits of greater ties with alumni, employers, and industry.

The department recognizes the importance of alumni and corporate relationships to help support experiential learning opportunities for students and intends to make this a priority in future. In addition, the Dean's office has created the position of community outreach coordinator to foster community outreach and experiential linkages among our departments. We need to do more to provide centralized UTM support to departments to help them develop stronger alumni linkages. A number of our departments have signalled a desire for closer connections to the alumni of their programs and this feedback has been conveyed to UTM's Office of Advancement.

Long-Range Planning

The reviewers suggested that additional strategic planning should further enable the Department to identify research clusters, priority areas for hiring (especially for GIS and physical geography) and opportunities for research and teaching excellence.

The department held a retreat in May 2015 and identified priority areas for hiring as well as opportunities for research and excellence. Following the suggestions of the reviewers, it has identified three priority hires for 2016-17 that will complement existing research expertise in the department while at the same time filling gaps in the curriculum. The priority hires identified are: 1) Urban health with expertise in GIS; 2) Geomorphology or Geomorphometry; and 3) Environmental Toxicology.

Please let me know if you have any questions about this response.

Sincerely,



Amy Mullin
Vice-Principal, Academic and Dean

Review Summary

Program Reviewed:	Master of Management of Innovation program (M.M.I.)
Division/Unit:	Institute for Management and Innovation (IMI), University of Toronto Mississauga (UTM)
Commissioning Officer:	Professor Amy Mullin, Vice-Principal Academic and Dean, UTM
Reviewers (Name, Affiliation):	<ol style="list-style-type: none">1. Professor Barton H. Hamilton Robert Brookings Smith Distinguished Professor of Entrepreneurship, Olin Business School, Washington University in St. Louis2. Professor Thomas Ross Senior Associate Dean (Special Projects) and UPS Foundation Professor of Regulation and Competition Policy Sauder School of Business, The University of British Columbia3. Professor Peter Thompson Scheller College of Business, Georgia Institute of Technology
Date of review visit:	December 8 and 9, 2014

Previous Review

n/a - This program was established in 2007-08.

Last OCGS Review(s) Date(s): 2006 OCGS appraisal of new program

Current Review: Documentation & Consultation

Documentation Provided to Reviewers:

Terms of Reference

Master of Management of Innovation Program Self-Study, 2014

2006 OCGS Appraisal Report and Administrative Response

Graduate Degree Level Expectations

Facts & Figures 2013

Memorandum of Agreement between UTM & Faculty of Medicine

SGS Academic Calendar Entry for IMI-MMI, 2014-2015

SGS Essential Graduate Guide, 2014-2015

MMI Program Brochure, 2014

MMI Program Flyer, 2014-2015

Tri-Campus Framework

Consultation Process:

The reviewers met with the Vice-Principal Academic and Dean; the Vice-Dean Graduate; the Director of IMI; the Program Director for MMI; the Acting Program Director for MMI; the Chair of the Department of Management, UTM; junior and senior faculty members; IMI librarians; graduate students; and administrative staff of the Program and Department of Management.

Current Review: Findings & Recommendations

1 Undergraduate Program

n/a

2 Graduate Program

Master of Management of Innovation program (M.M.I.)

The reviewers observed the following strengths:

- Overall quality
 - Excellent program delivered by highly qualified and committed faculty members
 - Original and creative program fills important educational need
- Objectives
 - Program consistent with University's mission to conduct world-class research and deliver quality, research-informed instruction
- Admissions requirements
 - Appropriate admissions requirements contribute to successful student completion rates
- Curriculum and program delivery
 - Strong, modern curriculum
 - Curriculum has balance of sound fundamentals and practical applications
 - Extensive planning of valuable capstone course is appreciated by students
 - Appropriate program structure

- Program customization through electives available to students
- Twelve-month program length greatly valued by students and alumni
- Relevant student learning opportunities outside the classroom, especially during capstone group project
- Quality indicators
 - “Strong business school quality education”
 - Very high-quality, motivated students
 - Impressively high completion and completion-on-time rates
 - High rates of appropriate graduate employment or further post-graduate studies shortly after program completion
- Faculty resources
 - Program instruction carried out by faculty with active research programs

The reviewers identified the following areas of concern:

- Curriculum and program delivery
 - Some students expressed concern that, with current structure, employment interviews held near start of program don’t allow for demonstration of knowledge gained
 - A format for delivering preparatory sessions to incoming students is needed
 - Business ethics and creativity in decision-makers absent from curriculum
 - Traditional capstone element to integrate learning at end of program not present
 - Placement of capstone at end of program doesn’t allow students to return to the classroom and share experiences
 - Introduction of paid co-ops or internships (replacing existing capstone) would lead to urgent need for staff resources for MMI student career development and placement
- Enrolment
 - Low enrolment of international students perhaps tied to their limited recruitment
- Support
 - Student recruitment, placement and career services greatly under-developed
- Outreach / Promotion
 - Program’s and Institute for Management and Innovation’s (IMI) brands not yet well developed

The reviewers made the following recommendations:

- Curriculum and program delivery
 - Offer preparatory boot-camp before start of program covering topics such as mathematics and statistics review, introduction to modern business topics, and introduction to microeconomics
 - Include topics on business ethics and creativity in curriculum
 - Explore alternative program structures better positioning students to benefit from curriculum before seeking experiential/employment opportunities
 - Consider enhancing capstone through elements such as case studies, guest speakers, and leadership sessions

- Explore transforming capstone to an MMI-controlled consulting service, providing greater experiential opportunities for students and generating program revenue
- Contemplate changing timing of capstone to enable students to participate in subsequent final event/session where they can share experiences
- Consider converting capstone to paid co-op program
- Assessment of learning
 - Perhaps enhance traditional learning assessment tools through future adoption of “assurance of learning” exercise used by business schools
 - Consider seeking employer feedback on student skills
- Quality indicators
 - Invest in student recruitment in order to increase high quality applicant pool
- Support
 - Consider significantly increasing level of career development and placement support provided for MMI students
 - Explore provision of additional staff support through IMI for MMI student recruitment, graduate data collection, marketing, and alumni relations

3 Faculty/Research

The reviewers observed the following strengths:

- Overall quality
 - High quality faculty research relevant to “innovation” program mandate
- Research
 - Faculty research publication rates and calibre comparable with those of peers at leading institutions
- Faculty
 - Cross-appointed faculty very committed to program

The reviewers identified the following areas of concern:

- Faculty
 - Availability of cross-appointed faculty might be reliant on positive relationships with cognate units

The reviewers made the following recommendations:

- Faculty
 - Consider appointing at least one non-tenure-stream faculty member who could liaise with industry and assume academic administrative responsibilities

4 Administration

The reviewers observed the following strengths:

- Relationships
 - Very high morale of faculty, staff and students
- Planning / Vision
 - Enthusiastic and high quality program leadership
- Department/unit/programs relative to the best in Canada/North America and internationally (reputation/profile)

The reviewers identified the following areas of concern:

- Relationships
 - Broad recognition of need for additional staff resources
 - Limited ties to employers and industry
- Organizational and financial structure
 - Program is too small given current tuition fees to provide necessary student services
 - Program's stature not yet sufficiently developed to allow for increased tuition fees to support greater services
 - Complex resource allocation issues typically managed by a business school's dean might need to be handled by UTM Vice-Principal Academic and Dean
 - Need for increased staff resources will require additional revenue
- Planning / Vision
 - Lack of developed alumni network

The reviewers made the following recommendations:

- Relationships
 - Further develop program's external relationships
 - Strengthen ties with employers and industry, facilitating benefits such as curriculum advice, prospective guest speakers, input on faculty research projects, and student employment and co-op opportunities
 - Establish an advisory board comprising professionals in the discipline
 - Consider developing an alumni network that can help with program advocacy
- Organizational and financial structure
 - IMI should develop its own brand, featuring its innovative professional graduate programs
 - Think about generating greater resources to fund level of expected student services, possibly through increased tuition fees or enrolment

ADMINISTRATIVE RESPONSE – Appended



Thursday, September 17, 2015

Sioban Nelson
Vice-Provost, Academic Programs
University of Toronto
Simcoe Hall, Room 224
27 King's College Circle
Toronto ON M5S 1A1

Re: Administrative Response to External Review Report for the University of Toronto Mississauga Master of Management of Innovation Program (MMI)

Dear Professor Nelson,

We are pleased to provide a response to the External Review Report for the Master of Management of Innovation Graduate Program (MMI), prepared by professors Barton Hamilton, Thomas Ross and Peter Thompson. This report follows a two-day site review in December 2014, during which the reviewers met with various stakeholders involved in the program (students, alumni, faculty, librarians, staff and administrators), and toured facilities on the UTM campus.

We are pleased that the external reviewers presented a very positive evaluation of the MMI, indicating that it is an original and creative program delivered by highly qualified and committed faculty, and that it fills an important educational need. They recognize the strengths of the curriculum, including its balance of theoretical fundamentals and practical applications and the high quality of its students, who moreover have excellent rates of completion and subsequent employment.

Although the external reviewers are very positive overall, they do identify some areas of concern, noted below with our comments, plans and actions.

Curriculum and Program Delivery

The reviewers identified the capstone course as being a valuable component of the program, and offered some options to strengthen the experience. The reviewers also commented on the benefits of facilitating student preparation prior to the start of the program, and suggested some additions to the topics being currently covered. They further suggested that it would be valuable to add some new courses to the curriculum.

Given the impact that some of these changes may have on the overall operations of the program, we would like to proceed with caution and consultatively

assess in detail the benefits and costs of the various alternatives before making changes. Consultations will be conducted with students, instructors and alumni to obtain additional feedback on the current MMI curriculum and discuss possible changes (Unit, 6 months). Once these consultations have been conducted, action will be taken as required. Any introduction of new courses or a preparatory boot-camp will be smoother if our discussion suggests that such changes will be welcome by students and faculty members (Unit, 1-2 years). In particular redesigning the capstone course and the academic calendar would be significant. Thus, any such changes would take some time to be planned and implemented (Unit, 2-3 years).

Student Services

The reviewers commented on the need for increasing the level of service provided to students, including recruitment, placement, and career development.

To address this concern, MMI has hired a staff member to focus on recruiting students and providing support to career development and placement activities. These additional resources for enhancing student services will be supported by phased enrolment increases. Increased resources and increased services are intimately tied to each other because effective increases in enrolment will be facilitated through this increase in staff for recruitment of highly qualified students, as well as enhanced services for assisting with successful completion of the program.

The current faculty and teaching resources can easily accommodate an increase from 25 to 35 students. However the MMI has concerns related to the quality of admitted students if there was a rapid increase in class size without an increase in the size and maintenance of the quality of the pool of applicants. Therefore, a more gradual increase in class size is advisable, depending upon success in expanding the pool of applicants (Unit, 2-3 years). The new staff member will assist current staff members in advertising the program to prospective students.

Potential additional resources could also assist the MMI director in increasing the pool of MMI applicants, coordinating additional activities related to MMI career development, and offering additional information sessions and other activities for promoting the program to potential applicants. We are investigating the possibility of appointing a current faculty member of the MMI program as associate director to provide the additional resource required for such activities (Dean, 6-12 months).

Relationships

The reviewers recommended that the program should strengthen its connections with industry. We agree with this recommendation because it has the potential to assist the program by providing additional advice on curriculum,

excellent guest speakers for classes and events, employment and co-op opportunities for students, ideas for industry-relevant research projects for faculty, and possibly even financial support for aspects of the program. Two suggestions from the reviewers to address this issue that we hope implement are creating an industry advisory board (Unit, 1-2 years), and in the long term once enrolments have expanded, hiring a teaching stream faculty member (Dean, Unit, 3-5 years). We recognize that the program could benefit from hiring a teaching stream faculty member with industry experience to teach some applied courses and also potentially serve as a liaison between the program and industry.

In summary, we are pleased with this very positive review and are grateful to the external reviewers for their positive recommendations for initiatives to enhance the quality of the MMI program.

Sincerely,



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APPENDIX I

Externally commissioned reviews of academic programs completed since the last report to AP&P

Additional reviews of programs are conducted by organizations external to the University most commonly for accreditation purposes. These reviews form part of collegial self-regulatory systems to ensure that mutually agreed-upon threshold standards of quality are maintained in new and existing programs. Such reviews may serve different purposes than those commissioned by the University.

These reviews are reported semi-annually to AP&P as an appendix to the compendium of external reviews. There are none to report for this period.