

Two-Year Progress Report

Management Sciences (undergraduate option, MASC, MMSc, MMSc-online, PhD)

October 2015

In 2013, Dr. Oded Berman (University of Toronto) and Dr. Mark Daskin (University of Michigan) completed their review of the Masters and Ph.D. programs as well as the undergraduate Management Sciences Option at the Department of Management Sciences. They offered a positive account of the department's strengths in terms of the diversity its faculty and the strong mix of theoretical and applied research programs. They also offered several recommendations that helped the department achieve its strategic plan. This two-year progress report outlines the department's achievements and future in response to the recommendations suggested by the reviewers.

Recommendation 1: *The department lacks adequate financial support for graduate students, in particular for Ph.D. and MASC students, and more financial support is required.*

Funding is one of the perennial issues in terms of faculty research activities and financial support for graduate students. We are pursuing several ways to increase funding. In the annual review process, faculty members are encouraged to seek more than one funding source (e.g., more than an NSERC Discovery grant). We have also established some contacts with industry through the activities of our recently established Industry Liaison position. With this effort, the research funding in the department has increased during the past few years by 25%, from \$887,146 in 2011/12 to \$1,111,487 in 2013/14. As newly hired faculty members establish their research programs, we expect research funding to increase in the future.

Recommendation 2: *The department should not trade the quality of students for increasing the number of graduate students.*

During the past few years, the department has tried to increase the number of graduate students, especially Canadian and Permanent Resident (CPR) students. However, we did not lower our graduate admission standards, even if we experienced a difficulty in meeting CPR targets. We are pursuing different tactics to increase the number of graduate students without sacrificing the quality. For example we are introducing new specialization within our graduate programs to respond to market needs. Data Analytics is one of them.

As mandatory funding may have contributed to the difficulty in attracting more students, we are trying to attract more research funding (discussed above). In addition, having a slow admission was also another factor. In response, we started a rolling admission process in which top CPR applications are considered as soon as they apply.

Recommendation 3: *The faculty's current workload of four courses per year seems to be out of line with that of the rest of the Faculty of Engineering, and efforts need to be made to bring the teaching load in line with other departments in the Faculty of Engineering.*

One of the reasons for maintaining the four-course course load was the introduction of the Management Engineering and the time it took to hire faculty for it. Once the hiring is done and steady state is reached, the teaching load will be adjusted. We currently provide partial teaching relief for faculty who are newly hired, or who are heavily involved with administration and or special projects.

Recommendation 4: *The class size of some core courses is too large for graduate students. Teaching students with diverse background in the same classroom for core courses is nearly impossible. The department should either create foundational courses for students with deficient backgrounds before the start of the fall term, or create a more advanced version of core courses for Ph.D. and MASc students.*

Some core courses (MSCI 603, 605, 607 and 609) have a large class size of 60 – 70 students, which is partly due to increased graduate student intake and to increased enrollment from other departments that offer certificate programs (e.g. Management Science certificate by the Department of Electrical and Computer Engineering). These courses provide a common base for the different areas within the department and are required for all students, regardless of background. Students with adequate background are exempted to pursue more advanced courses.

With proper TA support, the courses are handled well. With the availability of more teaching resources and if the department sees a need, different sections may be created.

Recommendation 5: *The differentiation of MASc, MMSc and Ph.D. programs is important in the long run. Additional coursework at the Ph.D. level is highly desirable.*

The reviewers recommended to reduce the number of required courses for MASc to 5 courses in line with other programs in the Faculty of Engineering. We used to have the same course requirements for both MMSc and MASc programs: students should complete 8 courses to complete the program. In 2013, we reduced the required number of courses for MASc program from 8 to 5 courses, enabling them to spend more time on research. The MMSc students still need to take 8 courses to complete the program. Ph.D. students should complete 6 courses which include three core courses (MSci 603, 605 and 607). Students with the proper background get exemptions from these core courses, and they can end up taking only 3 courses to fulfil the Ph.D. course requirements. This number is in line with the requirements of other Ph.D. programs in the Faculty of Engineering.

Recommendation 6: *Students should be offered a greater diversity of course offerings, so that students who want to focus their four electives in one of the three areas of the department could more readily do so.*



We currently offer about 20 graduate courses per year for on-campus masters and Ph.D. students, and about 10 graduate courses for online master's students. In addition, supervisors often offer reading courses in their specialization areas, these course offerings are not reported in the graduate statistics. By initiating new diploma programs, such as Data Analytics, we hope to increase the number of graduate course offerings.



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Date of next program review: July 1, 2019


Signatures of Approval:



Chair/Director

MAY 09 2016


Date



Faculty or Administrative Dean

MAY 11/16


Date



Associate Vice-President, Academic
(For undergraduate and augmented programs)

May 17, 2016

Date



Associate Provost, Graduate Studies
(For Graduate and augment programs)

May 16, 2016

Date