

# Two-Year Progress Report

## Mathematics/Business Administration, Mathematics/Chartered Professional Accountancy, Mathematics/Financial Analysis and Risk Management (BMath)

### December 2020

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#### Background

The Bachelor of Mathematics in Mathematics/Business Administration, Mathematics/Chartered Professional Accountancy (CPA), and Mathematics/Financial Analysis and Risk Management (FARM) delivered by the Faculty of Mathematics programs are commonly referred to as Math Business and Accounting Programs (MBAP).

Two arm's-length external reviewers were selected from Volume III of the self-study. Dr. Mahmoud Zarepour, Professor of Mathematics and Statistics, University of Ottawa and Dr. Mohammad Ahsanullah, Professor of Information Systems and Supply Chain Management, Rider University were selected by the Associate Vice-President, Academic, as well as one internal reviewer Dr. Anna Esselment, an Associate Professor in Political Science.

Reviewers appraised the self-study documentation (Volume I) for the programs that was submitted to the Associate Vice-President, Academic on July 1, 2016, and conducted a site visit to the University on December 1st and 2nd, 2016. The visit included interviews with the Associate Vice-President, Academic; Dean of Mathematics; Associate Dean Undergraduate of Mathematics; Chairs and Directors of the Departments supporting the programs being reviewed; faculty members; and staff. Meetings were also held with a group of current undergraduate students. The reviewers also met with a representative from the library, and Co-operative Education.

The Final Assessment Report was approved by Senate Undergraduate Council on September 10, 2019.

#### Progress on Implementation Plan

We describe here status of each recommendation made by the external reviewers to Math Business and Accounting Programs (MBAP).

**Recommendation 1:** It is highly recommended that the Faculty takes the matter pertaining to the Mathematics and Business administration programs into serious consideration. The Faculty must pursue formalizing the unit in some fashion. This could best be achieved by transforming it into its own academic unit or department, or perhaps as a division of another department. Considering

the uniqueness of these multidisciplinary programs, the Department of Mathematics and Business Administration could have an integrated complement of faculty members, some of whom would be dedicated to teaching (or teaching tenure track stream) and others who would both teach and research in the field of math and business. Hiring research-based professors (even as cross-appointed faculty) would elevate the stature of the program within the Faculty, but would also open opportunities to introduce graduate-level programs. The cross-appointed faculty will also link the unit with research faculty members and magnify the role this unit plays in the Faculty.

**Status:** In progress

**Details:** There have been ongoing discussions about the future of MBAP. There are many competing goals that the Faculty is attempting to simultaneously solve – providing better academic governance for faculty and staff in MBAP, better support for the undergraduate MBAP students, greater visibility to research activity in the areas of Mathematical Business, an opportunity for growth for activity (both teaching and research) within Math Business, etc. Five possible directions have been widely discussed at the Dean's Advisory Committee but there are still challenges to be resolved. There was also a delay in the discussion process partly due to Covid and partly due to transition of Deans. The discussion with the new Dean and with the unit heads has already begun and will continue in the coming months and should be complete by May 2021.

**Recommendation 2:** If the Mathematics Business unit was more formalized, the opportunity to transform the definite-lecturer/continuing lecturer role into teaching tenure track appointments would present itself. This would provide employment security to those members of the Mathematics and Business programs, but in keeping with their primary roles as teaching faculty. This would also place more emphasis on the expectation that excellence in teaching is highly valued in the program.

**Status:** Completed

**Details:** This recommendation, as stated, is currently impossible to implement at Waterloo, since there is no such thing as "teaching tenure track" here. However, "Continuing Lecturer" is currently the University of Waterloo's analogue of teaching tenure track appointments, and continuing status provides the same employment guarantees. Two out of six MBAP faculty members are already continuing lecturers and the rest hold definite-term contracts. The employment status of these lecturers is governed and restricted by Policies 76 (Faculty Appointments) and 77 (Tenure and Promotion of Faculty Members). The nature of lecturer appointments was recently reviewed at the university level as part of the update to Policy 76. The consultation plan for the new draft of Policy 76 is now being finalized and we expect to see the new draft Policy soon. The Dean's Office has created a Continuing Lecturer Promotion Committee with the mandate of consideration and recommendation of definite term lecturers in the Dean's Office to be put forward to the Faculty Tenure and Promotion Committee for a change of position to Continuing Lecturer. The process for the creation of this committee is going through nominations and elections across the three sub-units reporting directly to the Dean: the MBAP, the Center for Education in Mathematics and Computing, and the Mathematics Undergraduate Group. Only definite term lecturers whose appointment was reviewed at contract time by the University Appointment Review Committee are eligible to be promoted to continuing.

**Recommendation 3:** The Mathematics and Business Accounting programs should expand its advisory capacity within the unit, perhaps with full-time staff advisors to share the load with faculty advisors. Given that the students raised the issue of long lines to see their faculty advisor, then creating more capacity to assist students within the degree would also address some of those concerns that were brought up to our attention during the review.

**Status:** In progress

**Details:** A full-time staff member has been hired and the unit has made adjustments to improve the service we provide. However, because of the impressive growth of Math Business (and specifically FARM) enrolment in the recent years, an additional dedicated support was required for MBAP to make the programs better for the students. We are currently hiring a staff advisor to provide readily available administrative support in academic advising. Two advisors from the Math Undergraduate Office were brought on in winter 2021 to provide additional advising for FARM and students have been making appointments to see them.

**Recommendation 4:** Departments with courses taught within the Mathematics Business and Accounting unit must be more flexible about slight modification of course content that better suits the pedagogical requirements of the students receiving that content, and of the instructor who is delivering the material.

**Status:** Completed

**Details:** The programs have taken the reviewers' advice into account, and implemented it where feasible. For other cases it was judged inadvisable at this time. There are a couple of STAT (STAT 371, STAT 372) courses designed for MBAP students only. Instructors in these courses started adding hands-on elements using Bloomberg and other data feeds. To increase student engagement, the instructors combine classroom theory with real and simulated market data to model real-world scenarios in these courses. In the meantime, many MBAP students want to do Statistics minors or Actuarial Science majors as part of Math Business programs. As Statistics or Actuarial Science majors, these students should be exposed to the same courses as other students doing the majors. By doing the major, they are indicating an interest that goes beyond other Math Business students. There are also problems with substitutions that create packages of courses that are not true to either degree. It is definitely worth discussing these courses with the eventual goal of enabling MBAP to create those courses and possibility offer above mentioned majors.

**Recommendation 5:** Where other departments are intractable about the opportunity for tailoring content within their owned courses for the Mathematics Business stream, the Mathematics and Business programs should be permitted to develop more of its own courses where pedagogical reasons are compelling.

**Status:** Completed

**Details:** MBAP has voting representation on the Undergraduate Affairs Committee of the Faculty of Mathematics and can bring motions to create courses. In consultation with Statistics and Actuarial Science Department, a MATBUS version of ACTSC 371/ACTSC 372 required for Math Business students has been developed. Effective Fall 2021, the new MATBUS 371 course will be

offered to MBAP. COMM 101 has been redesigned and taught as a replacement of BUS 111W offered by Wilfrid Laurier University for FARM students. For other cases it was judged unfeasible at this time.

**Recommendation 6:** Where possible, the Mathematics and Business programs should identify courses that could be offered online. This could provide assistance for scheduling purposes, and it would also provide an opportunity for students on co-op to more easily take one academic course (co-op students are permitted to take one academic course per work term without Faculty permission; more than one course requires the permission of the employer). The online course offerings may also help to have a conflict-free schedules in future for a possible error in scheduling. Moreover, some related financial glossaries can be considered in their communication courses which students are required to take in this unit.

**Status:** Completed

**Details:** The Faculty of Mathematics is currently offering fully online degree program for Math/FARM students. This means that all courses required for launching the degree program are available online.

**Recommendation 7:** The Faculty of Mathematics should review how it markets and/or informs incoming international students about the co-op program so that all students who enter into Mathematics are fully apprised of the co-op opportunity.

**Status:** Completed

**Details:** The MBAP Director meets regularly with the Undergraduate Recruitment and International teams in the Faculty to review the activities of the team and address any perceived needs. The university viewbook available for international students now provides a great overview of co-op, admission requirements, student life, finances and more. The programs are strongly committed to continuing these efforts to make sure that international students are aware of both co-op and experiential education.

**Recommendation 8:** The Faculty should review how it communicates to students (especially international students) regarding the required minimum academic averages to stay in their respective programs and plans.

**Status:** Completed

**Details:** The University of Waterloo's Undergraduate Studies Academic Calendar specifies the rules that determine a student's academic standing. In addition to that, some program directors have created a LEARN community for their students and all the program requirements are clearly explained there. The first-year requirements were also explained to students during orientation sessions and the materials have been posted on the web to inform international students who may have missed orientation programs.

**Explain any circumstances that have altered the original implementation plan**

Due to the impressive growth of Math Business (and specifically FARM) students in the last years, the Mathematics and Business Accounting programs should expand their advisory capacity within the unit as advised in Recommendation-3. So, the status of this recommendation has changed from 'completed' to 'in progress'.

**Address any significant developments or initiatives that have arisen since the program review process, or that were not contemplated during the review**

The Professional Risk Managers' International Association (PRMIA) has granted our Financial Analysis and Risk Management (FARM) Program (Risk Management Specialization) **University Risk Accreditation Program status** which means that the students upon completion of their Bachelor of Mathematics degree are eligible for exemptions for PRM Exams I and II. With this accreditation status, the FARM Program (Risk Management Specialization) joins an impressive list of risk management programs taught at leading universities in North America, Europe and throughout the world. In Canada, only the Université Laval has been previously accredited, though the FARM program is the first accredited Bachelor's degree program in North America.

**Updated Implementation Plan**

	<b>Recommendations</b>	<b>Proposed Actions</b>	<b>Responsibility for Leading and Resourcing (if applicable) the Actions</b>	<b>Timeline for addressing Recommendations</b>
1.	The Faculty must pursue formalizing the unit in some fashion.	The issue is still under discussions with the Dean and the senior administration within the Math Faculty.	Dean, Associate Deans, Unit Heads	May 2021
2.	Transforming the definite-lecturer/continuing lecturer role into teaching tenure track appointments.	The Dean's Office has created a Continued Lecturer Promotion (CLP) Committee. The mandate of the committee is to recommend definite term lecturers to be put forward to the Faculty Tenure and Promotion Committee for a change of position to Continuing Lecturer.	Dean	Completed
3.	The Mathematics Business and Accounting programs should expand their advisory capacity within the unit.	Hiring additional Staff advisors and Lecturers for MBAP	Dean, MBAP Director	May 2021
4	Departments with courses taught within MBAP must be more flexible about slight modification of course content that better suits the pedagogical requirements of the students receiving that content, and of the instructor who is delivering the material.	STAT 371 and STAT 372 are the courses offered by SAS that are designed for MBAP students.	SAS Department, MBAP Instructors	Completed

5.	Where other departments are intractable about the opportunity for tailoring content within their owned courses for the Mathematics Business stream, the Mathematics and Business programs should be permitted to develop more of its own courses where pedagogical reasons are compelling.	With restructuring of some courses in SAS Department MBAP is allowed to create MATBUS versions of these courses.	SAS Department, MBAP Director, MBAP Instructors	Completed
6.	Where possible, the Mathematics and Business programs should identify courses that could be offered online.	Online version of courses required for FARM program have been developed and the program is offered fully online.	Assistant Dean Online	Completed
7.	The Faculty of Mathematics should review how it markets and/or informs incoming international students about the co-op program so that all students who enter into Mathematics are fully apprised of the co-op opportunity.	The University viewbook available for international students provides a great overview of co-op, admission requirements, student life, finances and more	MBAP Director, Undergraduate Recruitment and International teams	Completed
8.	The Faculty should review how it communicates to students (especially international students) regarding the required minimum academic averages to stay in their respective programs and plans.	The Undergraduate Studies Academic Calendar specifies the rules that determine a student's academic standing. Additionally, LEARN communities for some of programs have been created with all the program requirements.	MBAP Director, Program Directors	Completed

The Department Chair/Director, in consultation with the Dean of the Faculty shall be responsible for monitoring the Implementation Plan.



Date of next program review:

Date **2022-2023**

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Signatures of Approval:

Chair/Director

Date March 11, 2021

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Faculty Dean

Date March 19, 2021

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Associate Vice-President, Academic

Date

April 12, 2021

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