

Final Assessment Report

Business Administration and Mathematics

Double Degree (BBA/BMath)

July 2020

Summary of the Program Review:

In accordance with the University Institutional Quality Assurance Process (IQAP), this final assessment report provides a synthesis of the external evaluation and the internal response and assessments of the Business Administration and Mathematics Double Degree (BBA/BMath) delivered by the Faculty of Mathematics at University of Waterloo and the Lazaridis School of Business & Economics at Wilfrid Laurier University. A truncated Volume I of the self-study was submitted to the Associate Vice-President, Academic on September 20, 2017. Both Laurier and Waterloo independently completed Self-Study Reports for their programs in 2013 and 2015 correspondingly. Hence, the self-study focused on the unique characteristics of the BBA/BMath program. An analytical assessment of this program, including data collected from an alumni survey along with the standard data package, was prepared by the Office of Institutional Analysis & Planning (IAP). Appended to Volume I were the course outlines for all courses in the program. The CVs for each faculty member associated with the program were included in Volume II of the self-study.

The review was conducted solely from Waterloo's perspective, and thus, with permission of the Quality Council, the site visit was completed by internal reviewers. Two arm's-length internal reviewers were selected from Volume III of the self-study. Dr. Fatma Gzara, Associate Professor of Management Science, and Dr. David A. Welch, Professor of Political Science, were ranked and selected by the Associate Vice-President, Academic.

Reviewers appraised the self-study documentation and conducted a site visit to the program on November 14 and 15, 2017. The visit included interviews with the Associate Vice-President, Academic; Dean of the Faculty; Associate Dean, Undergraduate Studies; Chairs/Directors of the Departments, Faculty members, staff and meetings with a group of current undergraduate students.

This final assessment report is based on information extracted, in many cases verbatim, from the self-study, the reviewers' report and the program response.

Program characteristics:

The Business Administration & Mathematics Double Degree program (BBA/BMath) consists of two separate degrees studied at the same time:

- An Honours Bachelor of Business Administration (BBA) from the Lazaridis School of Business & Economics at Wilfrid Laurier University (Laurier).
- An Honours Bachelor of Mathematics (BMath) Co-op from Faculty of Mathematics at the University of Waterloo (Waterloo).

The BBA/BMath program is unlike most other combined programs. Whereas some combined programs strive to form a new and unique program with blended and specialized learning goals, the BBA/BMath program is the combination of two disjoint degrees. This is a limited enrolment (approx. 70 students admitted at each institution every year), co-op only program leading to two degrees.

Summary of strengths, challenges and weaknesses based on self-study:**Strengths**

- Strong intake averages indicate that the program has some of the best high school graduates applying for and being accepted into the program
- BBA/BMath students are considered to be excellent or outstanding by their co-op employers.
- The combination of an Honours Math degree and a BBA makes this a unique program, in both Canada and the U.S.
- The program provides flexibility for students and added opportunities in terms of job applicability as students can apply for jobs in all the functional areas of business (finance, marketing, HR, IT, etc.).

Challenges

- Program administration, in terms of scheduling, is a particular challenge. The registrar's offices of the two universities do not coordinate with each other to ensure that course and exam schedules are conflict-free for the BBA/BMath students; the Director of MBAP is solely responsible for this. A particular concern is the misalignment of calendar dates around holidays and fall breaks/reading weeks, which are not the same at both universities.

Weaknesses

- The program has been successful in building buzz amongst applicants, meaning some students apply for and accept this program even though they have no interest in the

business component of the program. These students will typically change their program to a single degree in the first year of their study.

- Since students have only four free electives in the program, satisfying the combined requirements for both the double degree plan and those for an extra designation, if desired by the student, requires successful completion of more than 52 courses and additional academic terms.
- Double Degree students are currently only able to apply to co-op jobs advertised at their home institution, meaning they miss out on good job opportunities advertised at the other institution. Waterloo and Laurier started a pilot co-op exchange (beginning Winter 2017) that allows students at one university to enroll in the other's co-op system for a term. This is definitely a step in the right direction, but allowing more robust exchange of co-op opportunities would be very desirable.

Summary of key findings from the reviewers:

The Mathematics/Business Administration Double Degree Program was found to be in very good standing. The program is highly sought after, attracts exceptionally good students, and trains them well, as is evident by the high levels of satisfaction students report and their competitiveness for attractive careers. The most important issues for this program are scheduling, lack of flexibility in course selection, and inequitable access to co-op opportunities. Out of the matters of importance, scheduling should be top priority for this program because of the enormous strain this places on program administration. It was by far the number one complaint by students.

Program response to external reviewer recommendations:

- 1. Schedule a full-day retreat for all stakeholders to share experiences, information, and brainstorm possible solutions, such as**
 - a. Automating processes to identify and resolve course scheduling conflicts**
 - b. Improving course registration processes to align with Laurier course and section allocations**
 - c. Creating “phantom sections” of UW courses for DD students that could be used for enrolment and grade submission**
 - d. Exploring requests that could be made to Laurier to ease the scheduling burden on the Waterloo side**
 - e. Scheduling midterm exams earlier and taking into consideration Laurier class times**
 - f. Coordinating midterm and final exam schedules with Laurier**

Response

The program administration in terms of scheduling and students course registration reconciliations is a challenge. There is currently very little coordination between the scheduling systems of the two universities to ensure that course and exam schedules are conflict-free for the students in the BBA/BMath program. The Director of MBAP is solely responsible for all these areas, and also addresses and reconciles any discrepancies between the two student records systems. A particular concern is the misalignment of calendar dates around holidays and fall break, which are not the same at both universities. The program agrees that improved compatibility of the registration systems (Loris & Quest) would increase student satisfaction by improving the quality and speed of processes. The program will work with both institutions to revise procedures as needed to improve the scheduling management of the program.

As of July 2020, a full-day retreat has yet to be formally conducted; however, the Director of MBAP is working with Laurier administrators to resolve the issues identified by the reviewers, as well as self-identified issues, in order to improve the program. Many of these will be resolved in the Fall 2020 term, while some will be implemented over the next few years.

- 2. Reduce the number of required courses in the program and increase the number of electives, either within the current 52-course envelope or, preferably, with a lower overall number of required courses, to enable students to pursue greater breadth in their overall academic program.**

Response

The Curriculum Committee for the BBA/BMath and Double Degree Curriculum Committee have discussed this recommendation and have agreed that reducing the number of required courses is not possible at this time.

The required courses taken at each institution are balanced, with 24 courses required from Waterloo, 24 courses required from Laurier, and 4 additional elective courses that can be from either institution. They are also freed from breadth and depth requirements for non-Math electives. Aside from the core courses for both the BMath and the BBA, 7 additional 200- or 300- or 400-level math courses and 6 additional 300- or 400- business courses are required.

Students in the BBA/BMath Double Degree program complete the program requirements for their two degrees, with minor tweaks; for the Laurier BBA degree, the only substitution is that they must take Waterloo Math versions of several required math courses (algebra, calculus, probability, statistics), which are likely more challenging than their equivalents at Laurier. For the Waterloo BMath degree, a marketing communication course that is part of the BBA counts toward Math's Communication Skills Requirement.

The expectation is that this program will require ten terms of study. Electing to have a separate major, minor, option, or specialization designation is not required for students in this plan, and in some cases, satisfying the combined requirements for both the double degree plan and those for an extra designation may require successful completion of more than 52 courses.

With all these being said, it is not quite obvious how to reduce the number of required courses at present time.

3. Consider opening all co-op placement opportunities to all double-degree students from both universities on a fully equal basis.

Response

A pilot co-op exchange was conducted for a three-year trial period, beginning in 2016. This pilot allowed a limited number of students at one university to enroll in the other's co-op system for a term, allowing students to have opportunities both in Math, CS, business, and finance. For all three years of the pilot, the exchange was unbalanced, with double the number of Laurier students choosing Waterloo co-op, than vice-versa. There was concern about opening it up further as it would result in much more work on UW side than on Laurier's. The pilot program was discontinued in 2019 as a result of the imbalance.

4. Revise the grade transfer protocol to permit a more accurate reflection of students' actual results and eliminate any potential disadvantage for Waterloo students.

Response

The grade transfer process has been the responsibility of the two Registrars and is managed by transferring the final grades for all courses (by sections) from Loris to Quest and vice versa. It is important for the academic progression process that the grades are received on time and error free. There is frequent and necessary communication between the staff of the two universities to manage the final grades. However, there are often missing grades for some sections of Laurier courses on Quest because the deadlines for grades submission are different at the two universities. This recommendation will be brought to the attention of the UW Registrar's Office.

5. Bring STAT371/372 in-house and tailor the content to the needs of math and business students.

Response

These courses are under jurisdiction of the Department of Statistics and Actuarial Science and therefore cannot be brought into the Math Business Unit. A possible solution here would be

to create MATBUS versions of these courses tailoring their content to the needs of the MBAP students. The Double Degree Curriculum Committee and the Program Committee of the Department of Statistics and Actuarial Science will jointly discuss this recommendation. If the committees decide to go ahead with this change then this will also need to be discussed with the Dean to ensure teaching recourses to support it are in place.

As of July 2020, MATBUS versions of ACTSC 371 and ACTSC 372 have been created in consultation with Statistics and Actuarial Science (SAS) and are in the process of gaining approvals from the Faculty of Mathematics. It is anticipated that these courses will be in effect for Fall 2022. The program will continue working with SAS regarding STAT 371/372.

Implementation Plan:

	Recommendations	Proposed Actions	Responsibility for Leading and Resourcing (if applicable) the Actions	Timeline for addressing Recommendations
1.	Schedule a full-day retreat for all stakeholders to share experiences, information, and brainstorm possible solutions for conflict free course and exam schedules for the Double Degree students.	To raise the suggestion with WLU. If they are interested then schedule a retreat for the UW and Laurier teams to review all findings around the current work and revise procedures as needed to improve the scheduling management of the program. Conversations ongoing with Laurier to resolve identified issues.	Director of MBAP	meetings scheduled for August to discuss; Fall 2020 implementation and ongoing
2.	Reduce the number of required courses in the program and increase the number of electives to enable the Double Degree students to pursue greater breadth in their overall academic program.	Discuss these changes at a joint meeting of the Double Degree Curriculum Committee and the Program Committee of WLU School of Business and Economics. Recommendation is not possible to implement at this time.	Director of MBAP Director of Undergraduate Business Programs, WLU	Discussed Fall 2018; not possible to implement at this time.
3.	Consider opening all co-op placement opportunities to all double-degree students from both universities on a fully equal basis.	Discuss this recommendation with the Associate Dean of Math, Co-op. Conduct pilot co-op exchange.	Director of MBAP, Associate Dean of Math, Co-op.	Pilot exchange conducted and completed Fall 2019
4.	Revise the grade transfer protocol to permit a more accurate reflection of students' actual results and eliminate any	Bring this recommendation to the attention of UW Registrar's Office (RO) as this is a RO issue.	Director of MBAP	March 2018-Complete

	potential disadvantage for Waterloo students.			
5.	Bring STAT371/372 in-house and tailor the content to the needs of math and business students.	Discuss this at a joint meeting of the Double Degree curriculum Committee and the Program Committee of Statistics and Actuarial Science. If they agree with this recommendation- it will also need to be discussed with the Dean.	Director of MBAP, Chair of the DD curriculum committee, Chair of SAS, Dean of Mathematics	Approvals of MATBUS courses to replace ACTSC 371/372 in progress; Fall 2022 implementation. Discussions around STAT 371/372 will continue.

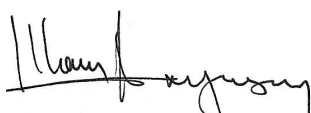
The Director of the Mathematics Business and Accounting Programs, in consultation with the Dean of the Faculty shall be responsible for monitoring the Implementation Plan.

Date of next program review: _____

2023-2024

Date

Signatures of Approval:



June 3, 2021

Chair/Director

Date

AFIW Administrative Dean/Head (*For AFIW programs only*)

Date



Mark Giesbrecht
Dean, Faculty of Mathematics

June 7, 2021

Faculty Dean

Date



July 25, 2018

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

Date

Associate Vice-President, Graduate Studies and Postdoctoral Affairs
(For graduate and augmented programs)

Date