PROGRAM(S): COMPUTER SCIENCE (BCS, BMATH, MINOR, MMATH, PHD), COMPUTER SCIENCE - DATA SCIENCE (BCS), BUSINESS ADMINISTRATION AND COMPUTER SCIENCE (BBA/BCS), COMPUTING (OPTION) FEBRUARY 2025

Program information: *completed by AQUE Office*

Previous review period:	**2020-2021**	Next review period:	**2027-2028**
Final Assessment Report (FAR) Internal Approval Date:	**2/5/2024**		
Link to FAR:	Final Assessment Report[1]		

Signatures:

	Required	Signature	Date
Chair/Director	☒		2/6/2025
Dean	☒	Mark Giesbrecht Dean Faculty of Mathematics	5/29/2025
AFIW Dean	☐		Click or tap to enter a date.
AVPA	☒		2/21/2025
AVPGSPA	☐		Click or tap to enter a date.

[1] Please note this program's FAR was approved only one year before this report was prepared, which could explain any limited progress made on the recommendations since the approval of the FAR.

Enrollment (past three years): *completed by AQUE Office*

	BCS Honours	BCS Honours Co-op	BMath Honours	BMath Honours Co-op	CS Minor
2024-25 (CURRENT YR)	152	2379	5	111	1
2023-24 (LAST YR)	152	2479	19	108	1
2022-23 (LAST 2YRs)	169	2482	20	103	3

	CS – Data Science Honours (BCS)	CS - Data Science Honours Co-op (BCS)	Business Admin and CS (BBA/BCS)	Computing Option
2024-25 (CURRENT YR)	1	1	398	0
2023-24 (LAST YR)	2	7	464	9
2022-23 (LAST 2YRs)	3	22	531	18

	CS MMath – Research	CS MMath – Research Co-op	CS MMath – Coursework	CS MMath – Coursework Co-op	CS PhD
2024-25 (CURRENT YR)	156	16	0	0	222
2023-24 (LAST YR)	169	10	1	6	211
2022-23 (LAST 2YRs)	171	7	13	10	203

Based on Active Student Extract in Quest on February 4, 2025.

Initiatives/Developments since the Final Assessment Report

N/A

Progress update on Implementation Plan

RECOMMENDATION 1:

Community Building: The need for student community and cohort building has been expressed by both undergraduate students and graduate students, with recognition of the negative impact of the competitive environment amongst students for best co-ops and jobs. Although success in building student communities and cohorts is difficult in the context of complex of co-op schedules, there are opportunities for improving the situation.

A) More discussion with students about problems with cohorts.
B) Increase the designation of and availability of shared space for undergraduate students on campus for social and academic interaction.
C) Increase the course opportunities for undergraduate students to work in teams on assignments over all years.
D) Strengthen community interaction and building across multiple co-op terms.

Completed: ☐Yes ☐No ☒Partially

Progress:

A) Cohorts: The School had proposed to consider organizing students into cohorts to improve a feeling of student community. The School co-operated with the Faculty of Mathematics to organize incoming first-year students into cohorts for their Calculus, Algebra, and Computer Science courses in the Fall 2024 term.
B) Space: The School has participated in the design of the M4 building, which is currently under construction. M4 will provide a lot of new space for social and academic interaction. However, while M4 is being constructed we have lost access to the DC 21xx/31xx wing.
C) The School had proposed to redesign the 4th-year capstone project course to make it more accessible to more students. The original capstone project was two courses to be taken in two semesters, displacing two other elective fourth-year courses and causing scheduling difficulties with co-op streaming. To improve accessibility, the School designed a one-semester single course version of the capstone project. The School has offered that version three times so far. Both versions (one-course and two-course) remain available to students.This course is the first in a two course sequence that gives students the opportunity to work in teams on open-ended large-scale computer science projects.
D) Community: The School had proposed to offer a cohort scheme to students based on the outcome of Item A). Cohorts were offered in Fall 2024 and we are reviewing the experience and student feedback from that term.

Next steps (if applicable):

The experience and feedback for the cohort offerings in the Fall 2024 terms will be evaluated and next steps will be planned based on the outcome. This experience is coordinated by the Math

Undergrad Office (MUO) and includes CS and MATH courses. The advanced courses will be evaluated via a focus group. The main sections will be evaluated by a survey or focus group (or both) - details will be decided in the coming weeks. The MUO also collects anecdotal feedback from MathSoc and a couple of first-year instructors.

Additional comments: N/A

RECOMMENDATION 2:

EDI: Success in addressing EDI strategic goals depends on both identifying and executing proactive initiatives and identifying and reducing potential barriers lurking in the current processes and decision making in CS, including admission and hiring processes, impact of very restricted transfer policies, and openness of course assignments to teamwork and interdisciplinary perspectives.

A) Capitalize on the appointment of the Director of Women in Computer Science and the establishment of an EDI Committee to develop a strategic plan to remove barriers through revised admission criteria from high school and current restrictions to transfer into BCS program to capture a wider diversity of experience in the undergraduate programs.
B) Review undergraduate core courses and integrate additional opportunities for team work on assignments and assignments that reflect broader student perspectives.
C) Review all hiring and promotion processes to ensure a seamless and consistent application of EDI best practices.
D) Examine carefully the unintended consequences of moving gender hires to “open” slots.
E) Review the results of faculty search decisions that are unsuccessful in attracting top choices to the School and develop strategies for use during both decision making and negotiation to increase success in diverse hires.

Completed: ☐Yes ☐No ☒Partially

Progress:

A) Admissions: The Women in Computer Science committee and the EDI committee have had a joint subcommittee to examine the CS admissions process with respect to identifying barriers and making recommendations to remove barriers since Fall 2020. This subcommittee continues to examine the current process (which changes a bit from year to year), make recommendations, and request data about the impact of admissions processes.
B) Perspectives: The School had proposed to examine how assignments and courses can be made to better reflect interdisciplinary and broader student perspectives. The Undergraduate Academic Plans Committee (UAPC) held a discussion about approaches to do that. Following from that discussion, the School has surveyed course coordinators of core Computer Science courses from first-year to third-year. This consultation revealed

that many of these courses already have some relevant assignments. The School has compiled a substantial collection of existing assignments that reflect interdisciplinary and broader student perspectives. The collection of assignments can serve as a basis for additional discussions on how to further improve the existing assignments or on how to add more similar assignments.

C) Hiring/Promotion: Several improvements have been made to the hiring process to mitigate against potential bias against candidates. A non-voting EDI officer has been added to the hiring committee, whose role is to interrupt possible biases in the consideration of applicants, discussions of applications, and decisions about applicants. The EDI officer meets with every candidate to discuss their EDI statement (part of their application) and to share with them the university's family-friendly policies (previously, the hiring committee made a concerted effort to share this information with women applicants and not necessarily all applicants.) Finally, women applicants are considered early in the hiring process, to help ensure that their applications are not overlooked.

D) Gender Hires: N/A (see FAR)

E) Review: Due to the extra-ordinary workload of the hiring committee in the last two years, implementing this recommendation has been postponed to the end of this recruiting cycle.

Next steps (if applicable):

A) Admissions: This seems like a recommendation that will never close, as the admissions process changes, practices change, and the impacts of these changes constantly need to be reviewed.

B) N/A

C) An ad-hoc committee of senior faculty with strong interest in EDI issues has been struck to review the School's hiring and promotion practices, with respect to an EDI lens. That committee has started but has not completed their deliberations.

D) N/A

E) Review still outstanding.

Additional comments:

A) Admissions: Addressing barriers is complicated by the fact that the School of Computer Science does not have control over its admissions process, at least with respect to direct admissions from high school (which is how the vast majority of students enter Computer Science programs). Admissions communications, evaluations of applications, and decisions are all made at the level of the Math Faculty. The WiCS/EDI Subcommittee on CS Admissions believes that some of the admissions communications, evaluations, and decisions include barriers (that impact women, Black, Indigenous, rural applicants), but these processes involve long-standing favoured Math Faculty initiatives that the Math Faculty Admissions Officers believe result in higher quality admits to the Math and Computer Science programs. Both the WiCS/EDI Subcommittee and the Math Faculty

Admissions Officers continue to request data reports and make cases about impacts of the admissions process with respect to the diversity and quality of admits to the Computer Science programs.

B) N/A
C) N/A
D) N/A
E) N/A

RECOMMENDATION 3:

Curriculums and Programs: The current core curriculum is well tested and well supported. It is not as clear that the School engages in a robust cyclical review of the core curriculum topics and course content and timely rotation of professors in teaching these courses. Enriched courses and new electives, service courses.

A) Go ahead with soft skills new course in first or second year.
B) Course and program learning outcomes should be measured and made available as a quality assessment.
C) A strategic review of undergraduate program options is advised in order to project future demand.
D) An examination of the number of specializations is needed result in streamlining of offerings.
E) As new professional course-based masters are developed, systematic consideration should be given to retiring fading programs.
F) Consideration should be given to changing the name of the thesis master's degree from MMath to MCS to reflect and clarify the value of the degree.

Completed: ☐Yes ☐No ☒Partially

Progress:

A) Soft Skills: The School had proposed to plan to create a soft-skills course. This has been superseded by an effort at the level of the Faculty of Mathematics, as part of its Strategic Framework, to develop a course on teamwork and ethics for all students in the Faculty, including Computer Science students.
B) Outcomes: The School had been asked to make available course and program learning outcomes. A curriculum map of learning outcomes was completed as part of the program review. The School has created a website to make those program learning outcomes publicly available. The School makes available learning outcomes of individual courses in its course description web pages for each course.

C) Options: The School had proposed to review the Options that it offers. The School no longer offers any Options. Since the program review, all of the School's Options were discontinued and, in most cases, replaced by Specializations.
D) Specializations: The School had proposed to review the Specializations that it offers to consider viability of the Specializations that it offers and to determine any updates needed to the Specializations. A committee of the School performed such a review and made recommendations to the Undergraduate Academic Plans Committee (UAPC). The School has completed these updates to 5 of the 7 Specializations that it offers. Recommendations for the remaining 2 Specializations will be discussed by UAPC in the future.
E) Retiring Programs: The program has been retired.
F) Program Name: The Graduate committee has discussed a possible name change. Members were generally in favour of retaining the current name, which some felt uniquely identified our CS Master's degree among peer institutions offering the same or similar degrees.

Next steps (if applicable):

A) N/A
B) N/A
C) N/A
D) Specializations: Finalize review of Specializations
E) N/A
F) The School Director will consider seeking feedback from the School about a possible name change at an upcoming School Council meeting.

Additional comments: N/A

RECOMMENDATION 4:

Research Group Structure: The Research Group structure reinforces research-based de facto silos of interest. This may have unintended ramifications going forward on engaging interdisciplinary perspectives, building community amongst grad students and faculty across research groups, and hiring outcomes.

A) Establish a rapid task force to examine the role of the research groups and impact of structure on increasing inter- group and interdisciplinary collaboration and on hiring practices.

Completed: ☐Yes ☒No ☐Partially

Progress:

Due to the extra-ordinary workload of the hiring committee in the last two years, implementing this recommendation has been postponed to the end of this recruiting cycle.

Next steps (if applicable):

Review still outstanding.

Additional comments: N/A

	Recommendations	Proposed Actions	Responsibility for Leading and Resourcing (if applicable) the Actions	Timeline for addressing Recommendations
1.	<u>Community Building:</u> A) More discussion with students about problems with cohorts. B) Increase the designation of and availability of shared space for undergraduate students on campus for social and academic interaction. C) Increase the course opportunities for undergraduate students to work in teams on assignments over all years. D) Strengthen community interaction and building across multiple co-op terms.	The experience and feedback for the cohort offerings in the Fall 2024 terms will be evaluated and next steps will be planned based on the outcome.	Director of Undergraduate Studies	Fall 2025
2.	<u>EDI:</u> A) Capitalize on the appointment of the Director of Women in Computer Science and the establishment of an EDI Committee to develop a strategic plan to remove barriers through revised admission criteria from high school and current restrictions to transfer into BCS program to capture a wider diversity of experience in the undergraduate programs. B) Review undergraduate core courses and integrate additional opportunities for team work on assignments and assignments that reflect broader student perspectives. C) Review all hiring and promotion processes to ensure a seamless and consistent application of EDI best practices.	A) Admissions: This seems like a recommendation that will never close, as the admissions process changes, practices change, and the impacts of these changes constantly need to be reviewed. B) N/A C) An ad-hoc committee of senior faculty who have EDI-leanings has been struck to review the School's hiring and promotion practices, with respect to an EDI lens. That committee has started but has not completed their deliberations. D) N/A E) Review still outstanding.	C) Director of School E) Chair of School Advisor Committee on Appointments (SACA)	C) Fall 2025 E) Spring 2025

	D) Examine carefully the unintended consequences of moving gender hires to "open" slots. E) Review the results of faculty search decisions that are unsuccessful in attracting top choices to the School and develop strategies for use during both decision making and negotiation to increase success in diverse hires.			
3.	<u>Curriculums and Programs</u>: A) Go ahead with soft skills new course in first or second year. B) Course and program learning outcomes should be measured and made available as a quality assessment. C) A strategic review of undergraduate program options is advised in order to project future demand. D) An examination of the number of specializations is needed result in streamlining of offerings. E) As new professional course-based masters are developed, systematic consideration should be given to retiring fading programs. F) Consideration should be given to changing the name of the thesis master's degree from MMath to MCS to reflect and clarify the value of the degree.	A) N/A B) N/A C) N/A D) Specializations: Finalize review of Specializations E) N/A F) The School Director will consider seeking feedback from the School about a possible name change at an upcoming School Council meeting.	D) Director of Undergraduate Studies F) Director of School	D) Fall 2025 F) Spring 2025
4	<u>Research Group Structure:</u> A) Establish a rapid task force to examine the role of the research groups and impact of structure on increasing inter- group and interdisciplinary collaboration and on hiring practices.	Review still outstanding.	Director of School	Fall 2025

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