

Two-Year Progress Report

Science and Business (BSc), Biotechnology-Economics (BSc), Biotechnology-CPA (BSc)

June 2022

Background

The last review of the Science and Business (BSc), Biotechnology-Economics (BSc), Biotechnology-CPA (BSc) programs were completed in March 2019. Two external reviewers appraised the self-study documentation and visited the University on March 19 and 20, 2019. This two-year progress report provides update regarding recommendations of the external evaluation and the internal response of the Honours Regular and Honours Co-operative Science and Business (BSc), Honours Co-operative Biotechnology-Economics (BSc) and Honours Co-operative Biotechnology-CPA (BSc) programs delivered by the Faculty of Science.

Enrollment over the past two years

	Science and Business Honours	Science and Business Co-op	Biotechnology Economics Co-op	Biotechnology CPA Co-op
2021-2022	75	338	39	54
2020-2021	69	379	69	38

Progress on Implementation Plan

All originally proposed recommendations are either completed or in progress with the exception of installation of signage in the hallway close to the offices of SCBUS instructors. The installation of signage was affected by the Covid-19 pandemic but will be completed by end of 2022.

Four key initiatives were started post-completion of the last program review (i.e. in addition to the original 5 recommendations), they include:

- 1) increasing the number of 400-level science courses required in some specializations,
- 2) establishment of a Science and Business Program Advisory Council,
- 3) development of new program and specialization in emerging technologies, and
- 4) launch of Science and Business mentorship program on Ten Thousand Coffees (10KC) platform (SCBUS/10KC program)

Briefly, we increased the number of required 400-level science courses (Physics, Chemistry, Biology and Earth Sciences) for Science and Business (BSc) specializations [i.e. Biology,

Biochemistry and Biotechnology (co-op and regular)] from minimum of one to minimum of five. This was completed in June 2022, and includes mapping of pre-requisites required for the 400-level science courses that students in the affected specializations can enrol in.

We recently completed the process of setting up a Science and Business Advisory Council. Inaugural members of the council are alumni of the Science and Business Program. The Advisory Council was established in Winter 2022 and has met twice this year. The purpose of the council is to provide strategic advice to the Program Director of the Science and Business program. The Advisory Council will also provide opportunities for alumni and associated supporters of the Science and Business program to become better acquainted with the activities and accomplishments of the Science and Business program, and to use their combined professional experiences, expertise, and resources to provide advice and guidance and promote the program's ongoing success. The mission of the Science and Business Advisory Council is to advise the Program Director on immediate and long-term planning, curriculum considerations, and fundraising initiatives.

Eight Science and Business program specializations (Honours Regular and Honours Co-operative): Chemistry, Physics, Environmental Services, and Earth Sciences were discontinued between 2019 and 2020 due to low enrollment and retention. The Biotechnology Economics (BT-ECON) program was discontinued in 2021. The deactivation of these specializations and program has made us start exploring opportunities for strategic growth through developing and offering course-based MSc in Emerging Technologies (MSET). The new Emerging Technologies program will be offered using a model similar model to our current programs and specializations. This means that course requirements for the Emerging Technologies offerings will be delivered by the Science and Business Program in collaboration with other academic units at the University including but not limited to the Faculties of Mathematics and Health, and the School of Accounting and Finance.

The purpose of the SCBUS/10KC program is to strengthen the Science and Business community by providing support to students and enabling alumni to give back to the community through a program that provides alumni-student, student-student, and alumni-alumni mentorship opportunities. The SCBUS/10KC program platform is currently under development. Onboarding of students and alumni to the platform is scheduled for September 2022.

Below is a summary of progress made on the original set of recommendations.

Recommendations

1. Develop a strategic vision for the programs.
Status: **in progress**

Details:

Growth priority and targets for the programs were finalized in Fall 2019 but to date there is no strategic plan. The first strategic plan for the Science and Business program is under development and will be finalized by December 2022. The strategic plan will provide clear goals, structure and direction that the program is headed in the next 5 years. The Science and Business program strategic plan will be in line with the strategic plans of the Faculty of Science and the University.

2. Rationalize the program options

Status: **completed**

Details:

Eight Science and Business program specializations (Honours Regular and Honours Co-operative): Chemistry, Physics, Environmental Services, and Earth Sciences) were discontinued between 2019 and 2020 due to low enrollment and retention. The Biotechnology Economics (BT-ECON) program was discontinued in 2021. A review of BT-CPA was completed and program structure maintained.

3. Improve branding internally and externally

Status: **in progress**

Details:

Covid-19 pandemic affected installation of signage. This will be completed by December 2022 due to need to expand SCBUS Program offices. Presentation to relevant SCI and ARTS Departments and other stakeholder groups was done in Fall 2020. Collaboration with Marketing and Undergraduate Recruitment (MUR) and Science Recruitment on recruitment activities (events, materials, websites); website upkeep and nomination of SCBUS alumni for relevant awards are ongoing. An additional response to this recommendation is that we have started developing Waterloo branded merchandise for different student groups in the program starting with Fusion and WatSolve. Fusion is the group responsible for organizing the Science and Business annual student conference. WatSolve is a *pro bono* management consulting group exclusive to Science and Business students. WatSolve provides business solutions and support to technology/science-based companies.

4. Continue to Build Faculty Complement

Status: **In progress**

Details:

We are preparing to hire for two positions — one faculty and one staff — due to the recent retirement of a faculty member and to support strategic addition of the course-based MSET program.

5. Create a Curriculum Review Committee (CRC)

Status: **completed**

Details:

The CRC had its first meeting in Winter 2021 and has met several times since then. There is no student member of the committee as the CRC decided at the first meeting that it is not necessary. The committee has been instrumental in reviewing proposed changes to the number of 400-level science courses students in different Science and Business specializations are required to take. Further details are provided below.

Updated Implementation Plan

	Recommendations	Proposed Actions	Responsibility for Leading and Resourcing (if applicable) the Actions	Timeline for addressing Recommendations
1.	Develop new strategic plan for the SCBUS program.	Continue to implement existing program strategic direction.	Director, Science and Business	December 2022.
		Develop a new SCBUS strategic plan aligned with current University and pending Faculty Strategic Plans. Director to discuss with stakeholders including Dean of Science, Associate Dean of Science, Undergraduate Studies, SCBUS team etc.	Director, Science and Business	December 2022.
2.	Rationalize the program options	Determine optimal number and type of SC-BUS specializations. Director to discuss with relevant stakeholders such as Dean of Science, Associate Dean Undergrad, Departmental Chairmen, SCBUS faculty and staff etc.	Director, Science and Business	Completed. Eight specializations were deactivated due to low enrolments: Chemistry regular & coop, Physics regular & co-op, Environmental Services regular & co-op, Earth Sciences regular & co-op (7 inactivated for Fall 2019; Earth Sciences regular inactivated for Fall

				2020).
		Review BT-ECON program with a view to either reformulating or inactivating. Director to discuss with above stakeholders	Director, Science and Business	Completed. Program deactivated for Fall 2021 due to declining enrolment and low retention.
		Review structure of BT-CPA. Either reformulate as Science- CPA or leave as status quo. Director to discuss with above stakeholders	Director, Science and Business	Review completed and program structure maintained.
3.	Improve branding internally and externally	Continue to collaborate with MUR and Science Recruitment on recruitment activities (events, materials, websites).	Director, Science and Business	December 2022.
		Improve hallway signage near SCBUS instructor hub area.	Director, Science and Business	Covid-19 pandemic affected installation of signages. This will be completed by December 2022 due to emerging need to expand SCBUS Program offices.
		Create and give 10 minute presentation to relevant SCI and ARTS Departments and other stakeholder groups	Director, Science and Business	Completed in Fall 2020.
		Maintain SCBUS website and contribute to MUR SCBUS	Director, Science and Business	Completed.

		website		
		Nominate SCBUS alumni for relevant awards	Director, Science and Business	Ongoing as per Advancement deadlines.
		Develop Waterloo branded merchandise for different student groups in the program starting with Fusion (the group responsible for organizing our student annual conference) and WatSolve (SCBUS management consulting group).	Director, Science and Business	December 2022.
4.	Continue to Build Faculty Complement	We are in the process of advertising two positions- one faculty and one staff- due to recent retirement of a faculty member and to support strategic addition of the course-based MSET program.	Director, Science and Business	In progress. This will be completed by June 2023.
5.	Create a Curriculum Review Committee (CRC)	Create CRC chaired by Director, and having membership from Science and Arts Departments.	Director, Science and Business	Completed in Winter 2021.
		Set Terms of Reference and review and prioritize items from Reviewers' Report	Director, Science and Business	Completed in Winter 2021.

		Ongoing commitment to scholarly review	Director, Science and Business	No longer necessary as we now have a functional CRC.
Additional activities added by the program following the last review:				
6.	Increase the number of 400-level science courses required in some specializations	Propose increase in the number 400-level science courses required to graduate from the Science and Business program	Director, Science and Business	Completed in June 2022.
7.	Set up Science and Business Advisory Council	Identify and reach out to six to nine former alumni of the Science and Business Program that will be part of the inaugural council	Director, Science and Business	Completed in Winter 2022.
8.	Establish course-based MSc in Emerging Technologies (MSET)	The new MSET program will be offered using similar model for our current programs. This means that course requirements for the MSET program will be delivered by the Science and Business Program in	Director, Science and Business	Started. Will be completed in Fall 2024.

		collaboration with other academic units at the University including but not limited to the Faculties of Mathematics and Health, and School of Accounting and Finance.		
9.	Launch Science and Business mentorship/Ten Thousand Coffees (SCBUS/10KC) program	Actively support students and enable alumni to give back to the Science and Business community through a program that provides alumni-student, student-student, and alumni-alumni mentorship opportunities.	Director, Science and Business	Contract signed with 10KC in June 2022; onboarding of students and alumni to platform scheduled for September 2022.

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: _____ **2024-2025**
Date

Signatures of Approval:

Okey Igboeli

Signed with ConsignO Cloud (2022/10/18)
Verify with verifio.com or Adobe Reader.



18 October 2022

Chair/Director _____ Date

AFIW Administrative Dean/Head (For AFIW programs only) _____ Date

**Robert
P.**

Digitally signed by Robert P.
Lemieux
Date: 2022.10.25 12:44:44 -

Faculty Dean _____ Date

Note: AFIW programs fall under the Faculty of ARTS; however, the Dean does not have fiscal control nor authority over staffing and administration of the program.



4 October 2022

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

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