

BSc Sciences

Undergraduate Review

Year 3 (2023) - FAR Implementation Report

(reviewed 2019/20)

Recommendation #1

Empower a faculty member to be a champion for FMS 1P00 and revamp the course to balance the content to include topics in numeracy, writing, information literacy, professional skills, presentation skills, and EDI [Equity, Diversity, Inclusion] issues in STEM.

ARC Disposition of the Recommendation

ARC considers the recommendation to be accepted for consideration. The Committee recognizes the importance of this course to the program and the high value placed on it by the reviewers. While it may not be possible for this one course to deliver all of the additional content suggested by the reviewers, ARC encourages the program to consider how it might provide students with connections to existing campus resources which promote the topics listed.

Implementation Plan (1st Priority)

Responsible for approving:	Program
Responsible for resources:	Program
Responsible for implementation:	Program
Timeline:	Dean of Mathematics and Science to report by the end of academic year 2020/21

Actions	Responsibility	Year One	Year Two	Year Three*
Action #1 EDI [as of 2022 called IDEA] page under development	Dean's Office	T	T	D
Action #2 Looking for a faculty member to promote the course	Dean's Office	T	O	

*On Target (T), Delayed (D), Complete (C), Complete and Ongoing (O)

Comments 2021:

All topics indicated by the reviewers, except the EDI related material, are currently included in the course curriculum. The Outreach and Communication officer for the Faculty of Math and Science (FMS) is involved in the development of an EDI (now called IDEA, A for accessibility) page for the university, expected to be completed by May 1, 2021. The instructor will include questions/discussions related to EDI and refer students to this page. If needed, the instructor will seek guidance from experts within the university. A certain part of the grade will be associated with the topic of EDI.

It has not been easy to find a suitable instructor for the course. Since the introduction of this course two years back, the two instructors who taught the course have left the university. At present the responsibility of championing the course rests with the FMS Dean's Office. In time, a champion/promoter of the course will be found outside the Deans' Office. Ideally this person should be knowledgeable about the course, perhaps the instructor him(her)self.

Comments 2022:

Last Fall FMSC 1P00 was taught for the first time by a BUFA member, who has also agreed to teach the course for at least a few years longer. This faculty member and the Dean's Office (Associate Dean and the Outreach and Communications Officer) will champion the course via various offices within the university (Admissions, Recruitment, Office of Concurrent Education). The course is useful for students registering under Adult and Continuing Education, as well as for some international students. The Outreach and Communications Officer will be contacting high schools in the Niagara region about this course. We will also promote this course during events such as Fall Preview, Spring Open House and OUF.

Some elements of IDEA (inclusiveness, diversity, equity and accessibility) were discussed in class by the instructor last Fall. He also discussed how various survey questionnaires, job interview questions and even computer codes show hidden social, cultural, gender and racial biases. The FMS IDEA document is in the last stage of its development, awaiting final comments from Chairs and Directors. It is based on the university's document, but incorporates steps that can be taken at the faculty and departmental level. The FMS IDEA document will be discussed in the course this coming Fall.

Comments 2023:

FMSC 1P00 has been taught for two years by an instructor who holds an ILTA position in Computer Science and teaches FMSC 1P00 as overload. Under these circumstances, it has been difficult to revamp the course. We need to reconsider the course in the wider context of clarifying the goals and objectives of the BSc Sciences program generally. We intend to begin this re-evaluation in summer 2023 with the aim of submitting a major revision to the calendar in Fall 2023.

The FMS IDEA policy document remains incomplete and so was not provided to the instructor of FMSC 1P00. It is not clear how students would benefit from discussing a policy document outlining EDI principles underlying the administration of the Faculty of Mathematics and Science. More relevantly, the instructor does discuss EDI concepts in class.

Recommendation #2

Augment student advising by increasing academic advising time and providing pathways for students in the form of program templates geared toward specific employment outcomes. Use outcome data to continually update and improve templates and pathways to better advise students.

ARC Disposition of the Recommendation

ARC considers the recommendation to be accepted and in the process of implementation. Although hiring is outside the jurisdiction of the Committee, ARC recognizes that the program is working on ways to augment student advising in addition to advocating for additional advising resources.

Implementation Plan (1st Priority)

Responsible for approving: Program
 Responsible for resources: Program
 Responsible for implementation: Program
 Timeline: Dean of Mathematics and Science to report by the end of academic year 2020/21

Actions	Responsibility	Year One	Year Two	Year Three*
Action #1 Application for a dedicated advisor for the program was made to the HRC [Hiring Review Committee].	Dean's Office	T	C	
Action #2 Various pathways for students in the program are being developed	Academic Advisor	T	O	

Comments 2021:

An application for an advisor dedicated to BSc Sciences and Neuroscience programs as well as International Students was made to the HRC. HRC has approved a fixed term one-year contract appointment with benefits. Since HRC did not approve a permanent dedicated advisor position, the position will have to be funded by the Dean's Strategic fund contrary to the Operating Budget for 2021-22. The current academic advisor's caseload has already become unsustainably high.

The current FMS Academic Advisor has agreed to develop pathways leading to various career and employment opportunities, and to work with the Outreach and Communication Officer to put these on a FMS web page. A link to this page will be placed under program notes in the calendar.

The job of updating the templates and pathways will be delegated to the advisor dedicated to this program, once the position is filled.

Comments 2022:

The Faculty now has an Academic Advisor dedicated to this program.

The FMS Recruitment and Communication Officer has created a website for this program: brocku.ca/mathematics-science/bsc-sciences

There is a link to [pathways](#) (suggestions only) to various careers for students in this program. The BSc Sciences Academic Advisor is currently working with her counterpart at Brock School of Nursing to create the pathway for a career in nursing. It will be added to the list of other pathways when complete, which is expected very soon.

Comments 2023:

The wording for Action #1 needs clarification, as it could be interpreted to mean that FMS has an Academic Advisor whose sole job is to provide advising services for the BSc Sciences program. In fact, the 2022 Comments seem to confirm that this is what happened. However, FMS has never had an Academic Advisor dedicated solely to the BSc Sciences program, nor are there enough students in the BSc Sciences program to justify this, given a general ratio of 1 Advisor per 750 students. The Advisors have been uniformly dedicated, but this should be understood as reflecting their attitudes to advising.

As of March 2023, FMS had one permanent Academic Advisor. The University has recognized that this is not a sustainable advising model for FMS. Therefore, starting with the 2023-24 fiscal year, FMS will be adding a second, permanent, full-time Advisor to its ranks, funded out of the operating (base) budget of the Faculty. We are currently in the final stages of recruiting that colleague. For at least the remainder of 2023, advising for the BSc Sciences program will be shared between the two Advisors.

In 2023, we plan to provide new pathways documents on the BSc Sciences webpages, using flowcharts to represent actual pathways.

As far as we are aware, there were no discussions with the Nursing program. Indeed, Nursing students already have very specific science requirements in their program.

Recommendation #3

Develop a robust method to track outcomes for BSc Sciences students to provide a better understanding of student outcomes and aid in program improvement.

ARC Disposition of the Recommendation

ARC considers the recommendation to be accepted and in the process of implementation. The Committee understands that the unique nature of the program will require some time to develop a robust method to track outcomes.

Implementation Plan (2nd Priority)

Responsible for approving: Program
 Responsible for resources: Program
 Responsible for implementation: Program
 Timeline: Dean of Mathematics and Science to report by the end of academic year 2021/22

Actions	Responsibility	Year One	Year Two	Year Three*
Action #1 Tracking of students has been initiated	Dean's Office and the Office of Institutional Analysis	T	O	

Comments 2021:

The job of tracking students to develop a better understanding of student outcomes in the program will be shared by the Dean's Office and the Office of Institutional Analysis. In conjunction with the Faculty of Mathematics and Sciences, Institutional Analysis has committed to develop and share a draft report to track BSc Sciences student outcomes by the end of April 2021. Two meetings with the Office of Institutional Analysis have taken place so far on the issue of tracking.

The Dean's Office will be involved in the planning of the future development of the program, based on the analysis of the tracking results.

Comments 2022:

Institutional Planning, Analysis & Performance (IPAP) is currently tracking three specific groups of students: 2015, 2016 and 2021 cohorts. Tracking of students in this program is different and more involved than for other programs. Students keep changing their programs to and from the BSc Sciences program, depending on their personal situation. Not all the students who join the program, either in the beginning of their studies at Brock or at some intermediate stage, graduate from this program. IPAP will be tracking the progress and

On Target (T), Delayed (D), Complete (C), Complete and Ongoing (O)

graduation of various cohorts from the BSc Sciences program as well as any other program at Brock. There is also a plan to track a group of students individually. The Associate Dean and the Academic Advisor responsible for this program will be meeting with IPAP at regular intervals to discuss the tracking.

Three reports have been produced by IA as of March 2022.

Report 1- 2016 group, tracking 178 students who were enrolled in GENS (General Studies (Math and Science)) in Fall 2016.

Report 2- 2015 group, tracking 168 students who were enrolled in GENS in Fall 2015.

Report 3- 2021 group, backtracking 340 students who were enrolled in GENS or GSCL (General Sciences) in Fall 2021.

Comments 2023:

We have requested updates from IPAP. If an update becomes available, it will be used to inform a planned re-evaluation of the objectives of the BSc Sciences program, beginning in summer 2023.