1 Introduction

In addition to a wide variety of core programs, there are many ways in which Science students can enhance their BSc degree. Below we briefly list the existing mechanisms, and then outline two proposed new initiatives: (1) an Enriched BSc Freshman Program; and (2) a BSc Global option.

2 Existing mechanisms

More Depth: 500-level courses, access to graduate courses, Honours courses, Honours programs, specialization options.

More Breadth: second programs including minors.

Interdisciplinary Programs: joint and inter-unit programs (see AC-11-33)

Research Opportunities: individual research courses including the 396 series of courses and major/honours research courses.

Field Studies: completion of field courses or field semesters

Internships: Industrial Practicums and Internship Year in Science

FIGS/GIGS: non-credit activities for first-year and graduating students.

3 Enriched Freshman Program

The Faculty of Science is very lucky to have very strong students entering the Freshman year. Admissions cutoffs have been increasing in recent years, and the projected cutoffs for entering Canadian high school students is expected to be between 88% and 93% for overall top 5/6 average and 85% in mathematics and science courses. Within that entering cohort a large fraction of the incoming students are at or near the level for receiving a McGill Entrance Scholarship. Thus, to fully challenge these exceptional students, we propose to ways to enrich the Freshman year.
3.1 Enriched Courses

First, we propose to create a collection of Enriched courses. Some of these already exist in some form, and others will be new courses.

- Mathematics already has an enriched stream. MATH 150/MATH 151 provides an enriched Calculus stream. The material in MATH 150/151 is equivalent to three normal courses (MATH 140, MATH 141 and MATH 222), along with enrichment of the material. The newly created MATH 134 provides an enriched version of MATH 133 (Linear Algebra and Geometry).

- Physics has PHYS 131 and PHYS 142, which are more rigorous versions of the introductory physics courses. These courses are currently taken by all freshman engineering students and some Science students. It is worth thinking about the possibility of a pair of enriched courses which are specific to the BSc and BA&SSc students.

- Chemistry introduced CHEM 115, which was an accelerated course, providing the material of both CHEM 110 and CHEM 120, and emphasizing the developments in chemical sciences that changed the way nature was understood, focusing, where possible, on examples that led to Nobel Prizes. This course has not been offered in recent years, and it must be determined the correct course of action. Should CHEM 115 be reinstated, or would it be better to propose a new pair of enriched courses?

- Biology, Psychology, Earth System Sciences, and Computer Science do not have enriched freshman courses. For Biology, the most obvious candidate would be to provide an enriched version of BIOL 112 (Cell and Molecular Biology).

3.2 Suggested U1 courses that fit in the U0 year

A second way of enriching a student’s freshman year is to propose U1 courses that may allow the student to get more exposure to a potential area of interest. This only makes sense for students who have room in their schedules. One example would be students interested in Geology could take EPSC 201 (Understanding Planet Earth) in their U0 year. Another example would be that students interested in Computer Science or Software Engineering could take COMP 202 in their fall term (this is an approved Freshman course) and then a subsequent course in the winter term (COMP 206 or COMP 250).

4 BSc (Global)

Science students have many strengths and come from a variety of backgrounds. Many of our students, including Quebec students and international students, are multi-lingual. Our students are also very academically strong and potential global leaders. The BSc Global Option is proposed as a way of providing the BSc students with a way of further strengthening their BSc studies. The requirements would be completed within the 90 (120) credits of the students degree requirements, and students completing the requirements would be awarded the Global Option (this is similar to the way in which the Internship Option) is currently handled. For example, a student in Biology, completing the Global Option would be granted a BSc Biology (Global).

As a starting point in the design of this option we can consider some required elements and some complementary elements.
4.1 Required Elements

Language Course: 3-6 credits of any approved language course, including regular language courses offered during the regular terms at McGill, the Quebec Studies Summer Institute course (CCST 336), and other approved courses (TODO: identify a list of courses).

Research Course: at least 3 credits of research using the list of approved research courses for the DMURL.

4.2 Complementary Elements

We propose that in addition to the required elements, that students complete at least one of the following complementary elements.

Field Studies: an approved field studies course. We would need to identify which field studies courses would make sense in the “Global” context.

Internship: completion of an Industrial Practicum Course or the Internship Year in Science.

“Global” courses offered from other faculties: we would identify a relatively short list of courses offered by other faculties which provide a rigorous background for Science students. Some potential courses could be:

- POLI 342 - Canadian Foreign Policy
- SOCI 307 - Sociology of Globalization
- POLI 345 - International Organizations
- URBP 520 - Globalization: Planning and Change (part of the Barbados Field Study Semester)
- INTD 200 - Introduction to International Development
- ECON 313 - Economic Development 1
- ...