BSc and BA&Sc Interdisciplinary Programs
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1 Introduction

In our discussions it was noted that often a new program or area that is considered interdisciplinary at first eventually becomes a new discipline. For example, one of the AC members considers that Neuroscience is in fact its own discipline. However, it is not practical to create new academic units for every such discipline. Thus, part of the challenge is to support new interdisciplinary programs within the context of the existing departmental structure.

3 Growth in Interdisciplinary Programs

As clearly shown by the attached table, the number of students registered in a BSc/BA&Sc interdisciplinary program has more than doubled in the last five years. Almost all of the the older joint programs continue to attract students, the newly introduced joint programs such as the Computer Science and Biology program are also attracting students. Finally, the new inter-unit programs are also very popular, in particular the Neuroscience and Cognitive Science programs.

4 Designing a good Interdisciplinary Program

It is actually quite challenging to design a good interdiscplinary program. One wants to have a broad program using courses from several disciplines, while at the same time providing sufficient depth so that students get an adequate opportunity to do higher level 400 and 500-level courses.

In the last cycle of programs reviews we identified several Faculty programs which were interdisciplinary and did not provide adequate depth. The Faculty of Science retired all Faculty programs and replaced them with the BSc Liberal, which requires a Core Science Component and a second program (Minor, Minor Concentration, Major Concentration or a second Core Science Component). The BA&Sc Biomedical Sciences Major Concentration was another example of a program which lacked sufficient depth, and it was also retired.

In introducing new strong inter-unit programs, different approaches have been taken to ensure both breadth and depth. The Environment programs are structured as an integrative core, plus a domain. Thus all students get some core courses, plus some depth within their chosen domain. Other inter-unit programs are structured so that there are core courses, plus a structured choice of complementaries. This structuring is via several alternative streams, or via a selection of courses from specific specialized lists. There are likely other program designs which will work, but the key point is to remember to allow for (require) adequate depth and specialization.

Designing a joint program also requires some care. The program needs to include a significant number of core courses from both disciplines, as well as allowing students to proceed to advanced courses in both disciplines. In particular, it is the expectation that students in the Honours versions of these programs will have adequate background for graduate studies.

Minors must also be designed carefully so as to allow for, and require, some depth. Even interdisciplinary minors such as the Neuroscience and the Interdisciplinary Life Sciences Minors have been designed to ensure adequate depth by requiring a minimal number of higher-level courses.

5 Integration

Many inter-unit interdisciplinary programs have specific integrative courses which have been specifically designed for the program. Examples include the core Environment courses and the new Earth System Science core courses. All such courses are associated with an administering department.

Explicit joint programs may or may not have special integrative courses. For example, the Physics and Computer Science, and the Computer Science and Biology programs have a joint 400-level project course.

Implicit joint programs, such as the multi-track BA&Sc program, have no explicit integrative courses which integrate the two major concentrations. However, students may invent their own combinations of courses so that there is some good relationships between them. For example, students with major concentrations in Economics and Mathematics can choose courses which t together naturally. Even less obvious combinations such as English and Physics can lead to programs which support speci c goals, such as training to be a technical writer.

6 Advising

Within the Faculty of Science advising of interdisciplinary programs (both BSc and BA&Sc) is

8 Program Review

All programs, except for Neuroscience and Cognitive Science, are associated either with the MSE or a department. Thus, except for those two cases, the program should be reviewed when the administering department does their cyclical review. A cyclical review policy for Neuroscience and Cognitive Science needs to be created. We suggest that the program directors and committees be consulted to determine the best mechanism. One possibility it to assign the review to each participating department on a rotating basis.

9 Summary

Interdisciplinary programs are becoming increasingly popular. The support of such programs requires excellent disciplinary support through the departments and an appropriate advising and administrative structure. All inter-unit and joint programs o ered through the Faculty of Science have such support and structure.