Two-Year Progress Report of the **Computational Mathematics Program (BMath)**

**November 2013**

The self-study for Computational Mathematics (CM) was submitted 8 September, 2010, and the review team’s report was received 22 February, 2011. The program review report on CM was approved by Senate Undergraduate Council on 13 September, 2011, and was presented to Senate on 17 October, 2011. This report outlines the action taken in the undergraduate plans in the past two years.

*Recommendation: To change CM from a first year entry program to a second year entry program, and to lower the tuition from the high deregulated fees to the regulated fees shared by most other math programs.*

The tuition fees for the CM program were reduced to the same level as most other mathematics programs in the Faculty. Meanwhile, CM is no longer a first-year entry program since 2012. It is now a second-year entry program similar to most other mathematics programs.

*Recommendation: To add a high-level programming course (such as C, C++, MATLAB) in the program, and to remove the stream structure for the upper year courses.*

The academic plans of CM underwent a substantial revision in 2011:

- A high-level programming course in C++, CS 246, *Object-Oriented Software Development*, was added to the list of CM core courses.

- STAT 340, *Computer Simulation of Complex Systems*, was added as an alternative to the CM core course, STAT 341, *Computational Statistics and Data Analysis*.

- The five streams of upper year courses were removed and replaced by a single choice list of upper year courses. Meanwhile, an algorithm course, CS341, *Algorithms*, was added to this new list of upper year elective courses. In this new and simplified course structure, students have the flexibility to select any four courses from the single list of upper year electives.

- To further simplify the program, the four option plans: *Computational Mathematics/Bio-Medical Option, Computational Mathematics/Data-Mining Option, Computational Mathematics/Earth and Science Option, and Computational Mathematics/Economics Option* were removed. CM students can still pursue these areas of interest unofficially by taking courses from the suggested list of electives.

The CM Minor was revised accordingly. CS 246 was added to the list of CM core courses. STAT 340 was added as an alternative to STAT 341. The three electives of upper year courses were chosen from the new single choice list.

*Recommendation: To give CM more control and administrative responsibility over the CM courses and teaching assignments. In addition, to create a Board or Advisory Committee to oversee the CM program,*
whose membership includes the Director of the Centre, the Dean, the Chairs from each of the five academic units, and representatives from the CM affiliated members.

Considering the relative small size of the CM program, it did not seem effective to have a heavy administrative structure. The current CM Steering Committee, which consists of members from different academic units, serves the suggested purpose with much less administrative costs. Changes were made to simplify the administrative structure of CM:

- The CM labels on all courses were removed.
- Academic advising of CM students is handled by a designated advisor in the Dean’s Office.
- Advising that is specific to computational mathematics is handled by the Centre for Computational Mathematics in Industry and Commerce.

New initiative: A special event is organized in the winter term to honour the CM upper year scholarship recipients. Discussions are underway to expand the event that will include informal seminars given by CM alumni to first year students in the Faculty of Mathematics.