DEPARTMENT HIGHLIGHT
No. 1

*The Department Highlight provides a forum for mathematics departments at Canadian universities to outline some of their department's programs of study, community outreach programs and other departmental activities that may be of interest to the readers of **Crux Mathematicorum**.*

The School of Mathematics and Statistics
Carleton University

The School of Mathematics and Statistics at Carleton is a strong, collegial and vibrant academic unit with a long standing tradition of excellence both in research and teaching. The School draws upon diverse and dedicated faculty and staff complements to provide students with a wide range of comprehensive and challenging programs across a number of sub-disciplines. In contrast to most other institutions in Ontario, Carleton offers a Bachelors of Mathematics degree which involves courses tailored for students in first year. In addition, the School provides a number of core first and second year courses to students in other disciplines of Science, Social Sciences and Engineering. While the School shares many common elements with like units at other institutions, there are also aspects which are unique and which draw on the particular characteristics of the School, the University, its location within the Capital region, and the strengths of the faculty.

The School of Mathematics and Statistics offers a broad range of programs, built around a common core which allows students to branch into many different avenues of specialization. In general the core offerings compose roughly the first three to four terms of the program and provide students with a balanced exposure to the fundamental areas of mathematics and statistics, from both theoretical and applied perspectives. Subsequently, students are then able to focus on any one of these aspects, possibly in combination with advanced studies in another discipline. Starting in September 2013, the School will offer a Concentration in Actuarial Science. The concentration will incorporate a targeted sequence of courses in Business and Economics that will provide students with the necessary background to satisfy all six undergraduate requirements set out by the Society of Actuaries (SOA) for professional designation.

Students from the School have participated in the Putnam Mathematics Competition that occurs in December each year. One of our faculty members serves as a coach in order to assist students in their preparation for the competition. Recently, the School has been heavily involved in outreach activities aimed at high school students. *Math for Success!* is a popular enrichment course targeted for students in grades 11 and 12. It provides enrichment in a broad array of mathematical topics beyond the Ontario High School curriculum, including algebra,

trigonometry, and combinatorics, giving students a head-start on their university studies. Classes meet for 90 minutes, one evening per week from September to March. The School has also offered *MathLink* since 2006, a second enrichment course aimed at students in grades 9 and 10. Classes run in a similar fashion to *Math for Success!*, and cover topics such as sequences, probability, geometry, modular arithmetic, and logic.

We are pleased to have a recently-created partnership with the SCM (School of Competitive Math, `www.competitivemath.org`) that was established through an adjunct professor with the School, Dragos Calitoiu. Weekly evening courses are offered in intermediate topics for students in grades 7 and 8, and advanced topics for students in grade 9. The School and SCM will organize an SCM Math Contest for students in grades 7 and 8 to be held on the evening of Tuesday, April 16, 2013, from 17:30 to 19:30 pm. Through our partnership with SCM, a new weekly enrichment course in geometry for students in grades 7 and 8 is scheduled to begin in 2013-14.

In addition to the above enrichment activities, the School has also contributed to the development of a student engagement program called *Math Matters*. This program offers incoming students to Carleton a one week intensive review at the end of the summer. A review of high school math concepts and techniques that are essential to the first year calculus and linear algebra courses is given. Due to steadily increasing enrolment, three sections are now offered, targeted for incoming students in Science, Engineering, and Business/Economics.

On January 23, 2013, the School officially opened its newly-created Consulting Centre, CQADS (the Centre for Quantitative Analysis and Decision Support `www.carleton.ca/math/cqads/`). Through the Centre, our objectives are to provide consulting services and share our expertise in solving real world problems, facilitate collaborative cross-disciplinary research in mathematics and statistics, stimulate research in mathematics and statistics, disseminate research to the wider research community by offering short courses, and to enhance the training and experience of our students and postdoctoral fellows through work experience and short courses in the Consulting Centre.

In summary, the School of Mathematics and Statistics at Carleton engages in a broad range of outreach activities, not only to foster and enrich the learning of new mathematical and statistical techniques, but also to highlight the connections of these approaches to a plethora of different applications and career paths.