

## New math grad program aimed at teachers

A moment of affirmation came to Brian Forrest last April, during an event at Waterloo's Centre for Education in Mathematics and Computing.

He had just given a well-received talk on the proposed new Master of Mathematics for Teachers (MMT) program to a group of 200 high school teachers. A few minutes later the pure math professor found himself out in the corridor being mobbed by audience members, answering deep questions about calculus.



“It was a moment that told me there was good reason why these people would want to be involved in the MMT,” says Forrest, the new program’s chair. “One thing about math teachers, and particularly the kind of person who will be taking such a program — they love their subject, and many of them miss it. That was the reaction we heard the most: these teachers really do want to get their hands back on math.”

The new online, part-time MMT program, approved by Senate last September, will be taught by faculty members in applied mathematics, combinatorics and optimization, computer science, pure mathematics, and statistics and actuarial science, and administered through the CEMC.

Ian VanderBurgh, CEMC director, notes that Ontario Council on Graduate Studies approval came in late April. More information is available on the CEMC website at [www.cemc.uwaterloo.ca](http://www.cemc.uwaterloo.ca).

Word has already spread through the activities and contacts of the CEMC, bringing an eager response from “a strong cohort” of potential students, Forrest says. Part of the reason he believes the program will succeed is that CEMC’s many years of outreach to high school students and teachers have built up Waterloo’s reputation for excellence in mathematics education.

Another key reason: the MMT is different from most master’s-level math programs, which usually aim to prepare researchers and future professors. It’s also different from most professional development programs for math teachers, which usually focus on pedagogy. The MMT is specifically for high school math teachers who want to strengthen their knowledge of mathematics.

Its mode of delivery is again different. The only other master's in Canada aimed at enhancing the mathematics knowledge of teachers is an on-campus, lecture-format program at York University in Toronto, not easily accessible to actively employed teachers living outside the Toronto area. The MMT will be offered part-

time, online and by CD-ROM, so that teachers living anywhere can more easily fit these studies into their busy working lives. They will have five years to finish.

The content will be both deep and broad, delving into the essentials of mathematics, such as number theory, geometry, and calculus, and the real-world applications. There will be course elements on image compression, cryptography, finance, statistics and medicine, computer graphics, the math behind sound and the fundamentals of music, and so on.

These are things that most math teachers would not have seen before in the classroom, and will now be able to use to engage and inspire their own students — and to answer the perennial question, “Why am I studying this?”

A planned course on problem-solving could be taught to people with almost any level of mathematical sophistication, Forrest says. There is an obvious application to competing in contests, but beyond that, “it’s at the heart of what somebody who’s interested in mathematics really wants to think about. It’s probably one of the courses that will get the teachers reinvigorated about doing mathematics themselves.”

People at presentations and open houses often ask him what you can do with a math degree. His answer: “Anything you want, provided you have the aptitude and can structure your studies to open those doors. These days, everything under the sun offers career possibilities for people with mathematical training. Part of our job is to make teachers who have been out of university for a while more aware of these new, exciting developments.”

*University of Waterloo Daily Bulletin*

*Previously Published on Monday, March 8, 2010*