

# Faculty of Mathematics – Sixth Decade Progress Report

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Our mission in Mathematics continues to guide the planning and execution of strategic initiatives:

*“develop and maintain the Faculty as a **world-class** centre of excellence and prominence in the mathematical sciences with respect to undergraduate and graduate education, and research (both pure and applied)”*

We are pleased to report many steps forward in terms of meeting our priority goals for the University’s sixth decade. Highlights of our progress in selected areas are presented below.

## Academic Programs

We have recently introduced new undergraduate specializations: financial analysis and risk management, information technology management, and a double degree in computer science and business administration (joint with WLU). These programs build on our existing strengths, attract exceptionally talented students and respond to industry demand. Our existing programs received a positive external review in 2009, which noted that

*“the undergraduate program in the Faculty of Mathematics at Waterloo is a **very high quality** and a very large operation, which is **unique in Canada.**”*

## Teaching and Research

A Faculty of Mathematics award for distinction in teaching award was introduced to acknowledge our faculty members and emphasize the importance of strong teaching. The contributions of our researchers have been **recognized with honours from international professional organizations** like the Association for Computing Machinery, the American Statistical Association, the American Association for Artificial Intelligence and the Institute of Electrical and Electronics Engineers – as well as closer to home with Ontario Premier’s Innovation Awards and Early Researcher Awards.

## Undergraduate Students

We have experienced a **steady increase in undergraduate enrollment** (15% over the last five years), while at the same time the admission averages of our incoming students have continued to rise. Expanded outreach by our Centre for Education in Mathematics and Computing has successfully built on high school students’ interest in the discipline, building the pipeline that attracts top students to Waterloo. New entrance scholarships and co-op opportunities have also played a role. 23% of undergraduate students in Math are international, exceeding the sixth decade target of 20%.

## Graduate Students

Graduate student enrollment in Math is also showing a steady increase, up 15% over the last five years. Part of this increase comes from the addition of **new professional programs** – in computer science and actuarial science. A master of health informatics and an online master of mathematics for teachers will launch this year, pending OCGS approval. 37% of Math graduate students are international. The availability of new space over the next few years will enable further graduate student expansion.

## Experiential Education

The Faculty of Mathematics has introduced a change to our undergraduate co-op program streams, which has **improved the students’ preparation for a successful first work term**. Increased industry outreach - through research connections, seminars and workshops - has helped to build awareness of

Waterloo as a gold mine of talented co-op students and graduates. This has been the case on Wall Street in particular, where global financial services firms have begun actively recruiting at UW.

### **Alumni Engagement**

Math alumni have especially strong ties to their alma mater, and many credit their distinctive degree for opening up a wide range of career opportunities. In turn, **they have served to open doors** for new co-op opportunities, facilitate recruitment connections in high schools and with companies seeking research connections. An active annual program of events around the world has helped to keep our alumni engaged with Waterloo.

### **National and International Presence**

Math has been a full participant in the UAE campus from the outset. We will welcome the first students in our **Dubai** undergraduate programs in September 2010. Our outreach activities in China are facilitated by a permanent office and UW Math staff member in **Shanghai**. New this past year is an IDRC-funded joint UW-Tsinghua University research centre studying internet information acquisition. A series of successful industry research seminars and workshops have been held in **Toronto, New York**, Shanghai and Beijing.

### **Internationalization**

Math has long shown leadership in international student recruitment and admission. As of Fall 2009, **54% of the entire UW undergraduate international student population was registered in our Faculty**. Our recruitment efforts take advantage of existing academic and alumni linkages, and aim for diversification around the globe. Outside of Canada, the top source countries for Waterloo Math students are China, South Korea, Pakistan, India, Malaysia, Trinidad, Iran, United States, Russian Federation and Singapore. **Secondary school outreach** activities of our Centre for Education in Mathematics and Computing have **expanded into Asia and Africa**. New “3+X” programs with selected universities are facilitating access to top international graduate students.

### **Facilities**

We were successful in attracting funds from the 2009 Knowledge Infrastructure Program to add a third building for the Faculty of Mathematics. Construction of ‘M3’ is underway, with an anticipated completion date of March 2011. **M3 will** house an expansion of the Department of Statistics and Actuarial Science. This unit’s move to the new building will **enable growth for the entire Faculty** as the other units expand in the Mathematics and Computer Building and the Davis Centre. Existing spaces will be updated as the moves take place. A large lecture theatre will be built on the ground floor of M3, helping to meet a campus-wide need for teaching space.

### **Resource Diversification**

Our Faculty development team established a \$100 million fundraising goal for the sixth decade, and has achieved 40% of that target to date. This new funding will:

- create attractive, high-tech spaces for collaborative learning and discovery;
- expand the reach of our Centre for Education in Mathematics and Computing;
- attract the brightest students from Canada and abroad by building our scholarship endowments;
- empower students to benefit from international exchanges and co-op placements through a new international initiatives endowment fund;
- enhance research programs by building graduate student capacity and funding more postdoctoral fellows;
- build new areas of specialization by adding endowed research chairs.