

**Faculty of
Mathematics
Strategic Plan
2012-2017**

**University of
Waterloo**

July 2012

Message from the Dean

Last spring, I initiated the process of creating a five year Strategic Plan for the Faculty of Mathematics. Our founding and development to this point were based on a strategic vision for Mathematics at Waterloo that has resulted in a Faculty specializing in mathematics and computer science, but on a scale that is unique worldwide. Our faculty members are known widely for their eminence; our graduates have gone on to academic positions in the best universities, and to an amazing number of key leadership positions in industry.

Development of this plan has been guided by a small Strategic Planning Working Group that focused on gathering and analyzing feedback from the community through surveys, focus groups and interviews with key informants. In December, a one-day workshop was held to identify priority areas, goals and actions for the Faculty through to 2017. From March through June of this year, we benefited from additional community feedback obtained from all units within the Faculty through in-person meetings and web-based surveys.

What did this feedback tell us about the current state of the Faculty and the environment in which we are operating? It underscored the importance of excellent research and teaching, which enables our undergraduate, graduate and postdoctoral students to reach their full potential. It highlighted for us that advancements in research, teaching and program delivery rest on the shoulders of highly skilled, dedicated faculty and staff, and requires good workspaces, infrastructure and services, together with strong relations with high schools, alumni, employers and academic colleagues around the world. It emphasized the growing importance of meaningful and sustained communication and engagement, both internally and externally, with a significant international aspect. On behalf of the working group, I would like to thank the many people who provided the thoughtful feedback that was key to our planning process.

What do we plan for the next five years? Our vision is to further our development as a world leader in mathematics and computer science. To achieve this, our plan incorporates Strategic Goals in 7 Priority Areas. These are centred on the people - faculty, staff and students - who define the Faculty and determine how we will achieve success as an organization. Most importantly, we need to recruit and retain the very best people - scholars and teachers, support staff, undergraduates, graduate students and postdoctoral fellows. In support of this, we need appropriate facilities, programs and communications; our reach should be international and our collective actions should facilitate our sense of community.

Thank you to the members of the Strategic Planning Working Group – faculty members Christiane Lemieux, Jeff Orchard, Ross Willard, staff members Amy Aldous, Jack Rehder, Ingrid Town, and undergraduate student leader, Andre Gomes Magalhaes. Thanks also to our external consultant, Diana Royce, who provided great expertise and support throughout the process.

I will enjoy working with you to achieve our goals.

Ian Goulden
Dean, Faculty of Mathematics

July 2012

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Executive Summary

The Faculty of Mathematics *Strategic Plan 2012-2017* was developed through extensive consultation with Mathematics faculty, students, staff, university administrators, national and international research leaders, employers and alumni.

The Faculty of Mathematics' plan was informed by the University of Waterloo's foundational pillars for strategic planning:

- Academic excellence
- Research excellence and impact
- Co-operative education
- Graduate studies
- Internationalization, and
- Entrepreneurship.

Mission, Vision and Values

The **mission** of the Faculty of Mathematics at the University of Waterloo is to:

- Conduct research that has worldwide impact and recognition;
- Provide learning opportunities of unmatched breadth and depth;
- Produce graduates that are in worldwide demand; and
- Undertake educational outreach and community engagement that increase mathematical and computing literacy nationally and globally.

The Faculty's **vision** is to be:

A world leader in mathematics and computer science.

The **values** that guide our decisions, strategies and actions are:

- Excellence
- Integrity
- Leadership
- Community
- Innovation, and
- Impact.

Summary of Strategic Priorities, Goals and Objectives

PRIORITY AREA 1: RESEARCH AND GRADUATE EDUCATION

<p><i>STRATEGIC GOAL:</i></p> <p>A vibrant research environment and enriched graduate student experience</p>	<p><i>To achieve this goal, we aim to:</i></p> <p>1.1: Aspire to the highest possible standing in research</p> <p>1.2: Attract the highest quality graduate students</p> <p>1.3: Provide the highest quality graduate education</p>
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PRIORITY AREA 2: UNDERGRADUATE EDUCATION

<p><i>STRATEGIC GOAL:</i></p> <p>Outstanding undergraduate teaching and learning opportunities across all programs</p>	<p><i>To achieve this goal, we aim to:</i></p> <p>2.1: Improve the undergraduate student classroom experience</p> <p>2.2: Broaden student learning opportunities</p> <p>2.3: Increase online learning opportunities</p> <p>2.4: Improve student communication skills</p>
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PRIORITY AREA 3: ACADEMIC PROGRAM DEVELOPMENT AND SUPPORT

<p><i>STRATEGIC GOAL:</i></p> <p>Offer leading-edge, dynamic academic programs</p>	<p><i>To achieve this goal, we aim to:</i></p> <p>3.1: Establish a regular process for review of existing academic programs</p> <p>3.2: Provide support for the development and renewal of academic programs</p> <p>3.3: Establish a plan and processes to support the development of online educational materials</p>
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PRIORITY AREA 4: INTERNAL AND EXTERNAL COMMUNICATIONS AND ENGAGEMENT

<p><i>STRATEGIC GOAL:</i></p> <p>Regular, relevant, timely communications and engagement with our communities</p>	<p><i>To achieve this goal, we aim to:</i></p> <p>4.1: Strengthen external communications and community engagement</p> <p>4.2: Develop a strong sense of community</p>
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Summary of Strategic Priorities, Goals and Objectives

	<p>4.3: Significantly enhance our recognition and reputation - nationally and internationally</p> <p>4.4: Increase student engagement</p> <p>4.5: Establish a dynamic, comprehensive, accessible online presence</p>
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PRIORITY AREA 5: INTERNATIONAL STUDENT RECRUITMENT AND SUPPORT

<p><i>STRATEGIC GOAL:</i></p> <p>Be a leader in international student education and support</p>	<p><i>To achieve this goal, we aim to:</i></p> <p>5.1: Recruit the best students world-wide</p> <p>5.2: Improve international student support and their socio-cultural experience</p>
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PRIORITY AREA 6: FACULTY INFRASTRUCTURE AND SERVICES

<p><i>STRATEGIC GOAL:</i></p> <p>Outstanding services and support in all areas of Faculty activity</p>	<p><i>To achieve this goal, we aim to:</i></p> <p>6.1: Strengthen opportunities for support staff to enhance their expertise, effectiveness and capacity</p> <p>6.2: Implement a physical space improvement plan</p> <p>6.3: Provide faculty, staff and students with state-of-the art research, teaching and administrative computing support</p>
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PRIORITY AREA 7: ADDITIONAL FUNDING

<p><i>STRATEGIC GOAL:</i></p> <p>Ensure appropriate funding to support strategic plan implementation</p>	<p><i>To achieve this goal, we aim to:</i></p> <p>7.1: Attract additional funding to the Faculty</p> <p>7.2: Examine our priorities for the use of additional funding</p>
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1. The Faculty of Mathematics at the University of Waterloo

The Faculty of Mathematics has a remarkable history. From the founding of the University of Waterloo in 1957, and the establishment of the Faculty in 1967, it has developed into a thriving centre for research and teaching in mathematical and computer sciences that is unique worldwide in scale. Currently, we have 6,064 undergraduate majors, 469 masters and 302 doctoral students, 200 faculty and 110 staff members. There are 4 academic departments: Applied Mathematics, Combinatorics and Optimization, Pure Mathematics, Statistics and Actuarial Science, together with one school – the David R. Cheriton School of Computer Science.

Our faculty members are widely known for their eminence – two have received the Killam Prize, two have been named to the Order of Canada, and 18 have been named Fellows of the Royal Society of Canada. The increasing importance of mathematical and computer sciences in our increasingly complex world is strongly reflected by the breadth of research expertise among our faculty members, including:

algebraic geometry, artificial intelligence, bioinformatics, biostatistics, cryptography, data bases, epidemiology, health informatics, human computer interaction, information retrieval, information security, machine learning, mathematical finance, mathematical medicine, mathematical physics, matroids, moduli spaces, networks and distributed systems, number theory, operator algebras, portfolio optimization, quantum algorithms, random matrices, ruin theory, scheduling, statistical surveys, topology.

Faculty members attracted over \$16 million in research support last year, and we have dozens of seminars and colloquia each week featuring speakers from around the world. Graduate students are an essential part of our research program, and they have had great success. Our doctoral students have won annual “best thesis in Canada” awards on many occasions – five times from the Canadian Mathematical Society (over the 16 years that this award has been issued) and nine times from the Statistical Society of Canada (over 29 years).

The University of Waterloo intellectual property policy is unique in that Waterloo researchers, including graduate students, retain ownership of their ideas. This environment has sparked numerous successful spin-off ventures like Maplesoft’s mathematics and analysis software (now used at over 90% of advanced research institutions and universities worldwide) and OpenText, a leading content management software company, evolved from an innovative Oxford English Dictionary project undertaken at Waterloo in 1984.

High admission standards ensure that outstanding students are drawn to the Faculty from across Canada and around the world, with international students forming more than 25% of the student body. Over 60% of our undergraduates are registered in cooperative programs, alternating four-month academic terms at the University with four-month paid work terms during which they gain invaluable practical experience.

The unique Faculty structure has attracted a critical mass of expertise, allowing students to choose from over 500 graduate and undergraduate courses in theoretical and applied areas. Partnerships with other faculties and with Wilfrid Laurier University have further

enhanced our ability to offer undergraduate programs in software engineering, computing and financial management as well as unique joint undergraduate degree programs in mathematics or computer science and business. Many of our best students are accepted for advanced research and study at internationally renowned graduate and professional programs. Graduates at all levels are highly sought after by employers and go on to achieve great success in industry, government and academia.

Our undergraduate teams consistently rank near the top in various team competitions. We have won the worldwide ACM computer programming competition twice, and come home with bronze medals in the last two years. We have also won the North American Putnam Mathematics Competition twice, and finished fifth two years ago. In each of the last two years, we have won the Games4Girls competition, in which teams of female undergraduates create computer games.

The Faculty actively engages in outreach and enrichment programs to promote mathematics and computer science in elementary and secondary schools in Canada and around the world. Coordinated through the Centre for Education in Mathematics and Computing (CEMC), these efforts include contests, workshops, school visits, and online resources for elementary and high school students and their teachers. More than 200,000 school children in over 50 countries now participate in these contests each year. We also offer an online part-time masters program for high school teachers, leading to a Master of Mathematics for Teachers (MMT) degree.

2. The Planning Context

The planning environment in the post-secondary education sector is ever one of change and challenge for the community as a whole. Reliance on public funding to support core teaching and research mandates makes the university sector susceptible to economic downturns that reduce public sector resources. Demographic shifts, evolving skill requirements and increasing demand by employers for complex blends of specialized expertise also trigger subtle, and at times significant, changes in supply and demand for students/graduates.

Given the current global economic downturn, and in light of the economic adjustments being made across sectors, planning and strategic visioning processes are particularly important. Strategic planning has enabled us to define our relative strengths on which to build, as well as to identify challenges to be addressed, opportunities to be pursued, and threats to mitigate against in the years ahead.

The University of Waterloo is over halfway through its sixth decade plan (2007-2017) and is in the midst of a mid-cycle review. The Faculty of Mathematics' plan was informed by the University's foundational pillars, which are at the core of our collective success.

These pillars are:

- Academic excellence
- Research excellence and impact
- Co-operative education
- Graduate studies
- Internationalization, and
- Entrepreneurship.

As the University as a whole aims to secure its place as one of the most recognized and respected universities in the world, the Faculty of Mathematics aims to focus its contributions to that end upon seven specific goals of strategic importance to Faculty achievements over the next five years.

The Faculty of Mathematics' core goals include:

- i. Establishing a vibrant research environment and enriched graduate student experience; and
- ii. Providing outstanding undergraduate teaching and learning opportunities across all programs.

The Faculty of Mathematics' five enabling goals, which contribute to achievement of its core goals and which are also priorities in and of themselves, include:

- i. Offering leading-edge, dynamic academic programs;
- ii. Engaging in regular, relevant, timely communications and engagement with our communities;
- iii. Being a leader in international student education and support;

- iv. Providing outstanding services and support in all areas of Faculty activity; and
- v. Ensuring appropriate funding to support strategic plan implementation.

These goals align directly with all six of the University of Waterloo's foundational planning pillars of academic excellence, research excellence and impact, co-operative education, graduate studies, internationalization and entrepreneurship.

Our consultations revealed the internal and external forces at play in the current environment and generated the following insights, which informed this planning exercise:

Strengths and Challenges

The Faculty of Mathematics has a strong reputation for excellence, nationally and internationally. Our reputation for excellence emanates from our academic program strength as well as recognition of the excellence of our students, faculty members and staff. Our unique Faculty structure, which lends itself naturally to multi- and interdisciplinary approaches to research and teaching, provides valuable learning opportunities relevant to co-operative program employers across sectors, as well as to industry partners seeking academic collaborators to spur innovation and competitiveness. The entrepreneurial track record of our faculty members and the numerous spin-off companies arising from their research and development efforts also contribute to the Faculty's strong reputation and provide a solid foundation for future successes.

Strengths...to Build Upon

- Reputation
- Co-op program; strong connections to industry and current and emerging jobs
- Excellent students, faculty, staff
- Breadth and depth of expertise – academic programs are well regarded
- Multi- and inter-disciplinarity
- Math contests and teacher outreach
- International diversity
- Unique Faculty structure
- Entrepreneurial faculty members, spin-off companies

Challenges...to Address

- Risk averse, conservative, inward looking
- Computing support
- Gender imbalance in the student population, especially in computer science

In Undergraduate Education:

- Large class sizes
- Communication skills of students and instructors
- Relevance of course content
- Teaching innovation
- Academic silos, standards

In Research and Graduate Studies:

- Limited research reputation
- Limited opportunities for graduate students
- Limited post-doctoral student support

In International Student Support:

- Language skills
- Cultural challenges (values, beliefs)
- Student services/support

In Alumni Support:

- Alumni engagement

Our mathematics contests and outreach to elementary and secondary school students and their teachers contribute to our international visibility and help attract top students to our programs.

The internationalization of our student body as well as our delivery of programs in the United Arab Emirates and exchange programs with top universities in 23 countries world-wide provide a foundation upon which to increase global opportunities for the Faculty.

While highly successful overall, the Faculty is viewed externally as having become somewhat risk averse, conservative and inward looking.

Academic and administrative computing support has been criticized for failing to keep pace with current user needs and this has been identified as a barrier to productivity and

efficiency within the Faculty. Gender imbalance in the student population, and especially in computer science, require additional measures to increase the number of young women pursuing mathematics and computer science programs and subsequent careers.

There was broad consensus that our undergraduate education faces challenges arising from large class sizes, student/instructor language barriers, academic silos and variable standards. We also heard that greater transparency of course content relevance and the introduction of teaching innovations would be welcome.

We heard that research and graduate studies are currently limited by the opportunities and support available to graduate students and post-doctoral fellows. This challenge is linked to a general perception that our research reputation is more limited than it should be.

While our international reputation is strong, it was broadly acknowledged that increasing our international student population will require a concomitant increase in language training and international student services and supports that help international students overcome the cultural challenges they face in adapting to study in Canada.

Threats and Opportunities

Trends identified that threaten the Faculty's ability to fulfil its mission and realize its goals over the next five years are numerous and have long-term implications for planning.

Most frequently noted was the accelerating rate at which social and economic change is occurring. We need to ensure that our programs impart to our students an ability to be lifelong learners who are comfortable performing in complex environments and who embrace opportunities to respond creatively to rapidly changing societal needs and expectations. Associated opportunities for Faculty initiatives include increasing our undergraduate program emphasis on projects that integrate course work, co-operative education experiences and the development of presentation/communication skills to meet workplace demands for graduates with adaptability, team-work and problem-solving skills. Increased integration of our math/business program, joint with Wilfrid Laurier University, offers opportunities to expose undergraduates in mathematics and computer science to applications in industry and the financial sector. We must redouble our efforts to engage with local, regional, national and international employers and contribute to addressing national policy challenges in order to maintain the level of recognition we seek as world leaders in mathematics and computer science.

The current global economic downturn, variability in government policies and funding commitments, the globalization of educational competitors and the proliferation of online program delivery all represent potential challenges to our ability to systematically realize our goals over the next five years. Inherent in these challenges are opportunities for the Faculty to develop and implement a Faculty-wide online education strategy to ensure that Waterloo is strategically positioned among the leaders in this mode of educational programming.

Threats...to Mitigate Against

- Extreme rate of change in industry, society continues to accelerate – need to prepare graduates
- Globalization of educational competitors
- Competition in online course offerings
- Lack of transformative initiatives arising from major gifts
- Funding - government cut-backs, economic down-turn in industry and economy generally
- Variability in government policy and funding
- Faculty retirements, hiring competition and constraints
- Trailing our reputation; “living in the past, resting on laurels”
- Insularity, lack of influence
- Partitioning of units – communication challenges

Faculty retirements, hiring constraints and competition for top academics were also deemed a significant threat to Faculty development. Future excellence will depend upon our ability to seize every opportunity to hire the best possible faculty, and provide them with a comprehensive mentoring program aimed at retaining top performers. Placing additional emphasis upon extending our reputation nationally and internationally will contribute to our ability to attract the best among the next generation of faculty as well as top students. Increasing the reach of Waterloo Mathematics competitions and events also provides opportunities to raise our global profile.

Opportunities...to Explore

- Develop online education
- Recruit the best faculty
- Emphasize mentoring

In Undergraduate Education:

- Project work – integrate course work, co-op, presentation skills
- Increased integration and recognition of Math/Business students

Meet Employer Expectations of Graduates:

- Enhance student communication skills

In Recruitment/Outreach:

- Extend reputation, visibility internationally
- Increase reach of Math competitions and related communications
- Attract top students

In Leadership Capacity Building:

- Increase leadership capacity among academic and administrative staff

Increase Engagement:

- Increase engagement with local, regional, national and international employers and contribute to addressing national policy challenges

In Physical Plant:

- Modernize space

The physical environment for learning at Waterloo and cultural challenges such as complacency, insularity and risk aversion must be addressed. The negative perceptions about our older buildings present opportunities to modernize existing teaching space. Concerted efforts to increase communications and launch transformative initiatives that maximize the possibilities afforded by major donor gifts were identified as opportunities to be more effectively seized.

Finally, throughout the environmental scanning process, the excellence, dedication, initiative and creativity of the faculty and staff that make up the Faculty of Mathematics were clearly and consistently conveyed. This reflects an opportunity to invest in strengthening the innate leadership capacity of existing academic and administrative staff, whose efforts and expertise underpin our current and future successes.

3. Mission, Vision and Values

The **mission** of the Faculty of Mathematics at the University of Waterloo is to:

- Conduct research that has worldwide impact and recognition;
- Provide learning opportunities of unmatched breadth and depth;
- Produce graduates that are in worldwide demand; and
- Undertake educational outreach and community engagement that increases mathematical and computing literacy nationally and globally.

The Faculty's **vision** is to be:

A world leader in mathematics and computer science.

The **values** that guide our decisions, strategies and actions are:

- Excellence
- Integrity
- Leadership
- Community
- Innovation, and
- Impact.

4. Strategic Priorities and Goals

The Faculty of Mathematics has identified seven strategic priority areas and associated goals to be pursued to 2017. These priorities and goals were developed through broad consultation and are aligned with and complement the University of Waterloo's *Sixth Decade Plan (2007-2017), Pursuing Global Excellence: Seizing Opportunities for Canada*.

Research, graduate education and undergraduate education are central to the achievement of the Faculty's mission and vision of success. Thus, associated goals are "core" to the achievement of the desired outcomes outlined in this plan.

Five additional priority areas, their goals and associated strategies, while important in their own right, will contribute to and "enable" the achievement of the core goals.

In addition, our goals are interdependent, so our efforts in one area will simultaneously contribute to and accelerate the realization of goals in other areas.

Strategic Goals	
CORE GOALS	<p>PRIORITY AREA 1: RESEARCH AND GRADUATE EDUCATION</p> <p><i>STRATEGIC GOAL:</i> A vibrant research environment and enriched graduate student experience</p>
	<p>PRIORITY AREA 2: UNDERGRADUATE EDUCATION</p> <p><i>STRATEGIC GOAL:</i> Outstanding undergraduate teaching and learning opportunities across all programs</p>
ENABLING GOALS	<p>PRIORITY AREA 3: ACADEMIC PROGRAM DEVELOPMENT AND SUPPORT</p> <p><i>STRATEGIC GOAL:</i> Offer leading-edge, dynamic academic programs</p>
	<p>PRIORITY AREA 4: INTERNAL AND EXTERNAL COMMUNICATIONS AND ENGAGEMENT</p> <p><i>STRATEGIC GOAL:</i> Regular, relevant, timely communications and engagement with our communities</p>
	<p>PRIORITY AREA 5: INTERNATIONAL STUDENT RECRUITMENT AND SUPPORT</p> <p><i>STRATEGIC GOAL:</i> Be a leader in international student education and support</p>
	<p>PRIORITY AREA 6: FACULTY INFRASTRUCTURE AND SERVICES</p> <p><i>STRATEGIC GOAL:</i> Outstanding services and support in all areas of Faculty activity</p>
	<p>PRIORITY AREA 7: ADDITIONAL FUNDING</p> <p><i>STRATEGIC GOAL:</i> Ensure appropriate funding to support strategic plan implementation</p>

5. Where we want to be by 2017 - Strategic Objectives and Priority Actions

Specific objectives to be achieved and related actions and initiatives to be undertaken towards the achievement of strategic goals are outlined below:

PRIORITY AREA 1: RESEARCH AND GRADUATE EDUCATION

STRATEGIC GOAL:

A vibrant research environment and enriched graduate student experience

To achieve this goal, we aim to:

Objective 1.1: Aspire to the highest possible standing in research by:

- 1.1.1 Hiring the very best faculty
- 1.1.2 Fostering a highly attractive, positive and supportive environment for research
- 1.1.3 Increasing Faculty support for post-doctoral fellowships

Objective 1.2: Attract the highest quality graduate students by:

- 1.2.1 Bolstering promotion of graduate programs
- 1.2.2 Intensifying efforts to recruit top graduate students
- 1.2.3 Increasing resources for graduate studies
- 1.2.4 Leveraging the Natural Science and Engineering Research Council (NSERC) Undergraduate Student Research Award (USRA) Program to attract undergraduate students interested in research
- 1.2.5 Encouraging more of our own undergraduate students to pursue graduate studies at Waterloo

Objective 1.3: Provide the highest quality graduate education by:

- 1.3.1 Developing a comprehensive graduate student mentoring program
- 1.3.2 Providing superior teaching and professional development opportunities for our graduate students

PRIORITY AREA 2: UNDERGRADUATE EDUCATION

STRATEGIC GOAL:

Outstanding undergraduate teaching and learning opportunities across all programs

To achieve this goal, we aim to:

Objective 2.1: Improve the undergraduate student classroom experience

by:

- 2.1.1 Establishing a Task Force with a mandate to examine the undergraduate classroom experience and make recommendations to ensure excellence in undergraduate teaching and learning

Objective 2.2: Broaden student learning opportunities

by:

- 2.2.1 Encouraging regular Faculty-wide multidisciplinary, collaborative projects for undergraduate students based on team solutions to complex problems
- 2.2.2 Increasing Faculty-level coordination and guidance to facilitate international student exchanges

Objective 2.3: Increase online learning opportunities

by:

- 2.3.1 Developing an overarching strategy to guide a Faculty of Mathematics' online learning presence
- 2.3.2 Placing all 1st year Math Faculty core courses online
- 2.3.3 Making better use of leading online tools for delivery of blended learning courses, as well as credit courses delivered fully online
- 2.3.4 Evaluating the effectiveness of online education relative to classroom-based delivery

Objective 2.4: Improve student communication skills

by:

- 2.4.1 Increasing the number of undergraduate essay/written assignments and oral presentations
- 2.4.2 Increasing enrolment in communications-enhancing courses

PRIORITY AREA 3: ACADEMIC PROGRAM DEVELOPMENT AND SUPPORT

STRATEGIC GOAL:

Offer leading-edge, dynamic academic programs

To achieve this goal, we aim to:

Objective 3.1: Establish a regular process for review of existing academic programs

by:

3.1.1 Tasking the Associate Deans to develop an implementation plan linked to the Senate-led review cycle

Objective 3.2: Provide support for the development and renewal of academic programs

by:

3.2.1 Increasing the transparency of budgetary processes for developing programs

3.2.2 Establishing ongoing environmental scanning and review processes to facilitate the early identification of and appropriate support for program development opportunities

Objective 3.3: Establish a plan and processes to support the development of online educational materials

by:

3.3.1 Developing a new teaching credit structure to support faculty developing online course materials

3.3.2 Collaborating with the Centre for Extended Learning (CEL) to support the development of online learning materials

PRIORITY AREA 4: INTERNAL AND EXTERNAL COMMUNICATIONS AND ENGAGEMENT

STRATEGIC GOAL:

Regular, relevant, timely communications and engagement with our communities

To achieve this goal, we aim to:

Objective 4.1: Strengthen external communications and community engagement

by:

- 4.1.1 Expanding the Centre for Education in Mathematics and Computing (CEMC) capacity for student outreach through contests and other engagement strategies
- 4.1.2 Targeting international audiences for communications and outreach
- 4.1.3 Strengthening media exposure
- 4.1.4 Increasing Mathematics at Waterloo presence on boards of directors and advisory boards across sectors
- 4.1.5 Increasing opportunities for students to network with leaders across sectors

Objective 4.2: Develop a strong sense of community

by:

- 4.2.1 Creating strong affinities within the Faculty of Mathematics for students, faculty and staff
- 4.2.2 Ensuring a welcoming environment for women
- 4.2.3 Encouraging Faculty social events
- 4.2.4 Developing an internal communications plan to determine key audiences, resources and timing of messages

Objective 4.3: Significantly enhance our recognition and reputation - nationally and internationally

by:

- 4.3.1 Systematically sharing successes of faculty and students internally and externally
- 4.3.2 Proactively and systematically nominating Faculty, staff and students to receive a greater proportion of University and external awards

Objective 4.4: Increase student engagement
by:

4.4.1 Facilitating closer relationships between undergraduates and faculty outside the classroom

4.4.2 Facilitating closer relationships between and among students across programs

Objective 4.5: Establish a dynamic, comprehensive, accessible online presence
by:

4.5.1 Creating a dynamic web presence that is strategically focused to enable regular, relevant, timely communications and engagement with our communities

PRIORITY AREA 5: INTERNATIONAL STUDENT RECRUITMENT AND SUPPORT

STRATEGIC GOAL:

Be a leader in international student education and support

To achieve this goal, we aim to:

Objective 5.1: Recruit the best students world-wide
by:

5.1.1 Continuing our diversification efforts

5.1.2 Providing increased support and coordination to faculty travelling abroad so that they can contribute to international outreach and recruitment activities

5.1.3 Continuing to work collaboratively with CEMC to expand outreach

Objective 5.2: Improve international student support and their socio-cultural experience
by:

5.2.1 Hiring or training staff to specialize in international student issues

5.2.2 More effectively leveraging and communicating Student Success Office and counselling resources and associated services

5.2.3 Actively leveraging community support services and resources

5.2.4 Regularly reviewing and updating English language competency strategies

PRIORITY AREA 6: FACULTY INFRASTRUCTURE AND SERVICES

STRATEGIC GOAL:

Outstanding services and support in all areas of Faculty activity

To achieve this goal, we aim to:

Objective 6.1: Strengthen opportunities for support staff to enhance their expertise, effectiveness and capacity

by:

6.1.1 Promoting and supporting targeted, formal training and development for staff

6.1.2 Ensuring regular evaluation of existing job descriptions and priorities

Objective 6.2: Implement a physical space improvement plan

by:

6.2.1 Creating a strategic plan for refreshing/repurposing existing space and developing new space for faculty, staff, undergraduate and graduate students

6.2.2 Prioritizing the protection and development of collaborative space

Objective 6.3: Provide faculty, staff and students with state-of-the art research, teaching and administrative computing support

by:

6.3.1 Engaging in strategic planning exercises to examine the structure, functioning and mandate of our computing support and identifying priority actions to achieve our objectives

6.3.2 Coordinating Faculty of Mathematics computing systems to improve internal processes

PRIORITY AREA 7: ADDITIONAL FUNDING

STRATEGIC GOAL:

Ensure appropriate funding to support strategic plan implementation

To achieve this goal, we aim to:

Objective 7.1: Attract additional funding to the Faculty
by:

7.1.1 Broadening our support from alumni and friends

7.1.2 Broadening corporate support

7.1.3 Broadening sources for research grants

Objective 7.2: Examine our priorities for the use of additional funding
Current areas of concern:

- i. Research and graduate student funding
- ii. Large class sizes for undergraduate students
- iii. Gender imbalance.

APPENDIX A: Planning Principles

To guide the planning process, the Faculty of Mathematics Strategic Planning Working Group (SPWG) adopted the following planning principles:

- Visionary** – *the plan must contain a compelling vision that inspires commitment to action*

- Inclusive** – *the process should ensure consideration of internal and external stakeholder perspectives and future needs*

- Relevant** – *the plan should be relevant to members of the Faculty (faculty, staff, students), partner organizations and society*

- Transparent** – *opportunities for involvement in the development and implementation of the plan must be clear to all interested parties*

- Realistic** – *the plan must be practical and actionable, leveraging existing opportunities and addressing important challenges achievable in a 1-5 year time-frame*

- Ethical** – *the plan must be ethical in intent and implementation*

- Appropriately resourced** – *in all phases - development, implementation, and evaluation.*

APPENDIX B: Planning Process

Since March 2011, the Faculty of Mathematics Strategic Planning Working Group (SPWG) has guided the development of the Faculty's first formal five-year strategic plan spanning 2012 - 2017. Below is a timeline of milestones in the planning process:

- April 5, 2011:** Dean, Ian Goulden, publicly launches strategic planning process
- April - May:** Establishment of planning principles, critical path and milestones
- April - June:** Web-based community consultation surveys of Faculty and staff, undergraduate and graduate students, and post-doctoral fellows
- June - July:** Internal focus group discussions undertaken with senior university administrators external to the Faculty, staff, professors, undergraduates, graduate students and post-doctoral fellows
- June - July:** External key informant interviews completed with representatives of industry, employers, academe and not-for-profit organizations
- August - October:** Review and analyses
- November:** Development of draft vision, mission, values and identification of priority areas for planning
- December:** Strategic planning workshop attended by 30 individuals representing the Faculty and University where goals, objectives and tactics were identified and prioritized
- December - February 2012:** Development of draft plan
- March - April:** Community consultation
- March - June:** Finalization of plan
- July 2012:** Release and implementation

APPENDIX C: December 7, 2011 Strategic Planning Workshop Participants

1	Edgar	Bering	Student
2	Dan	Brown	Computer Science
3	Tim	Caley	Student
4	Ian	Charlesworth	Student
5	Robin	Cohen	Research
6	Serge	D'Alessio	Admissions & Outreach
7	Sher	DiCiccio	Computer Science
8	Barry	Ferguson	Co-op
9	Steve	Furino	Centre for Education in Mathematics & Computing
10	Jim	Geelen	Combinatorics & Optimization
11	Andre	Gomes Magalhaes	Student
12	Ian	Goulden	Dean
13	Cathy	Kelly	Extended Learning
14	Kevin	Lamb	Applied Math
15	Robyn	Landers	Computing
16	Christiane	Lemieux	Statistics & Actuarial Science
17	Paul	Marriott	Statistics & Actuarial Science
18	David	McKinnon	Undergraduate studies
19	Alfred	Menezes	Combinatorics & Optimization
20	Riley	Metzger	First year studies
21	Wayne	Oldford	Computing
22	Jeff	Orchard	Computer Science
23	Jack	Rehder	Executive Officer
24	Tina	Roberts	Marketing and Undergraduate Recruitment
25	David	Taylor	Computer Science
26	Ingrid	Town	Advancement
27	Levent	Tuncel	Graduate Studies
28	Udaya	Wettasinghe	Finance
29	Ross	Willard	Pure Math
30	Peter	Wood	Math/Business

Also in Attendance:

Diana	Royce	The Deerfield Group (Facilitator)
Alison	Zorian	Math Administrative Staff

APPENDIX D: Strategic Planning Working Group

Amy Aldous

Director, Communications and Research Alliances, Faculty of Mathematics

Andre Gomes Magalhaes

President, Waterloo Mathematics Society, Student

Ian Goulden

Dean, Faculty of Mathematics (Chair)

Christiane Lemieux

Associate Professor, Department of Statistics and Actuarial Science

Jeff Orchard

Associate Professor, Cheriton School of Computer Science

Jack Rehder

Executive Officer, Faculty of Mathematics

Ingrid Town

Director of Advancement, Faculty of Mathematics

Ross Willard

Professor and Chair, Department of Pure Mathematics

Independent Consultant:

Diana Royce, President, The Deerfield Group Inc.