

1. The University's Future Role

The University of Toronto's mandate includes two different but complementary roles – education and scholarship. Ours is a research-intensive university, where both mandates are equally important. These two elements of our mission align most fully when students pursue research-stream masters or doctoral degrees or in post-doctoral training. Professional masters degrees are clearly enriched by the participation of educators who are not only experts in a field of study, but actively shaping its evolution. At the undergraduate level, a distinctive feature of our institution has been the opportunity for students to be exposed, early in their programs, to world-class scholars. This in turn underpins the principle that all full-time faculty members should be engaged in undergraduate teaching. However, there has also been debate about the relative roles of colleagues in the research-intensive or tenure stream, in the teaching stream, and on sessional or short-term contracts. As a corollary, the University also faces strategic questions about the mix of students and the relative emphasis that we place on pedagogy and research activities.

Education

The University of Toronto is first and foremost a public university with a mandate to provide education to Ontario residents. Overall, the University of Toronto enrolls approximately 16% of all Ontario undergraduate students. As illustrated in Table 1, the University also plays a significant role in graduate education, providing the home for graduate education for 28% of the province's graduate students.

Our enrolment is by far the largest in Canada, at approximately 72,000 full- and part-time students in 2006-07. While student numbers at the Mississauga and Scarborough campuses were expanded strategically to reach a level commensurate with other undergraduate campuses, the growth in student numbers at the St. George campus has been guided less by a strategic direction to a specified target and more by response to student demand and revenue needs.

Undergraduate education

The University of Toronto has a large and diverse undergraduate student body of 59,000 students across the three campuses. The first entry programs include Arts & Science, Applied Science & Engineering, Music, and Physical Education and Health. Second entry programs include Dentistry, Education, Law, Medicine, Nursing, and Pharmacy. A large majority of our undergraduate students are from the Greater Toronto Area (GTA) and commute to campus. The University has accommodated significant growth across its undergraduate programs (37 %) over the past ten years, addressing enrolment demands driven by demographic changes (growth in the population 18 to 24 years of age in the GTA and Ontario) and increasing university participation rates. We will return to the subject of enrolment growth in more detail in the next section.

With respect to the quality of our undergraduate programming, the University can point to some positive indicators, viz:

- » The University of Toronto draws an increasing share of the pool of all Ontario secondary school students as entering averages rise. For example, in 2005, the University attracted 13.9% of the students from Ontario secondary schools with an average of 80% compared with 25.8% of the students with an average of 95%.
- » The proportion of first-year students continuing to their second year is high at 90%.
- » The overall six-year graduation rate was 70% for the 1999 cohort, which compares very favourably with the rates at other public institutions.

At the same time, concerns have been raised about the quality of our undergraduate student experience. Results of the National Survey of Student Engagement (NSSE) indicate that the University of Toronto provides a level of academic challenge commensurate with our peer institutions. However, on other benchmarks related to educational experience and campus environment, we could do much better.

Enhancing the student experience is accordingly the University of Toronto's number one priority. Across all three campuses, efforts are being made to enhance student activity spaces for the large population of commuting students, to improve extra-curricular facilities and to create more opportunities for small-group and hands-on learning experiences. As one example, the Faculty of Arts and Science on the St. George campus has introduced First-Year Learning Communities in which first-year students who commute to campus meet weekly with a senior student and faculty mentor in college-based groups of no more than 24. Other small group initiatives include the Trinity One and Vic One seminar courses for selected undergraduates.

With the research breadth and strength of the University, one of our goals is to “link all our undergraduate, graduate, and professional academic programs to strong research experiences”. Progress towards this goal in the undergraduate arena is reflected in the integration of teaching and research through seminar and research courses or research-related work experience. This integration has accelerated for various of the second-entry undergraduate programs. These programs also frequently offer summer research opportunities to students. The 199 program, introduced by the Faculty of Arts and Science in 1994, provides a research seminar learning environment for approximately 40% of the first-year class. Overall, student enrolment in undergraduate seminar and research courses has increased by 42% since 2000-01. Further, approximately 2,000 students (2006) were reported to have been engaged in formal research experience programs or research work. The University is strongly committed to creating additional research experiences for undergraduate students. Local work experience and exchange programs are growing as well: in 2006, 1500 undergraduate students on the Scarborough campus participated in their distinctive co-operative program.

Overall, the University of Toronto offers exceptional diversity and unparalleled depth in undergraduate education. Our students are privileged to have access to some of the most remarkable university teachers on the planet. Our faculty routinely receive good to excellent student evaluations, often regardless of class size. Various second-entry undergraduate programs and many of the smaller direct-entry programs are highly rated by our students. However, general satisfaction with undergraduate programs varies. When surveyed, a significant proportion of our undergraduates give low scores to their overall experience, highlighting heavy workloads and limited personal interaction with instructors. Development of e-learning tools has been inconsistent, and enhancement of educational infrastructure has lagged behind improvements to our research infrastructure (there is no educational equivalent of the Canada Foundation for Innovation). From the perspective of undergraduate education, therefore, we look towards 2030 from an uneven landscape – our goal will be to build on our tremendous achievements and to address our weaknesses.

Graduate education

The University of Toronto is widely recognized for the strength and diversity of its graduate programs. Its 12,000 full-time and part-time graduate students constitute about 28 % of Ontario's graduate students and 9 % of graduate students across Canada. In 2005, 16% of our graduate students were international.

The success of the University's graduate programs is closely linked to the breadth and strength of our scholarship. We offer 76 doctoral programs, 30 unique in Ontario and 13 unique in Canada. Our 50 professional master's programs attract approximately one-third of all graduate students. Many again are unique to Ontario or Canada. Moreover, in the last five years, the University has developed a number of new graduate programs.

In addition to degree programs, our graduate departments, centres, and institutes, also offer unique, collaborative programs. These innovative programs emerge from cooperation between two or more graduate units, providing students with a broad base from which to explore a novel interdisciplinary area or a special development in a particular discipline, to complement their

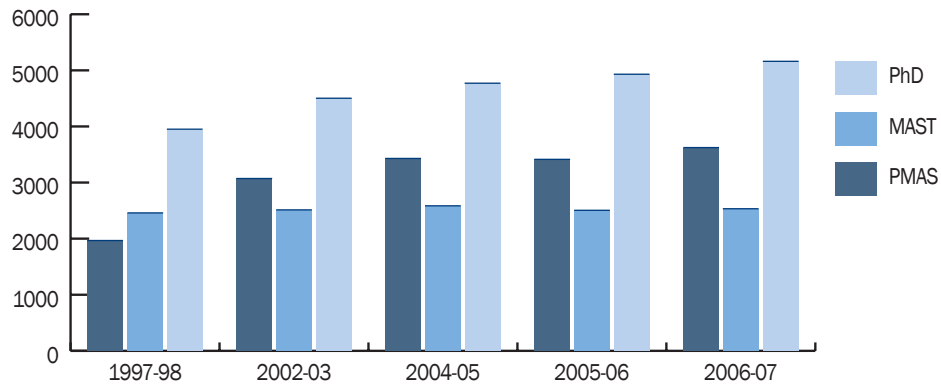
Examples of new doctoral and masters programs

- » PhD in Rehabilitation Science
- » PhD in Planning
- » Master of Finance
- » Master of Public Policy
- » Master of Cinema Studies
- » Master of Visual Studies
- » Master of Environmental Science
- » Master of Management of Innovation

Graduate Student Satisfaction

In the 2005 Graduate and Professional Student Survey (GPSS), 90% of graduate students rated their 'academic experience' positively (excellent, very good and good), while 76% rated their 'student life experience' similarly. As with undergraduate students, the University must give greater emphasis to improving areas of 'student life'.

Figure 1 : Enrollment Graduate Programs

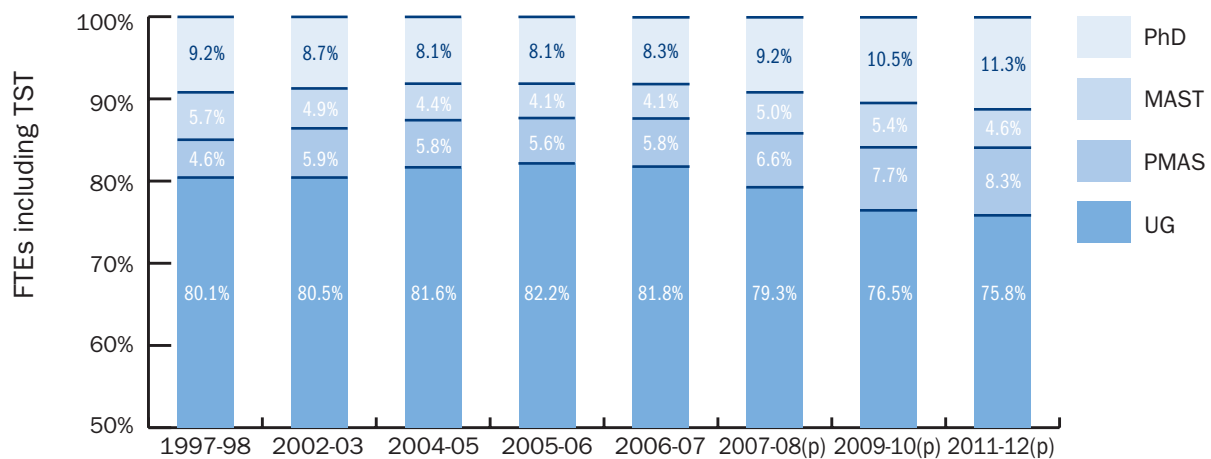


degree studies. The University of Toronto is home to 34 collaborative graduate programs, including, for example, Biomedical Engineering, Environmental Studies, Genome Biology and Bioinformatics, International Relations, and Women’s and Gender Studies.

Approximately 18% of U of T students were enrolled in graduate programs in 2005/06. This is a lower proportion than one finds at other Canadian research-intensive universities, including McGill, UBC, Montreal and Laval.

Figure 2 illustrates how the changes in enrolment, past and future, affect the enrolment balance among undergraduate, professional and research stream programs. In 1997-98, undergraduate enrolment represented about 80% of the total student body, rising slowly as Ontario eliminated grade 13 and assimilated the double cohort to 82% in 2005-06. As a result of graduate expansion, this percentage is expected to drop to 79% in 2007-08. If the funding environment enables graduate expansion to continue as projected, graduate students would increase to about a quarter of the student population over the next five or six years.

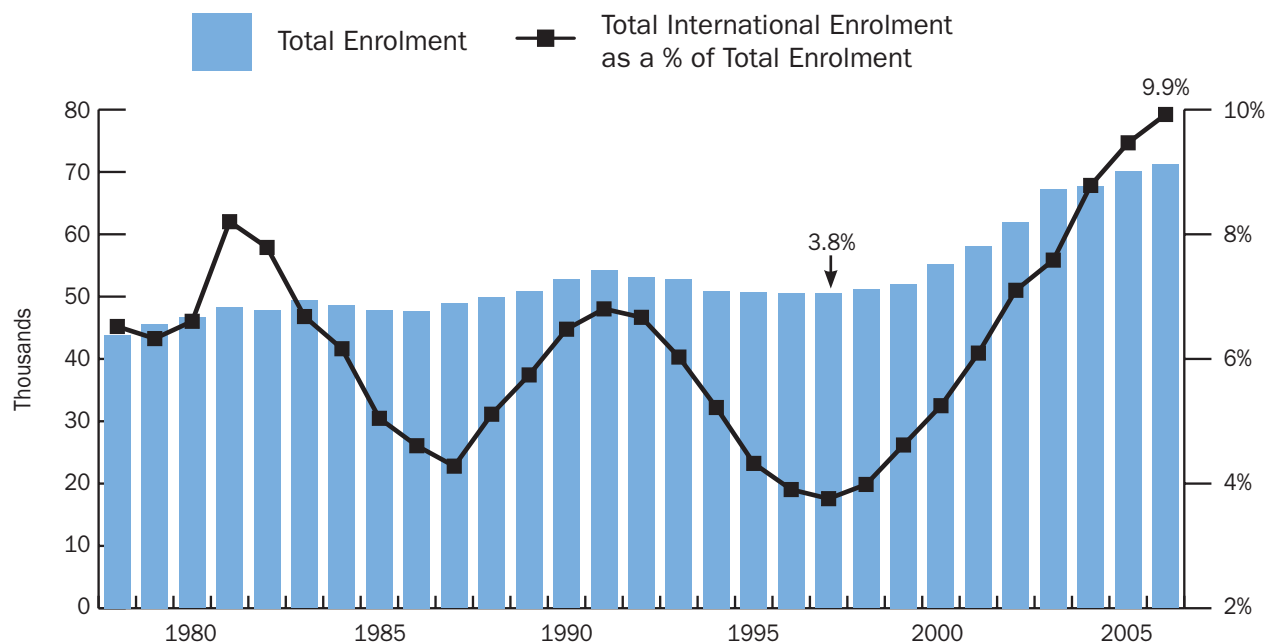
Figure 2: Enrolment Balance 1997-98 TO 2011-12



International students

From 2001 to 2005, the numbers of international students increased 87.8% to 6,641. In 1997-98 international students represented only 3.8% of the total student population. Today, 9.9% (6,641) of the University of Toronto's students come from outside Canada. We draw most of our international students from Asia and the United States. The top three countries of origin for undergraduate students are China (including SAR Hong Kong) at 29%, South Korea at 13%, and the United States at 8%. For graduate students, the top countries are the United States (20%), China & Hong Kong (18%), and India (7%).

Figure 3: Total Enrolment and Proportion International Enrolment: 1978-79 to 2006-07



As noted earlier, many universities are emphasizing international experiences for undergraduate students, whether through student exchange programs, study-abroad programs, international work co-op placements, brief courses conducted abroad, or modules taught by international visitors. These experiences deepen students' educations and create employment and career pathways for them upon graduation.

At U of T, the number of students involved in study abroad, exchange and summer abroad programs has grown dramatically since 1996-97. In 2005-06, 1,080 students participated in these programs in 37 locations. In the same year, undergraduate Arts and Science students could select from active exchange partnerships involving over 90 universities in more than 35 countries.

Universities are the only sector to perform research for all other sectors (private, federal government, provincial government, not-for-profit), across a wide range of disciplines and with a significant presence in all regions of the country.
AUCC, Momentum 2005

The University continues to work towards augmentation of existing international programs and expansion of the number of exchange and scholarship programs for its students. Similarly, U of T is aggressively pursuing a higher profile in international student recruitment. These efforts are not without significant challenges and there are financial and logistical barriers to be overcome. In that regard, the University is actively advocating for government support on matters ranging from attracting international graduate students to assistance with visas. Particularly when one considers the view from 2030, it is apparent that investment in internationalization is investment in our students, our university and, without hyperbole, in the country itself.

Scholarship

The University of Toronto has been Canada's research powerhouse for many years. In the last five to ten years, new federal funding has permitted considerable expansion of the University's research enterprise. This expansion has enabled us to attract stronger scholars than ever before, even as it strengthens our capacity for graduate studies and postdoctoral training. It has also altered the education-research balance and, somewhat paradoxically, squeezed the core operating budget for undergraduate education, a phenomenon we will consider in more detail below.

Canada's Changing R& D Landscape

The federal government has invested substantially in knowledge creation since 1997 through increased funding to the federal research granting agencies and by establishing several key programs such as the Canada Foundation for Innovation, the Canada Research Chairs, a permanent program to fund the indirect costs of research, and increased financial support to graduate students. Annual expenditures on R&D in Canada totalled \$24.5 billion in 2004 and the three largest investors in Canadian R&D remain the private sector, the federal government and universities.* The university sector, the third largest investor on Canadian R&D, accounts for about 18% of the country's R&D funding, currently contributing \$4.3 billion per annum.

The Canadian Institutes of Health Research (CIHR) was created in 2000, transitioning from the Medical Research Council. Since the final year of the Medical Research Council (1999), the CIHR base budget grew from \$289 million in 1999-2000 to \$723 million in 2006-07. This growth has

The University of Toronto leads in the three common measures of research performance

- » The level of research funding obtained from Canadian public sources;
- » The number of publications – and citations of those publications by other researchers – reported by ISI Thomson Scientific; and,
- » The number of research-related awards and honours received.

* AUCC. Momentum – the 2005 report on university research and knowledge transfer. AUCC: Ottawa, 2005.

been reflected in increased grants, more investigators funded and greater support for training awards. Growth in the Natural Sciences and Engineering Research Council (NSERC) has tracked almost parallel to CIHR. Although the Social Sciences and Humanities Research Council (SSHRC) budget has also grown, it remains about half the level of the other two councils.

After several years of rapid expansion of federal research funding, we anticipate slower growth in the next few years. There are more researchers in the system applying for grants than ever before, and success rates in open grant competitions are falling. In Budget 2007, the federal government provided 1,000 new graduate scholarships through the granting councils, but the core budgets of the three councils grew only slightly more than general inflation. The government has signalled, however, its willingness to invest directly in specific centres and initiatives. It has also set aside more funding for industrial partnerships and commercialization, underlining its growing focus on applied and sector-specific research.

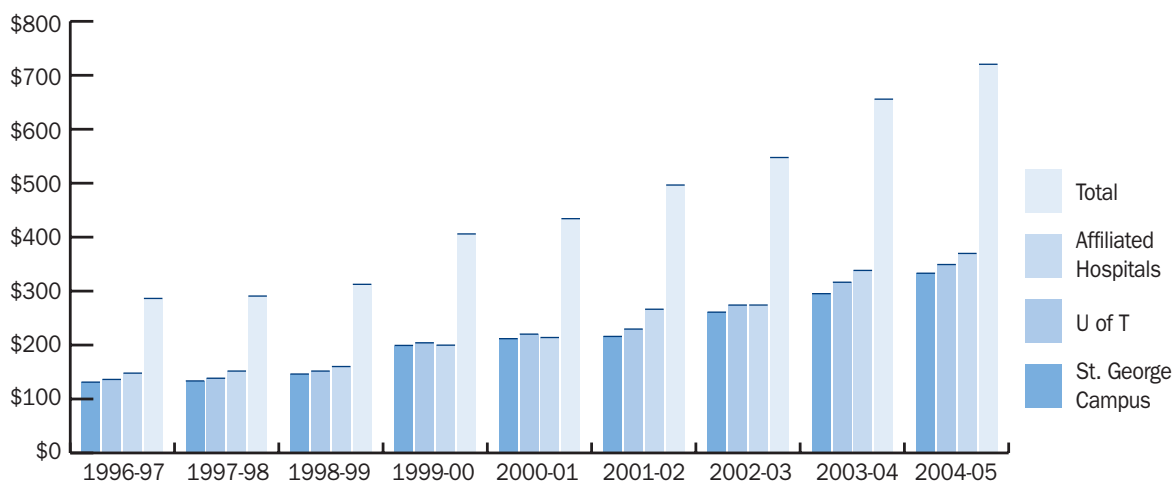
Scholarship at the University of Toronto

For many years, U of T has received more funding from the three federal granting councils than any other Canadian university. We also bring in the most infra-structure funding from the Canada Foundation for Innovation – over \$350 million, or about \$100 million more than UBC, our nearest competitor.

The University has further benefited from the Canada Research Chairs program with 253 chairs appointed. On the provincial front, the University has been the largest single recipient of funds provided through the various government programs. Together with our research hospital partners, U of T is the largest research entity in Canada and the third-largest in North America.[†]

The strength of the University’s research enterprise may be further characterized by its performance

Figure 4: Research Funding 1996-97 to 2004-05 in millions of dollars



[†] Measured by direct and indirect dollar volume invested.

in publications. From 2000 to 2004, U of T professors produced a greater number of publications in the fields indexed by Thomson Scientific than faculty at any other public research university worldwide. Including the leading private American universities, the University of Toronto stands second only to Harvard in publications among all private and public universities. The University's prominence in publications reflects its excellent per-faculty member productivity, not simply its size. Moreover, it should be noted that the Thomson indices offer a limited window on the University's considerable strength in the humanities.

University of Toronto faculty members have also been honoured with a disproportionately large share of the nation's most prestigious academic awards. Since 1980, University faculty members, who constitute from 7% to 8% of the faculty at all Canadian universities, have won at least 25% of Steacie, Killam and Molson prizes. They have also won 29% of the highest awards given out by the federal research councils. Toronto's dominance is even greater in international prizes and awards where competitions are judged by higher standards of peer-reviewed excellence.

The University's prominence in publications and awards is all the more auspicious given the fact that per-capita funding of higher education in Ontario is dead last among Canadian provinces, and among the lowest two or three jurisdictions out of 60 states and provinces in North America.

At the same time, we should be clear about the challenges facing our research enterprises. Over the past decade, private sector investments in university research across Canada have increased substantially, growing by 25% from 2001 to 2004 alone. This increase, however, is not mirrored at the University of Toronto. In 2003-04, research funding from industrial sources for contract or sponsored research was \$62.5 million, an increase of only 7.8% over that of 2000-01. Looking towards 2030, there will be opportunities to increase the University's engagement with industry on sponsored research, not just in the applied sciences, but in the social sciences and humanities as well. Decisions will need to be made about how and how far to facilitate these research activities.

Overall, as mentioned briefly above, our success in research has paradoxically put substantial pressure on the institution's operating budget and taxed our support for the University's core educational mission. This is because the indirect costs of research [ICR] – those associated with heating and lighting laboratories, cleaning, accounting and providing for the health and safety of faculty, students and staff – are not fully covered at any of Canada's research-intensive universities. Governments typically provide institutions with coverage for some percentage of these indirect costs. The Province of Ontario, in particular, has been a leader in its degree of coverage. However, the current federal ICR program leaves the University of Toronto well behind its international peers in this respect.

The question of how to recover the indirect costs of research is a critical one. Research grants help create a powerful environment for graduate and professional education, and a vibrant scholarly milieu that is critical to recruiting the best and brightest faculty who will teach undergraduates and graduate students alike. Consequently, competitive research grants are integral to the university's ability to

carry out its core missions of education and scholarship. Planning for 2030, it seems overwhelmingly probable that we shall need to pursue major increases in our absolute level of direct and indirect research support. The question will be: How can that goal be achieved?

U of T has a long and extraordinary history of contributing to breakthroughs in a staggering range of disciplines. A challenge facing the institution today and over the next twenty years is to anticipate and respond strongly to research opportunities on strategic issues, without losing our remarkable momentum in basic scholarship. In this light, consider the following example. The University has recently seen a reduction in its share of Canada Research Chairs. This occurred not because of diminished performance in competitive grant-seeking at the federal councils, but rather because our faculty members are now relatively less engaged with the evolving Networks of Centres of Excellence [NCEs]. NCEs have a mixed record in collaboration and commercialization; but they have the worthy aim of bringing scientists and industry partners together on a national footing. Though support for fundamental research has been sustained federally in absolute terms, its relative growth seems likely to be slower in the next few years. Instead, both the federal and provincial governments may well have entered a phase of relatively more generous support for strategic initiatives including NCEs. And those initiatives in turn are often tied to community engagement or industrial partnerships.

Any slowing of support for fundamental research is unsettling because Canada's standing in discovery-oriented scholarship and research is far from secure. Taking one example, researchers at the University of California Berkeley have won 20 Nobel Prizes since 1939, including four in the last decade. John Polanyi's 1986 Nobel prize was the last won by a U of T faculty member. Publication totals notwithstanding, citation counts for several private (Harvard, Johns Hopkins, and Stanford) and public (University of Washington and UCLA) universities are higher than for Toronto. We may well be paying a price in Canada for the broad diffusion of research resources across multiple organizations, and for placing too many of our top researchers on a treadmill for grant applications.

In sum, the domestic playing field for university-based scholarship is dramatically better than it was even a decade ago. The good news is that governments today appear willing to invest differentially in centres of excellence. The challenge is that governments will always be pressured into picking 'winners' based on regional interests and guesswork about commercialization opportunities, rather than dispassionate assessments of past and potential research performance. The University of Toronto research enterprise is entering a new era with shifts in government resource allocation and changes in the public policy environment, including a renewed emphasis on our ability to translate ideas and innovations into non-profit and commercial applications, and a greater emphasis on strategic research initiatives. The University must be alive to this evolving research landscape, our continuing fiscal pressures, and our core values, in finding a way forward over the next twenty-five years.

Our Future in Education and Scholarship

The University of Toronto can take pride in its position as Canada's undisputed scholarship leader and in the breadth and depth of its educational programs. Through two decades of pressure on core

operating budgets, we have sustained a balance between our education and scholarship missions. Today, we face a clear need to re-position our research enterprise in a shifting landscape, along with an imperative to capitalize on the extraordinary scholarship in the University so as to enhance the undergraduate student experience.

We hear competing arguments about our strategic directions for the next quarter-century. Some suggest that the University should reduce its focus on scholarship, recruit more teaching-stream faculty, and concentrate on delivering higher quality undergraduate education. Others suggest that, finances permitting, the University should scale back undergraduate enrolments, and augment its role in graduate and professional education. Beijing University, for example, has followed this path and enrolls roughly an equal proportion of graduate and undergraduate students. These and other options require serious deliberation and debate in the months ahead. Accordingly, the questions below address our future role in education and scholarship, focusing on ‘what we should do’. The section that follows will examine ‘how much we should do’ from an enrolment perspective.

TOWARDS 2030: Some strategic questions to promote dialogue ...

Given the current constraints on per-student grants and our focus on optimizing the undergraduate student experience, should we maintain our current emphasis on scholarship, or tilt the institutional balance towards more investment in undergraduate education?

Are there novel and cost-effective ways to create a better pedagogic environment for undergraduates that have not been fully explored? Examples include increasing the number of teaching-stream faculty, recruiting alumni mentors, augmenting work-study and co-operative programs, better deploying e-learning technologies, modularizing curricula, and relying more on half-courses or three-semester programs.

If we believe that research-intensiveness is indeed one of the University's defining features, how can we leverage our research strength to create a more powerful and engaging experience for first- and second-entry undergraduates and professional master's candidates?

Are we investing appropriately in information technology and information resources, including libraries?

Are there core competencies that we believe all our undergraduates should acquire before receiving a baccalaureate degree from the University of Toronto? Are there courses or themes that can serve to unify or define our varied degree offerings in undergraduate education? If so, how can they be taught so as to draw on our comparative strengths in scholarship?

Are there emerging disciplines or global challenges where the University has research strengths and could do more to establish an educational presence?

Independent of absolute enrolment targets, what is the most appropriate balance of undergraduate, professional and research-stream graduate programs? What is the appropriate balance between domestic and international students?

What are the barriers to international student enrolment growth and how can we surmount them?

Given current constraints in federal research funding, how can we foster the optimum environment for graduate studies in the doctoral stream?

Given the federal and provincial governments' emphasis on knowledge translation and commercialization of university research, how do we maintain basic research while creating the structures, culture, and incentives that will promote the transfer and uptake of new ideas?