UNIVERSITY OF TORONTO
FACULTY OF APPLIED SCIENCE & ENGINEERING

Engineering Faculty's Annual Report 2010:

Performance Indicators

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Message from the Dean

I am pleased to share U of T Engineering's 2010 Annual Report. Building upon last year's inaugural report, we present the Faculty's historical data and corresponding figures from peer institutions to compare and assess our progress against these data sets. We also highlight last year's initiatives, and include new chapters on Advancement and Communications, and a combined Financial and Physical Resources chapter.

In 2009–2010, we critically reflected on this data through our comprehensive Self-Study and External Review. This report will also serve as an important resource as we complete and implement our Academic Plan to guide us over the next five to seven years.

Comparisons and Rankings
The Faculty of Applied Science & Engineering has ranked consistently as the top engineering institution in Canada and as one of the very best in the world. The 2009–2010 bibliometric data indicates that we are the most cited among Canadian engineering schools, which demonstrates the impact and relevance of our research and scholarship. Since no one ranking can truly reflect all our achievements, this report delves into metrics to further complete the picture and to measure the progress of our thriving Faculty.

Awards and Honours
Our Engineering faculty includes some of the most highly-respected educators and researchers who earn international awards, fellowships, early career awards and academy recognition, and who write the textbooks used in engineering institutions worldwide. Our awards nomination program builds momentum as we ensure our professors, students, staff and alumni garner recognition for their tremendous contributions. Last year, we received over one-third of major national and international awards netted by Canadian engineering schools. To recognize administrative and technical excellence within our community, we introduced five new staff awards. In April 2010, we honoured faculty and staff at the third annual Celebrating Engineering Success event.

Undergraduate Studies
Our Faculty attracts diverse and academically strong applicants from across Canada and around the world. Although we increased First Year student intake in 2009, the incoming class' entrance grade average remained notably strong at 88.9%, and retention rates rose significantly. Our recently aligned outreach activities and strengthened recruitment contributed to the largest cohort of women and international students entering First Year. This year's enhanced undergraduate curriculum includes the launch of a new Engineering Science major in Engineering Mathematics, Statistics and Finance, as well as two new Minors in Environmental Engineering and in Sustainable Energy. High registration in these programs demonstrates student interest in acquiring more breadth and flexibility in their studies.

Undergraduates can further enrich their experience with several professional, research and leadership opportunities by participating in the Professional Experience Year internship program or through local and international summer engineering research placements. These, and a wide range of co- and extra-curricular activities, enhance experiential learning and student engagement within our vibrant academic community.

Graduate Studies
We are building upon our long history of excellence in research-focused graduate education, and furthering our graduate programs through recent enhancements to the professional graduate curriculum and vigorous domestic student recruitment. We received the highest number of applications since 2003–2004; our graduate body now includes a larger number of international students, and a record number of women graduated this past year. This growing diversity enriches students' learning experiences and broadens their global perspective. Last year, we launched an MEng Engineering and Globalization certificate, complementing the MEng Entrepreneurship, Leadership, Innovation and Technology in Engineering (ELITE) as well as the MEng Engineering and Public Policy (EPP) certificates. We now have the largest number of PhDs in the Faculty's history, and our graduate students have garnered the most NSERC awards of the past ten years.

Research
The Faculty's internationally renowned engineering scholars contribute enormously to our collaborative and creative research environment. They generate new knowledge, technologies, applications and systems that advance Canada's research agenda, keep us at the forefront of engineering innovation and help create a sustainable future, responding to the world's needs.

Research collaborations reach across the Faculty and University, and work closely with industry. They have also contributed to the increase in Tri-Council support; U of T Engineering enjoyed a success rate of over 80% in the 2009–2010 NSERC Discovery Grant competition, which helped us achieve 9.4% of total NSERC engineering

funding. Industrial research partnerships are continuing to grow and now contribute over 40% of leveraged NSERC funding. We also measure our research relevance and impact in the increasing number of contracts, patents and invention disclosures, spin-off companies and publications in prestigious journals.

Cross-Faculty Education and Research
In 2009–2010, we launched three engineering strategic initiatives that focus on unique strengths and contribute towards our interdisciplinary efforts: the Institute for Leadership Education in Engineering; the Centre for Sustainable Energy; and, the Institute for Robotics & Mechatronics. Together with other cross-Faculty initiatives, including the new undergraduate Engineering Minors and undergraduate and graduate certificates, they enhance curricular offerings and strengthen collaborative research activities.

Advancement
The restructured Advancement office supports our expanded fundraising, primarily in the areas of major gifts and leadership-level annual giving. We have also re-energized alumni involvement through several on- and off-campus events including increased volunteer opportunities, Biz Skule™ and a rejuvenated Spring Reunion. Through these efforts, we have enhanced relationships with alumni and donors, and set our sights on a new campaign, to be launched in 2011 along with the upcoming University-wide campaign.

Communications
Engineering Strategic Communications promote our Faculty's activities, developing internal and external communication tools and strategies. We are broadening our reach by sharing successes and relevant news within and beyond the University, including *The Engineering Newsletter*, new monthly undergraduate and alumni e-newsletters, alumni magazine *Skulematters*, media relations and revitalized Faculty website.

Diversity
The Faculty of Applied Science & Engineering aims to prepare globally minded engineering leaders for an increasingly interconnected international marketplace. Our inclusive community of scholars, staff, students and alumni represent a rich blend of cultural, ethnic, academic and geographic backgrounds.

In addition to the growing international and women student populations, we achieved a notable increase in the percentage of women assistant professors to 41.5%, up from 22% just two years earlier. Outreach programs and recruitment endeavours focus on underrepresented engineering populations to continue building student, staff and faculty diversity.

Financial and Physical Resources
We strengthened the Faculty's financial standing in 2009–2010 as a result of a number of strategic decisions. We also implemented a new budget model that increases fiscal transparency and attributes budgetary decisions to academic goals. Although the global economic downturn impacted scholarships and awards funding, we took measures to honour commitments to students and donors.

The 2008–2009 Divisional Space Review revealed that our infrastructure no longer meets the Faculty's needs. Through 2009–2010, we continued improving student, research and administrative spaces with several ongoing projects, including a $20-million Lassonde Mining Building renovation. We will continue to address infrastructure requirements, as a key priority for the coming years.

This annual report of performance indicators carefully considers our benchmarks of progress and helps us assess our pursuit of excellence. I welcome your input. Your comments will assist us to further refine these evolving quantitative metrics.

Your efforts, represented throughout this document, ensure our vibrant community of students, faculty, alumni and staff thrives as Canada's premier Engineering school with a proud tradition of pre-eminence in engineering collaboration, research and teaching.

Cristina Amon, Dean

Faculty Leadership 2009–2010

Dean
Cristina Amon

Vice-Dean, Graduate Studies
Chris Damaren

Vice-Dean, Research
Stewart Aitchison

Vice-Dean, Undergraduate
Grant Allen

Associate Dean, Cross-Disciplinary Programs
Bryan Karney

Chair, First Year
Susan McCahan

Chair, Department of Chemical Engineering & Applied Chemistry
Doug Reeve

Chair, Department of Civil Engineering
Brenda McCabe

Chair, The Edward S. Rogers Sr. Department of Electrical & Computer Engineering
Farid Najm

Chair, Division of Engineering Science
Will Cluett

Chair, Department of Mechanical & Industrial Engineering
Jean Zu

Chair, Department of Materials Science & Engineering
Jun Nogami

Director, University of Toronto Institute for Aerospace Studies
David Zingg

Director, Institute of Biomaterials & Biomedical Engineering
Paul Santerre

Director, Centre for Global Engineering
Yu-Ling Cheng

Director, Identity, Privacy & Security Institute
Dimitrios Hatzinakos

Director, Institute for Leadership Education in Engineering
Doug Reeve

Director, Institute for Robotics & Mechatronics
Ridha Ben Mrad

Director, Lassonde Institute for Mining
John Hadjigeorgiou

Chief Administrative Officer
Catherine Gagne

Executive Director, Advancement
Vanessa Abaya

Executive Director, Communications & Public Affairs
Madelyn Herschorn

Faculty Registrar
Barbara McCann

Comparison of U of T Engineering with Ontario and Canada 2009–2010

The following table presents key 2009 and 2009–2010 metrics from U of T Engineering and compares them with the overall Ontario and Canadian engineering schools' numbers. Our Faculty has significant percentages of undergraduate and graduate student enrolments across the country, and awards a large number of degrees compared to the faculty complement.

Even though our provincial and national percentage of faculty members remains relatively low, our internationally renowned scholars have garnered the single largest portion of Natural Sciences and Engineering Research Council (NSERC) engineering funding, and received 60% of major awards granted to Ontario institutions, and over 34% of those awarded to Canadian engineering schools in 2009–2010.

	U of T Engineering	Ontario	U of T % of Ontario	Canada	U of T % of Canada
Undergraduate					
Enrolment (FTE)	4,222	24,784	17.0%	59,091	7.1%
Degrees Awarded	836	4,752	17.6%	10,781	7.8%
Masters (MEng, MASc and MHSc)					
Enrolment (FTE)	706	4,063	17.4%	10,325	6.8%
Degrees Awarded	359	1,769	20.3%	3,776	9.5%
Doctoral (PhD)					
Enrolment (FTE)	629	2,694	23.3%	6,986	9.0%
Degrees Awarded	94	438	21.5%	1,027	9.2%
Faculty					
Tenured and Tenure-Stream	204	1,431	14.2%	3,454	5.9%
Major Awards					
Major Awards Received	24	40	60.0%	70	34.3%
Research Funding					
NSERC Funding for Engineering	$23.8M	$95.4M	25.0%	$253.3M	9.4%

Note: Unlike the data contained in the rest of this report, enrolment (Full-Time Equivalent, or FTE) and degrees awarded statistics are based on the 2009 calendar year and come from Engineers Canada (www.engineerscanada.ca). Faculty data (tenured and tenure-stream) are based on November 2009 counts by Engineers Canada. Major awards and research funding statistics are based on the 2010 grant year (April 2009 to March 2010).

Comparison of U of T Engineering with St. George Campus and University of Toronto 2009–2010

The following table compares the Faculty of Applied Science & Engineering with the University of Toronto based on key metrics. Since U of T Engineering's activities are concentrated on the St. George Campus, we also present our metrics relative to the downtown campus, where available.

	U of T Engineering	St. George Campus	Engineering % of St. George	University of Toronto	Engineering % of U of T
Student Enrolment					
Undergraduate	4,857	35,689	13.6%	56,913	8.5%
Professional Masters (MEng and MHSc)	387	5,558	7.0%	5,875	6.6%
Research Masters (MASc)	530	2,757	19.2%	2,842	18.6%
Doctoral (PhD)	676	5,350	12.6%	5,566	12.1%
All Students	6,450	49,354	13.1%	71,196	9.1%
Degrees Awarded					
Undergraduate	922	7,929	11.6%	11,278	8.2%
Professional Masters (MEng and MHSc)	191	2,289	8.3%	2,443	7.8%
Research Masters (MASc)	196	1,329	14.7%	1,379	14.2%
Doctoral (PhD)	98	726	13.5%	746	13.1%
Total Degrees	1,407	12,273	11.5%	15,846	8.9%
Faculty and Staff					
Professoriate	231			2,713	8.5%
Administrative and Technical Staff	243			5,812	4.2%
Research Funding					
Sponsored-Research Funding	$54.7M			$392.0M	13.9%
Industry Research Funding	$5.3M			$12.9M	41.3%
Space					
Space (NASMs)	61,840	620,714	10.0%	779,090	7.9%
Revenue					
Total University-Wide Costs	$44.7M			$367.3M	12.2%
Total Revenue	$142.1M			$1,229.6M	11.6%

Note: Student enrolments represent headcount as of November 1, 2009. Degrees awarded are based on the 2009–2010 academic year. Professoriate includes tenured, tenure-stream and teaching-stream faculty members. Administrative and technical staff include full- and part-time staff. Research funding is based on the 2010 grant year (April 2009 to March 2010). Space is measured in Net Assignable Square Metres (NASMs). Revenue is based on the 2010 U of T fiscal year (May 2009 to April 2010).

1. Comparisons and Rankings

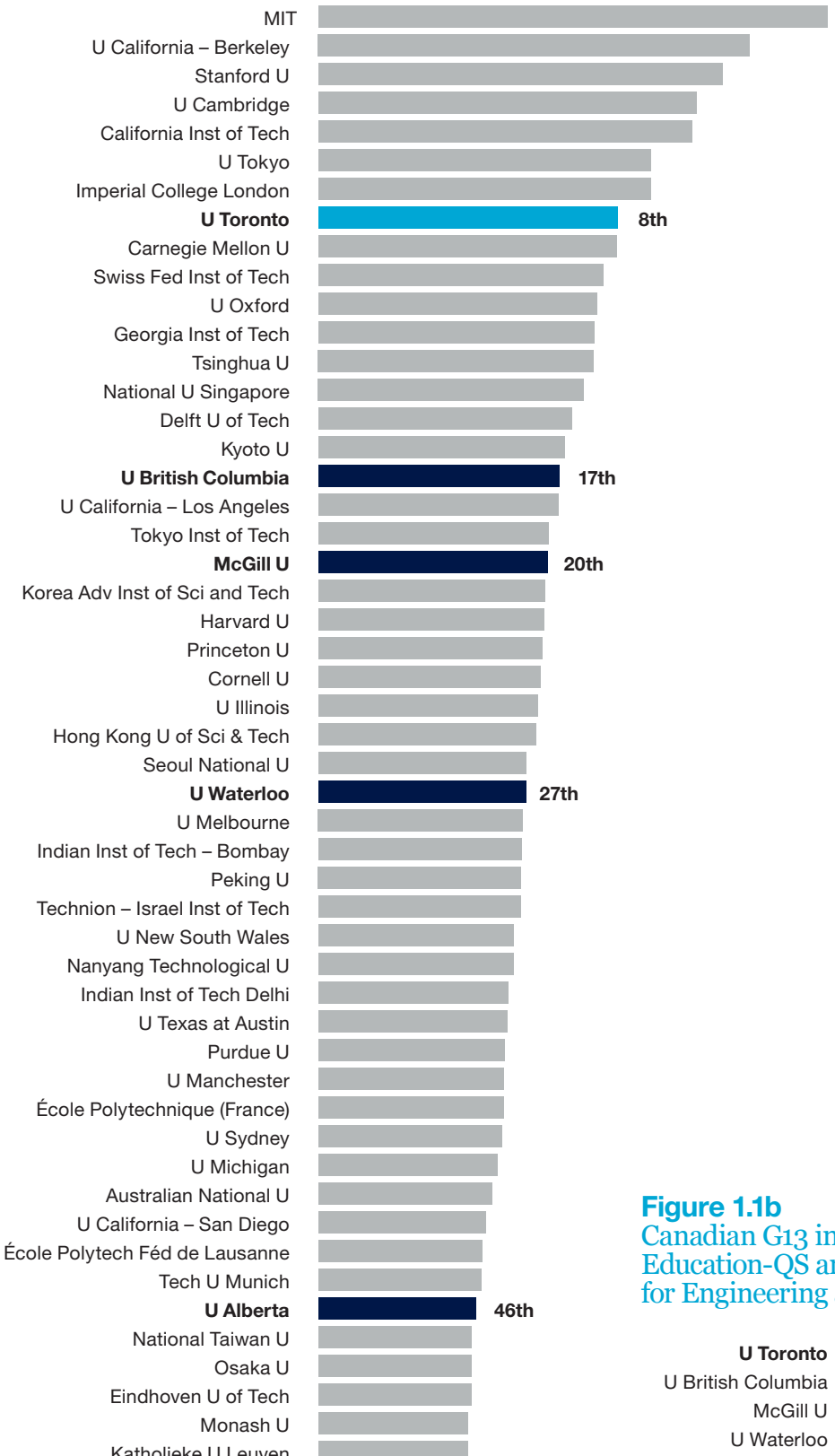
U of T Engineering ranks high among the top engineering schools in the world, and consistently places first in Canada. In 2009–2010, U of T Engineering ranked 8th in the world among engineering schools — up from 10th place in 2008–2009 and 11th in 2007–2008 — according to the Times Higher Education-QS World University Rankings. U of T Engineering held the same spot in the U.S. News & World Report's 2010 ranking of the world's best universities. By comparison, the closest Canadian Engineering Faculty, University of British Columbia, ranked 17th in the Times Higher Education report. U of T Engineering also placed first in Canada and 5th in North America in the same rankings.

The Shanghai Jiao Tong Academic Ranking of World Universities (ARWU) for Engineering/Technology and Computer Sciences placed U of T Engineering as 19th in the world for 2009 — up from 21st for 2008, and 23rd for 2007 — and first in Canada for three consecutive years. The Faculty ranked first in Canada and 26th in the world in the Higher Education Evaluation & Accreditation Council of Taiwan (HEEACT) Performance Ranking of Engineering Papers for World Universities in 2009.

University bibliometric data reflects the Faculty's prodigious research output and impact as measured by citations. Our Faculty ranks 7th in the number of publications, 7th in the number of citations among all public and private universities in North America and first within both categories in Canada. We also rank first in Canada on normalized citations per faculty and citations per publication. These important metrics depict our research relevance and impact.

While no one ranking truly reflects all our Faculty's strengths, they increase our visibility and affect our ability to recruit top scholars and academically strong students, both locally and from around the world.

Figure 1.1a
Times Higher Education-QS World University Rankings and U.S. News & World Report World's Best Colleges and Universities, Top 50 Universities for Engineering and Information Technology 2009–2010



The Faculty remains a global leader in the prestigious Times Higher Education-QS (November 2009) and the U.S. News & World Report (February 2010) rankings in the Engineering and Information Technology category. Up from 10th place in 2008–2009, the Faculty ranks 8th in the world for 2009–2010. Holding our first-place spot among Canadian universities, U of T Engineering ranks 5th in North America, up from 7th in the previous year.

Scoring for the Times Higher Education and U.S. News & World Report rankings is based on four principal indicators:

- Academic peer review
- Research performance (citations)
- Student-to-faculty ratio
- Survey of employers

The survey also measures the proportions of international faculty and students. Final scores are compiled by multiplying each indicator by its weighting factor, rounding and then scaling it, which results in a final score out of 100.

The 2010 Times Higher Education World Ranking will represent a new era in reporting with a revised methodology and new data and analysis partner, Thomson Reuters. The refreshed approach doubles its indicators and takes into account teaching, research and citations.

Figure 1.1b
Canadian G13 in Top 100 from Times Higher Education-QS and U.S. News & World Report for Engineering and Information Technology

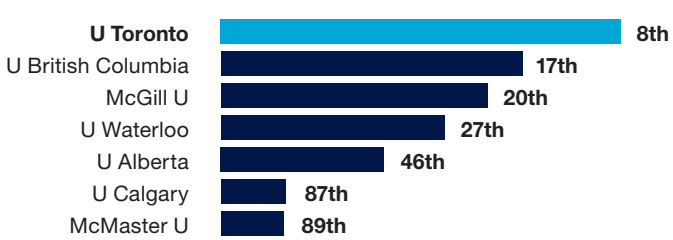
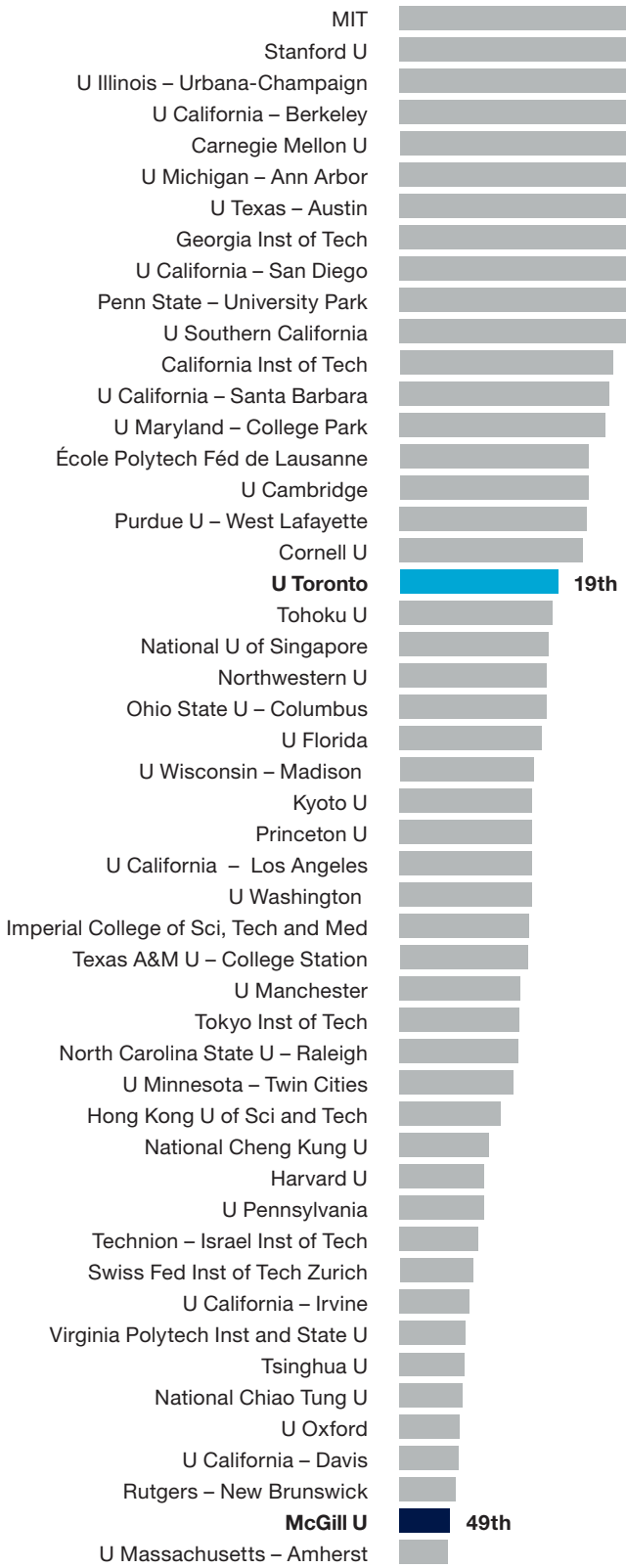


Figure 1.2a
Shanghai Jiao Tong Academic Ranking of World Universities
Top 50 Universities for Engineering/Technology and Computer Sciences
2009



The Academic Ranking of World Universities (ARWU) performed by Shanghai Jiao Tong University is a highly-regarded ranking of research universities around the world.

The Engineering/Technology and Computer Sciences ranking is based on the following four indicators, each with a 25% weighting:

- Highly cited research (HiCi)
- Published articles in the field (PUB)
- Percentage of articles published in the top 20% of journals in the field (TOP)
- Engineering research expenditure (FUND)

The highest scoring institution is assigned a total score of 100, and other institutions are calculated as a percentage of the top total score. The scores are then placed in descending order.

In 2009, U of T Engineering ranked 19th in the world, up from 21st in 2008 and 23rd in 2007.

Research expenditure (FUND) by Canadian universities is accounted and reported differently than it is for our American counterparts, resulting in lower scores. The detailed analysis of scoring for the four indicators is shown on the next page, in which U of T Engineering scores first in Canada in each category.

Figure 1.2b
Canadian G13 in Top 100 from Shanghai Jiao Tong Academic Ranking for Engineering/ Technology and Computer Sciences

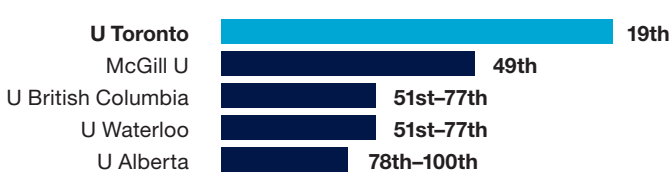
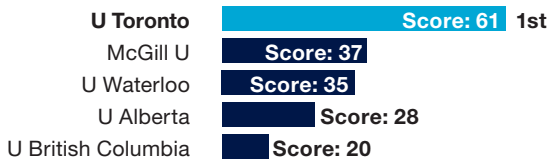


Figure 1.2c
Scoring Analysis of Canadian G13 in Top 100 from Shanghai Jiao Tong Academic Ranking for Engineering/Technology and Computer Sciences 2009

Scoring on Highly Cited Research (HiCi) Indicator

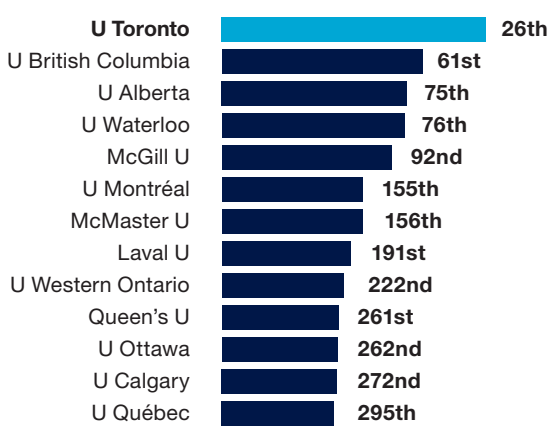


Scoring on Articles in Top Journals (TOP) Indicator

Scoring on Published Articles (PUB) Indicator

Scoring on Research Expenditure (FUND) Indicator

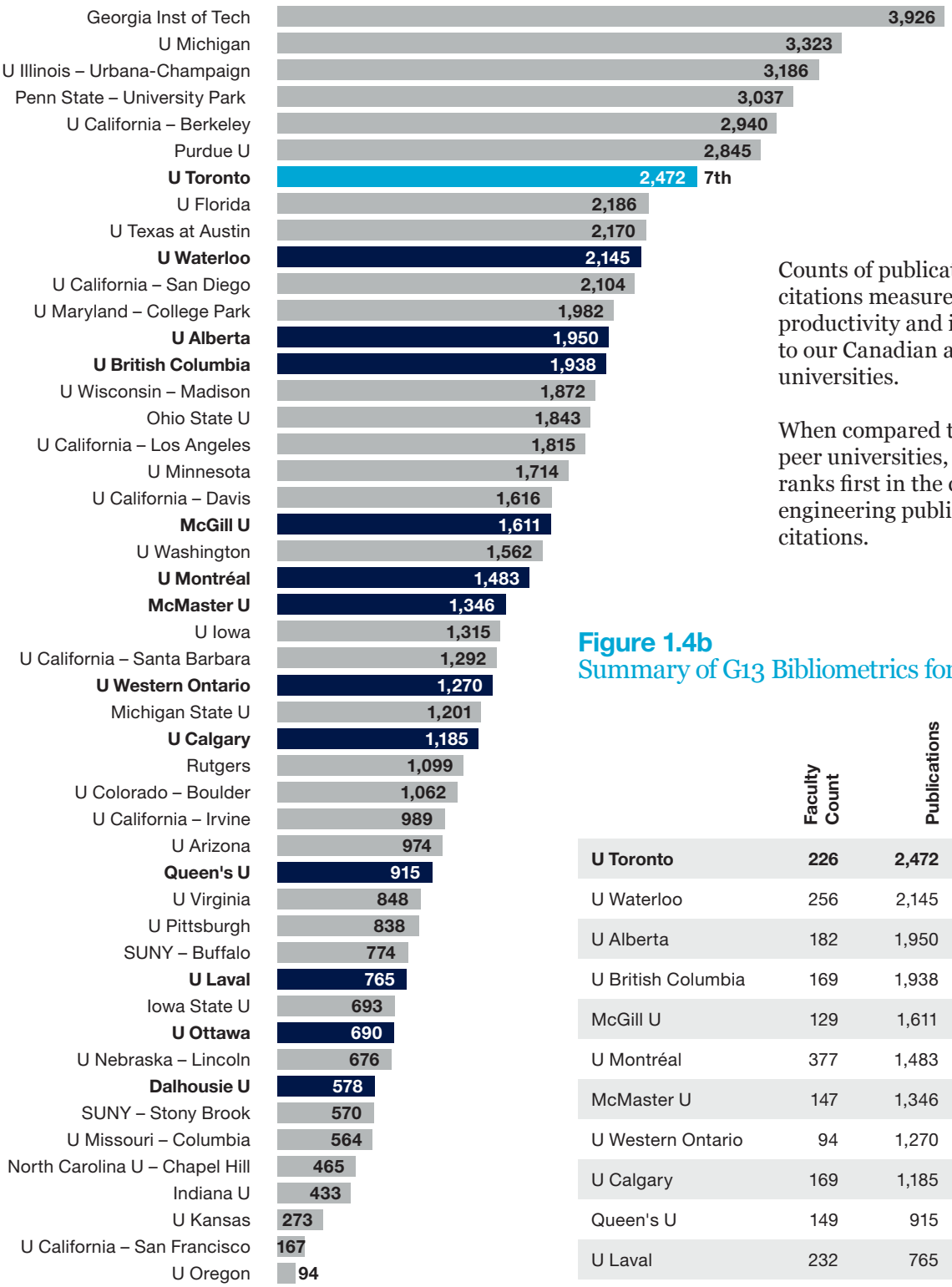
Figure 1.3
Higher Education Evaluation & Accreditation Council of Taiwan (HEEACT) Performance Ranking of Engineering Papers for World Universities 2009



The HEEACT bases its rankings on four criteria: number of articles published from a school in the last 11 years; number of citations in the last 11 years; number of articles published in the current year; and number of citations in the last two years. These four criteria are then further expanded to include other indicators, such as number of articles published in high-impact journals.

U of T Engineering remained first in Canada in 2009 in this ranking and 26th in the world, a reflection of our prodigious research output and research relevance.

Figure 1.4a
Number of Engineering Publications Indexed by Thomson Reuters
Association of American Universities Public and Canadian Institutions
2005 to 2009



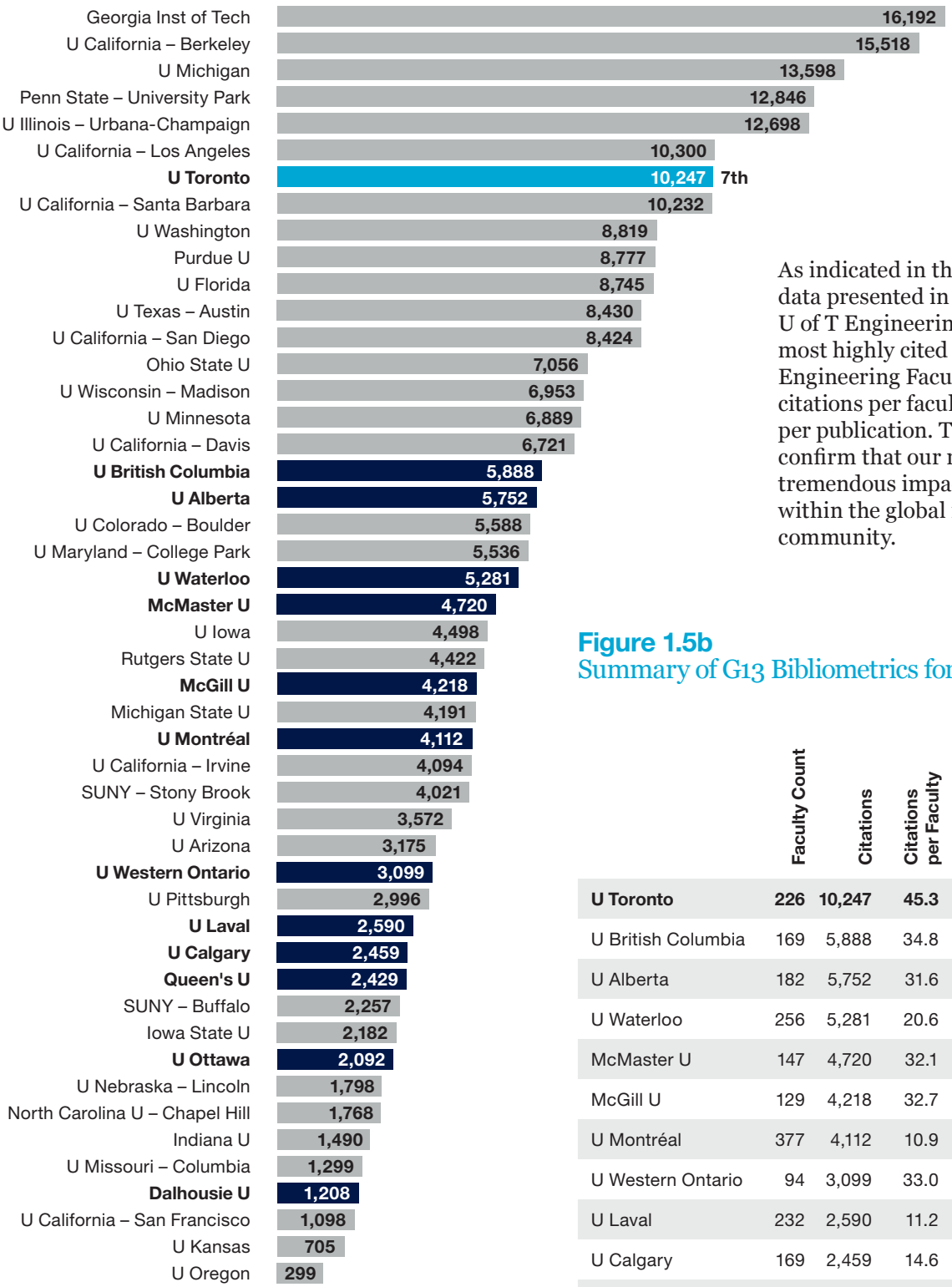
Counts of publications and citations measure research output, productivity and intensity relative to our Canadian and American peer universities.

When compared to our Canadian peer universities, U of T Engineering ranks first in the country for both engineering publications and citations.

Figure 1.4b
Summary of G13 Bibliometrics for Publications

	Faculty Count	Publications	Publications per Faculty	Rank on Pub per Faculty
U Toronto	**226**	**2,472**	**10.9**	**4**
U Waterloo	256	2,145	8.4	7
U Alberta	182	1,950	10.7	5
U British Columbia	169	1,938	11.5	3
McGill U	129	1,611	12.5	2
U Montréal	377	1,483	3.9	12
McMaster U	147	1,346	9.2	6
U Western Ontario	94	1,270	13.6	1
U Calgary	169	1,185	7.0	8
Queen's U	149	915	6.1	10
U Laval	232	765	3.3	13
U Ottawa	116	690	5.9	11
Dalhousie U	86	578	6.7	9

Figure 1.5a
Number of Engineering Citations Indexed by Thomson Reuters
Association of American Universities Public and Canadian Peer Institutions
2005 to 2009



As indicated in the normalized data presented in Figure 1.5b, U of T Engineering research is the most highly cited among Canadian Engineering Faculties, with 45.3 citations per faculty and 4.1 citations per publication. These metrics confirm that our research has tremendous impact and reach within the global research community.

Figure 1.5b
Summary of G13 Bibliometrics for Citations

	Faculty Count	Citations	Citations per Faculty	Rank on Citations per Faculty	Citations per Publication	Rank on Citations per Publication
U Toronto	**226**	**10,247**	**45.3**	**1**	**4.1**	**1**
U British Columbia	169	5,888	34.8	2	3.0	4
U Alberta	182	5,752	31.6	6	2.9	6
U Waterloo	256	5,281	20.6	7	2.5	10
McMaster U	147	4,720	32.1	5	3.5	2
McGill U	129	4,218	32.7	4	2.6	9
U Montréal	377	4,112	10.9	13	2.8	7
U Western Ontario	94	3,099	33.0	3	2.4	11
U Laval	232	2,590	11.2	12	3.4	3
U Calgary	169	2,459	14.6	10	2.1	13
Queen's U	149	2,429	16.3	9	2.7	8
U Ottawa	116	2,092	18.0	8	3.0	5
Dalhousie U	86	1,208	14.0	11	2.1	12

Figure 1.6a
Summary of U of T Engineering Performance in World Rankings
2007 to 2009

Ranking Organization	Release Date	2007		2008		2009	
		World	Canada	World	Canada	World	Canada
Times Higher Education-QS World's Best Colleges and Universities for Engineering and Information Technology	September 2009	11th	1st	10th	1st	8th	1st
U.S. News & World Report World's Best Universities for Engineering and IT	February 2010	11th	1st	10th	1st	8th	1st
Shanghai Jiao Tong Academic Ranking of World Universities (ARWU) for Engineering/Technology and Computer Sciences	August 2009	19th	1st	21st	1st	19th	1st
– Highly Cited (HiCi)		13th	1st	14th	1st	13th	1st
– Publications (PUB)		20th	1st	21st	1st	28th	1st
– Publications in Top Journals (TOP)		52nd	1st	63rd	2nd	62nd	1st
– Research Expenditure (FUND)		23rd	1st	28th	1st	26th	1st
Higher Education Evaluation & Accreditation Council of Taiwan (HEEACT) Performance Ranking of Engineering Papers for World Universities	September 2009	N/A	N/A	17th	1st	26th	1st

Figure 1.6b
Summary of University of Toronto Performance in World Rankings
2007 to 2009

Ranking Organization	Release Date	2007		2008		2009	
		World	Canada	World	Canada	World	Canada
Times Higher Education-QS World's Best Colleges and Universities	September 2009	45th	3rd	41st	3rd	29th	2nd
U.S. News & World Report World's Best Universities	February 2010	45th	3rd	41st	3rd	29th	2nd
Shanghai Jiao Tong Academic Ranking of World Universities (ARWU)	August 2009	24th	1st	24th	1st	27th	1st
– Alumni		43rd	2nd	42nd	2nd	42nd	2nd
– Award		59th	1st	58th	1st	57th	1st
– Highly Cited (HiCi)		38th	1st	41st	1st	39th	1st
– Published in *Nature* and *Science* (N&S)		30th	1st	30th	1st	33rd	1st
– Publications (PUB)		3rd	1st	3rd	1st	3rd	1st
– Weighted Score (PCP)		14th	1st	14th	1st	62nd	1st
Higher Education Evaluation & Accreditation Council of Taiwan (HEEACT) Performance Ranking of Papers for World Universities	September 2009	12th	1st	14th	1st	11th	1st

Note 1.6a: HEEACT began subject rankings in 2008.

2. Awards and Honours

Over the 2009–2010 academic year, our Faculty continued to benefit from a strengthened awards nomination program, ensuring that we are recognized for the excellence of our education and research endeavours and the achievements of our professors, alumni, students and staff.

Our efforts have also helped to raise the Faculty's profile among Canada's top engineering organizations, such as the Engineering Institute of Canada (EIC), the Canadian Academy of Engineering (CAE) and Professional Engineers Ontario (PEO). For example, 35.4% of newly elected CAE Fellows in 2010 are U of T Engineering professors or alumni, and members of our Faculty received 55.5% of the 2010 Ontario Professional Engineers Awards. In 2010, 13.3% of our professors are CAE Fellows, an increase from 3.6% in 2005.

Our Faculty garnered more than one-third of the major national and international awards received by Engineering Faculties in Canada during the 2009–2010 academic year. These include some of the most prestigious awards in Canada, such as Killam Research Fellowships and the Natural Sciences and Engineering Research Council (NSERC) Brockhouse Prize, as well as international honours including induction into the National Academy of Engineering in the U.S. In addition, our faculty members continue to receive many of U of T's prestigious honours, including the McLean Award (three consecutive years), the Faculty Award (two consecutive years) and the Vivek Goel Faculty Citizenship Award (two consecutive years).

This year, we also increased our efforts to recognize the contributions of outstanding staff. To that end, a Staff Awards Committee was established by the Dean and chaired by Catherine Gagne, Chief Administrative Officer, creating four new staff awards (Emerging Leader Award, Influential Leader Award, Quality of Student Experience Award and Innovation Award), and enhancing our existing staff award to create the Agnes Kaneko Citizenship Award. These awards were presented in April 2010 at the Faculty's third annual Celebrating Engineering Success Reception, a recognition event for all our award and research grant recipients, attended by more than 150 faculty and staff.

Selected Awards Received by Faculty Members May 2009 to June 2010

Prestigious international, national and provincial awards and honours are important recognition of excellence in research, teaching and service to the profession.

International Awards

1906 Award: International Electrotechnical Commission
Alf Dolan, IBBME

Babcock-Hart Award: Institute of Food Technologists
Levente Diosady, ChemE

Dennis Gabor Award: NOVOFER Foundation
Warren Chan, IBBME

Early Career Award: IEEE Robotics and Automation Society
Yu Sun, MIE

Fellow: American Association for the Advancement of Science
Will Cluett, ChemE; Bryan Karney, CivE; Javad Mostaghimi, MIE; Ted Sargent, ECE

Fellow: American Oil Chemists Society
Levente Diosady, ChemE

Fellow: Electrochemical Society
Roger Newman, ChemE

Fellow: Hungarian Academy of Engineering
Levente Diosady, ChemE

Fellow: Institute of Materials, Minerals and Mining
Hani Naguib, MIE/MSE

Foreign Associate: National Academy of Engineering
Edward Davison, ECE

Maurice Wilkes Award: Association for Computing Machinery
Andreas Moshovos, ECE

St. Lawrence Section Outstanding Teaching Award: American Society for Engineering Education
Greg Evans, ChemE

Young Scientist Research Award: American Oil Chemists Society
Edgar Acosta, ChemE

National Awards

A.G.L. McNaughton Gold Medal: IEEE Canada
Alberto Leon-Garcia, ECE

Award for the Support of Women in the Engineering Profession: Engineers Canada
Cristina Amon, MIE

Brockhouse Canada Prize: NSERC
Sanjeev Chandra, MIE; Thomas Coyle, MSE; Javad Mostaghimi, MIE; Valerian Pershin, CACT Manager

Clara Benson Award: Canadian Society for Chemistry
Molly Shoichet, ChemE

Excellence in Education Award: CMHC
Kim Pressnail, CivE

Fellow: Canadian Academy of Engineering
Stavros Argyropoulos, MSE; Bruce Francis, ECE; Andrew Goldenberg, MIE; Farid Najm, ECE; Torstein Utigard, MSE; Safwat Zaky, ECE; David Zingg, UTIAS; Jean Zu, MIE

Fellow: Canadian Institute of Food Science and Technology
Levente Diosady, ChemE

Fellow: Canadian Society for Mechanical Engineering
Ridha Ben Mrad, MIE; Jan Spelt, MIE

Fellow: Engineering Institute of Canada
Andrew Goldenberg, MIE; Javad Mostaghimi, MIE; Konstantinos Plataniotis, ECE; Larry Seeley, ChemE 6T6, MASc ChemE 6T8, PhD ChemE 7T2

Gold Medal Student Award: Engineers Canada
Jane Chui, EngSci 1T0; Mike Klassen, EngSci 1T0

I.W. Smith Award: Canadian Society for Mechanical Engineering
Axel Guenther, MIE

Julia Levy Award: Society of Chemical Industry
Paul Santerre, IBBME

Julian C. Smith Medal: Engineering Institute of Canada
Chul Park, MIE

Kalev Pugi Award: Society of Chemical Industry
Elizabeth Edwards, ChemE

Killam Research Fellowship: Canada Council for the Arts
Frank Kschischang, ECE; Andreas Mandelis, MIE

K.Y. Lo Medal: Engineering Institute of Canada
Levente Diosady, ChemE

Medal for Distinction in Engineering Education: Engineers Canada
Greg Evans, ChemE

Officer of the Order of Canada: Government of Canada
Julie Payette, MASc ECE 9T0

Outstanding Engineer Award: IEEE Canada
Edward Davison, ECE

R.S. Jane Memorial Award: Canadian Society for Chemical Engineering
Douglas Reeve, ChemE

Synergy Award for Innovation (Large Company Category): NSERC
Elizabeth Edwards, ChemE

Willet G. Miller Medal: Royal Society of Canada
R. Paul Young, CivE

Young Alumni Award: McMaster Alumni Association
Milica Radisic, ChemE

Young Engineer Achievement Award: Engineers Canada
Constantin Christopoulos, CivE

Provincial Awards

Order of Ontario: Government of Ontario
Levente Diosady, ChemE;
Paul Godfrey, ChemE 6T2

Ontario Professional Engineers Award: Engineering Excellence
Stephen Armstrong, Instructor, ELITE Program

Ontario Professional Engineers Award: Entrepreneurship
Andrew Goldenberg, MIE;
Joseph Paradi, ChemE

Ontario Professional Engineers Award: Research and Development
Jeffrey Packer, CivE

Ontario Professional Engineers Award: Young Engineer
Mansoor Barati, MSE

Figure 2.1
Summary of Major International, National and Provincial Awards and Honours
2001 to 2010

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
International										
AAAS Fellowship*					1	1	2	4	4	6
Guggenheim Fellowship*				1			1			
MIT Top 35 Under 35					1			1		
NAE Fellowship*					1	1				1
National										
3M Teaching Fellowship*							1			
Alan Blizzard Award							1			
Canada's Top 40 Under 40			1			2	2	2		
CAE Fellowship					3	2	1	3	9	8
EIC Fellowship				1		2	2	3	4	3
Killam Research Fellowship*								2		2
Killam Prize*			1					1		
Royal Society of Canada Fellowship*	1		2		1	1	1	1	1	2
Steacie Fellowship*			2	1	1				1	
Synergy Award for Innovation				1	1	1			1	
Provincial										
PEO Medals		1	1	1	4	2	3	5	5	5
Total	**1**	**1**	**8**	**5**	**13**	**12**	**14**	**22**	**25**	**27**

Note 2.1: (*) Denotes U of T Performance Indicator. Data is shown by calendar year (January to December). Includes faculty award recipients only. To read full descriptions of the major awards and honours listed above, please see the Appendix.

Figure 2.2a
Number of Major Awards Received by U of T Engineering Compared to other Canadian Engineering Faculties 2009–2010

U of T Engineering received five major international awards and 19 national awards, which is 34.3% of all major awards received by Engineering Faculties in Canada.

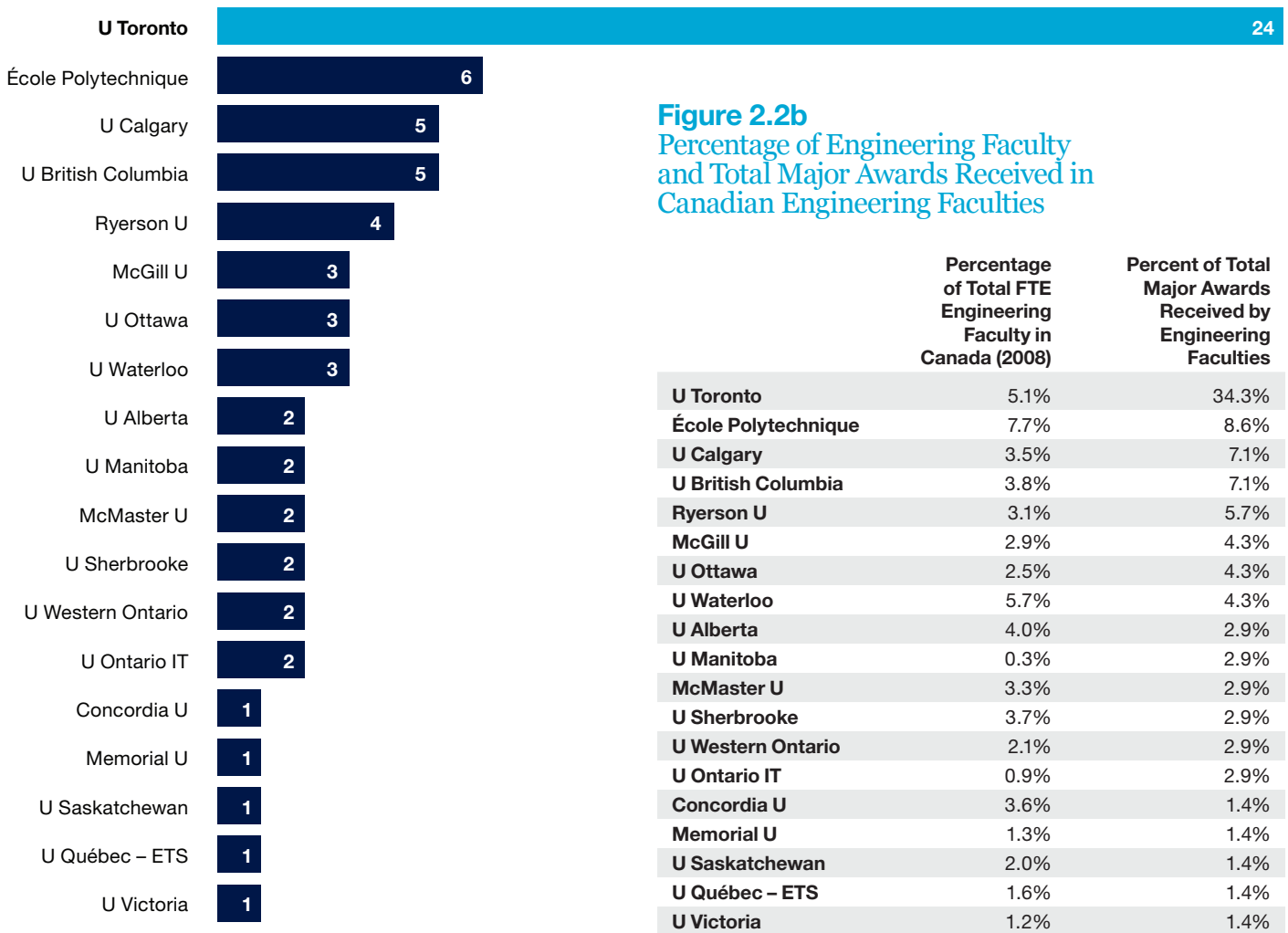


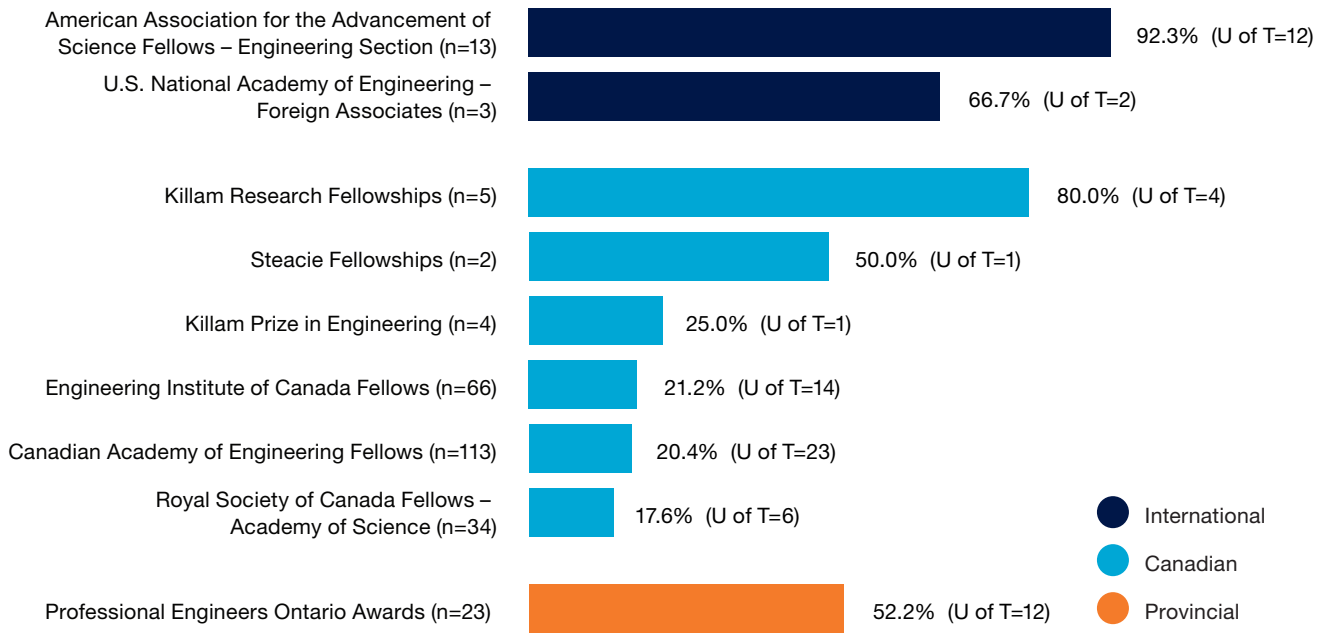
Figure 2.2b
Percentage of Engineering Faculty and Total Major Awards Received in Canadian Engineering Faculties

	Percentage of Total FTE Engineering Faculty in Canada (2008)	Percent of Total Major Awards Received by Engineering Faculties
U Toronto	5.1%	34.3%
École Polytechnique	7.7%	8.6%
U Calgary	3.5%	7.1%
U British Columbia	3.8%	7.1%
Ryerson U	3.1%	5.7%
McGill U	2.9%	4.3%
U Ottawa	2.5%	4.3%
U Waterloo	5.7%	4.3%
U Alberta	4.0%	2.9%
U Manitoba	0.3%	2.9%
McMaster U	3.3%	2.9%
U Sherbrooke	3.7%	2.9%
U Western Ontario	2.1%	2.9%
U Ontario IT	0.9%	2.9%
Concordia U	3.6%	1.4%
Memorial U	1.3%	1.4%
U Saskatchewan	2.0%	1.4%
U Québec – ETS	1.6%	1.4%
U Victoria	1.2%	1.4%

Note 2.2a and 2.2b: The following major awards are included above: International — AAAS Fellowship (Engineering Section), MIT Top 35 Under 35, NAE Fellowship; National — Canada's Top 40 Under 40, CAE Fellowship, EIC Fellowship, Killam Prize (Engineering), Royal Society of Canada Fellowship (Engineering/Physical Sciences), Steacie Fellowship, Synergy Awards for Innovation.

For a list of Canadian universities which have accredited engineering programs please visit www.peo.on.ca/registration/Can_univer_offer_eng.htm

Figure 2.3
Number of Awards Received by U of T Engineering Faculty Compared to other Canadian Engineering Faculties
2005–2006 to 2009–2010



University of Toronto Awards Received by Engineering May 2009 to June 2010

Arbor Award

The University of Toronto Alumni Association recognizes volunteers for outstanding personal service to the University.

Anton Davies, MechE 7T2, MASc MIE 7T4, PhD MIE 7T7;
Byron (Ike) Goodfellow, ElecE 5T3, MASc ElecE 5T4;
Betty Hill, ChemE 4T8; Derek Little, CivE 5T3;
Orlando Martini, CivE 5T6, MASc CivE 6T8;
Alec Monro, ChemE 5T9; Donovon Pollitt, MinE 0T4;
Mathew Szeto, CompE 0T4; Robert West, ChemE 8T1;
Helen Wojcinski, CivE 8T7

Faculty Award

Presented by the University of Toronto Alumni Association for excellence in teaching, research and professional endeavours.

Frank Kschischang, ECE

McLean Award

Prestigious award for early-career researchers at U of T.

Baochun Li, ECE
Yu Sun, MIE

Vivek Goel Faculty Citizenship Award

Presented by the University of Toronto Alumni Association for distinction in multiple leadership committees, governance bodies and external organizations complementary to the University's academic mission.

Safwat Zaky, ECE

Stepping Up

Recognizes staff who contribute to one of the U of T academic plan's five major goals: enhancing the student experience; interdisciplinary activity; linking academic programs to research experiences; outreach; and equity and diversity.

Individual
Renzo Basset, CivE

Group
Linda Espeut, ECE; Susan Grant, ECE; Leslie Grife, Office of the Registrar; Lesley Mak, Office of the Registrar; Liam Mitchell, ChemE; Shannon Osborne, MIE; Austra Ozolins, ECE; Nisha Panchal, Engineering Career Centre; Deborah Peart, ChemE; Rosanna Reid, ECE; Sarah Steed, EngSci; Rosemary Tersigni, ECE

University of Toronto Engineering Faculty Awards 2001 to 2010

Early Career Teaching Award

In recognition of excellence in teaching early in a career.

2010: Glenn Hibbard, MSE
2009: Craig Simmons, MIE
2008: Hani Naguib, MIE
2007: Wei Yu, ECE
2006: Ali Sheikholeslami, ECE
2005: Evan Bentz, CivE
2004: Paul Gauvreau, CivE
2003: Parham Aarabi, ECE
2002: R. Ben Mrad, MIE
2001: Baher Abdulhai, CivE

Faculty Teaching Award

The highest teaching tribute awarded by the Faculty.

2010: Ali Sheikholeslami, ECE
2009: John Carter, ECE
2008: Tarek Abdelrahman, ECE
2007: Raviraj Adve, ECE
2006: Frank Kschischang, ECE
2005: Ross Ethier, MIE
2004: Kim Pressnail, CivE
2004: Z.G. Vranesic, ECE
2003: David Kuhn, ChemE
2002: Bryan Karney, CivE
2001: Tony Sinclair, MIE

McCharles Prize for Early Career Research

This award was re-introduced in 2008 to recognize exceptional performance and distinction in research early in a career. Originally established in 1907 with a gift from Aeneas McCharles, this award will be presented again in 2013 and every three years thereafter.

2010: Craig Simmons, MIE
2008: Wei Yu, ECE

University of Toronto Engineering Staff Awards 2001 to 2010

Agnes Kaneko Citizenship Award (Renamed from the Agnes Kaneko Award in 2010)

This award recognizes excellent Faculty citizens: staff who have served the Faculty with distinction and made contributions to the Faculty's mission above and beyond their job description over a long period of time. It was established in memory of Agnes Kaneko, a Civil Engineering staff member who was known for her excellent work and dedication to the Faculty.

2010: Joe Baptista, MIE
2009: Renzo Basset, CivE
2008: Linda Espeut, ECE
2007: Brenda Fung, MIE
2006: Peter Leesti, CivE
2005: Sandra Walker, EngSci
2005: Yvonne MacNeil, IBBME
2004: Kelly Chan, ECE
2003: Bob Manson, ECF
2002: Ella Lund-Thomsen, ECE
2001: Teresa Miniaci, MSE

In 2009, the Staff Awards Committee was established by the Dean and created four new staff awards, which were presented for the first time at the 2010 Celebrating Engineering Success Reception. These awards are:

Emerging Leader Award

This award recognizes a staff member who leads by example in their "above and beyond" dedication to the Faculty's mission, is held in high regard by colleagues and demonstrates potential to assume a more senior leadership role within the Faculty.

Helen Bright, Office of the Registrar

Influential Leader Award

This award recognizes a staff member who demonstrates exemplary support for the Faculty's education and research endeavours, has made significant sustained contributions to the Faculty, and inspires others to realize their potential.

Arlene Smith, ChemE

Innovation Award

This award recognizes staff who, individually or as a team, have developed an innovative new method, technology or system to improve a department or the Faculty; made innovative improvements to an existing technology or system; or created an innovative solution to a problem.

Joan Chen, Pauline Martini, Liam Mitchell and Deborah Peart, ChemE

Quality of Student Experience Award

This award recognizes staff who, working either directly with students or behind the scenes, have made significant improvements to the quality of student experience in the Faculty. This can recognize the creation or improvement of services for the students, or simply a record of excellent student service.

Pierina Filippone, Office of the Registrar

For more information on the next call for nominations, please see the Honours & Awards section of *The Engineering Newsletter*, Volume 4, Issue 2, www.enews.engineering.utoronto.ca/_Volume4/Issue2

3. Undergraduate Studies

In 2009–2010, U of T Engineering welcomed 1,201 First Year students from across Ontario, Canada and the world. A rise in our undergraduate applications since 2005 has allowed us to be more selective in our offers of admission, helping to ensure we attract academically strong students. The higher proportion of our students moving from First to Second Year can be attributed to both the rising entrance average and to the support they receive in First Year that better prepares them for the academic rigours of their studies. U of T Engineering awards approximately 1.0% of all undergraduate engineering degrees in North America and 7.8% in Canada.

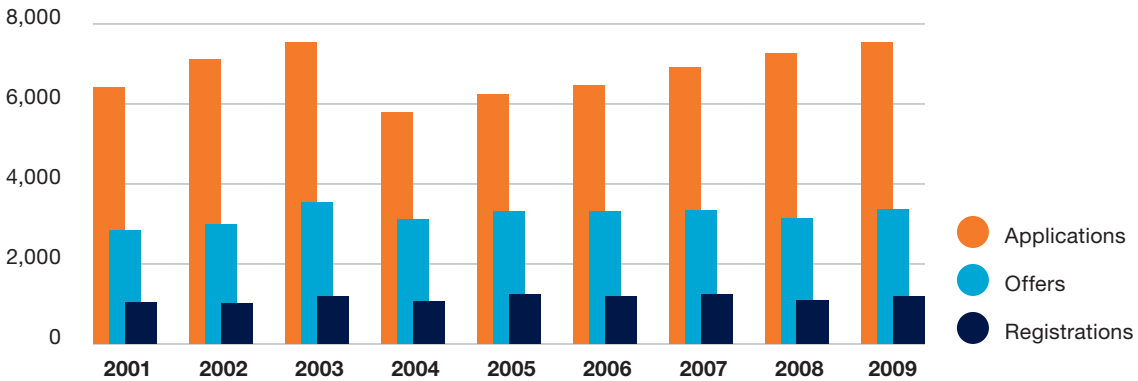
The Faculty is benefiting from larger numbers of women and international students, the result of our efforts to increase diversity. Since 2007, we have also increased the number of domestic students who have lived abroad. Diversity in our student population is also reflected in our student clubs, which includes a number of cultural associations. This brings global perspectives into our classrooms and enhances student learning experiences during their time here.

We offer a range of opportunities for undergraduates to gain professional and research experience through such initiatives as the Professional Experience Year internship and summer research placements. During these experiences, students work closely with industrial leaders, business professionals and top researchers to apply their knowledge and skills outside of the classroom. These pursuits fortify our students' education, allowing them to enter an increasingly competitive job market as well-versed engineering professionals.

Through involvement in the Faculty's pre-university outreach programs, our students also gain valuable teaching and leadership experience while helping educate and inspire the next generation of global engineers. These programs forge connections between the Faculty and the community, building relationships with prospective students from around the world.

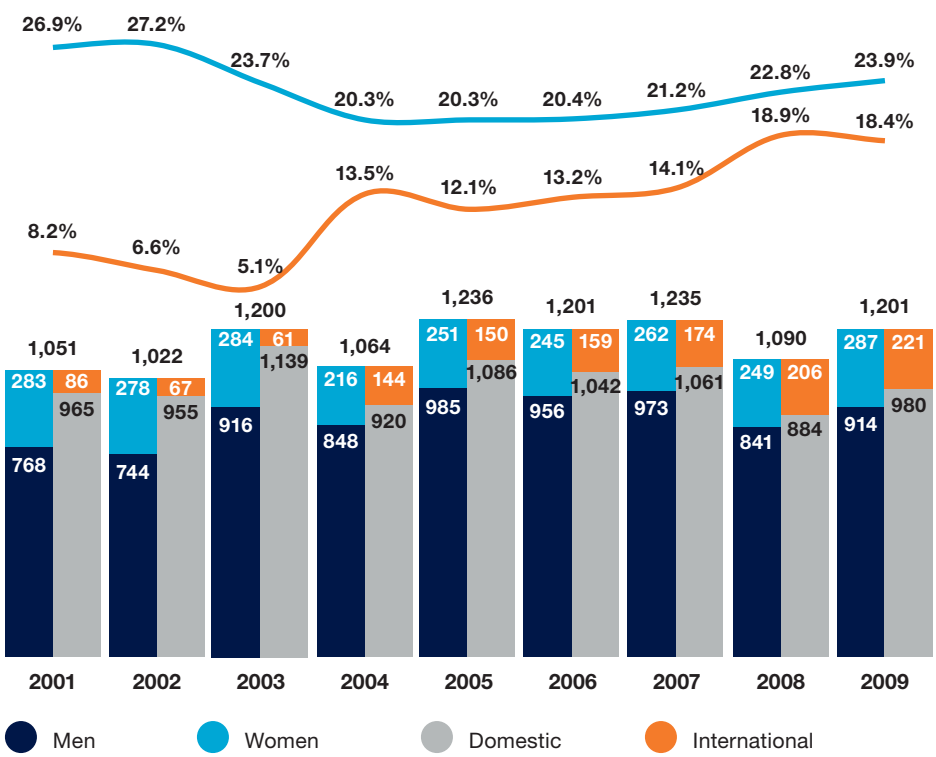
Figure 3.1
Applications, Offers, Registrations, Selectivity and Yield of First Year Undergraduates 2001 to 2009

In 2009, after five years of steady increase, the number of undergraduate applicants reached a similar level as the 2003 double cohort year. This larger pool of applicants allows our Faculty to be more selective* in our admission offers. While the number of offers is at its highest since 2003, the proportion of those students who accept our offers (yield rate**) remains around one-third across all years.



	2001	2002	2003	2004	2005	2006	2007	2008	2009
Applications	6,339	7,026	7,454	5,715	6,163	6,383	6,829	7,185	7,446
Offers	2,822	2,965	3,513	3,094	3,290	3,276	3,300	3,107	3,329
Registrations	1,051	1,022	1,200	1,064	1,236	1,201	1,235	1,090	1,201
Selectivity	0.45	0.42	0.47	0.54	0.53	0.51	0.48	0.43	0.45
Yield	0.37	0.34	0.34	0.34	0.38	0.37	0.37	0.35	0.36

Figure 3.2
First Year Undergraduate Headcount with Percentage of Women and International Students 2001 to 2009



Our sustained outreach and student recruitment efforts, combined with an increase of women Engineering faculty members, have resulted in an upward trajectory in gender diversity in our Faculty. Our 2009 incoming undergraduate class included the highest number of women in the Faculty's history and, over the past four years, a consistent increase in the proportion of women in First Year. The total number of First Year international students also reached an all-time high of 221 in 2009, up from 206 in 2008. Together, these trends reflect the positive outcome of the Faculty's ongoing efforts to increase diversity within our students and faculty, and to broaden representation from across the world.

Note 3.1: Throughout this chapter, all student enrolment counts are shown as of the official November 1 count. Applications and offers are for fall admission cycle. (*) Selectivity = Offers ÷ Applications; the proportion of applicants who were offered admission.
(**) Yield = Registrations ÷ Offers.

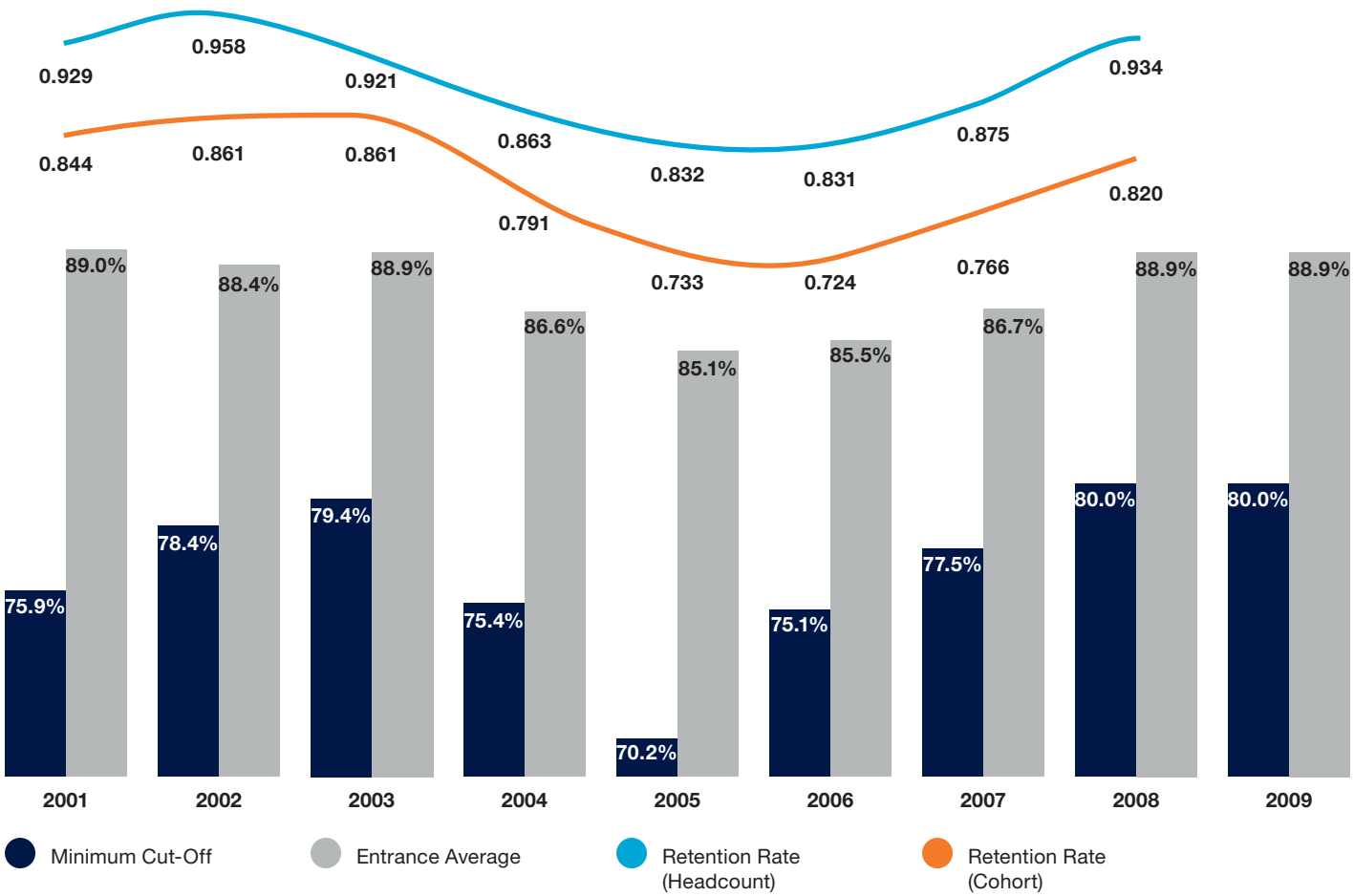
Figure 3.3
Ontario Secondary School Averages of Incoming First Year Undergraduates and Retention Rates Between First and Second Year with Minimum Cut-Off 2001 to 2009

Our Faculty continues to attract academically strong students. The entrance averages have improved steadily since 2006. Our 2009 First Year students sustained an overall entrance average of 88.9%. While the minimum cut-off grade (the average of the ten lowest Ontario Secondary School entering grades among all students who were admitted in a given year) remained at 80.0%, many of our undergraduate programs have significantly higher cut-off entering grades.

Observing the drop in minimum cut-off grade and entrance average in 2004 and 2005, and the resulting decline in retention rates, the Faculty implemented several initiatives to reverse the trend. Since 2006, a more selective admission of students with stronger academic records has yielded First Year students who are better prepared to flourish in the Faculty's intellectually challenging environment.

In addition, we have created support programs for First Year students to prepare them for the rigour of our engineering education. For example, Success 101 helps incoming students navigate the transition from high school to university with bridging and study skills programs offered both during the summer before they arrive and throughout the academic year. ReFresh and the T-Program support those whose grades fall below minimum levels, enabling many of them to re-enrol in Engineering.

Figure 3.3 also demonstrates the results of these efforts, shown by an increase in the retention of First Year students into Second Year of their studies. Headcount retention rate represents the total number of students registered in Second Year on November 1 divided by the number of students in First Year one year earlier. The cohort retention rate shows the actual number of First Year students from any particular entering class who are registered in Second Year the following November 1. Our students who re-enrol in First Year, and those who delay their entry into Second Year, constitute the difference between these two rates.



Note 3.3: Entrance Average is calculated based on Ontario Secondary School students.

Figure 3.4
First Year Domestic and International Undergraduate Headcount
2005 to 2009

In addition to the rise in our international student population, Figure 3.4 highlights the growing proportion of our domestic students who join the Faculty from outside of Ontario. In particular, there is a growing enrolment of domestic students who come back to Canada after having lived abroad; in 2009, they constituted 5.7% of our incoming class. The rising proportion of international students, out of province students and Canadian students from abroad brings global perspectives into our classrooms, enriching all our students' learning experiences.

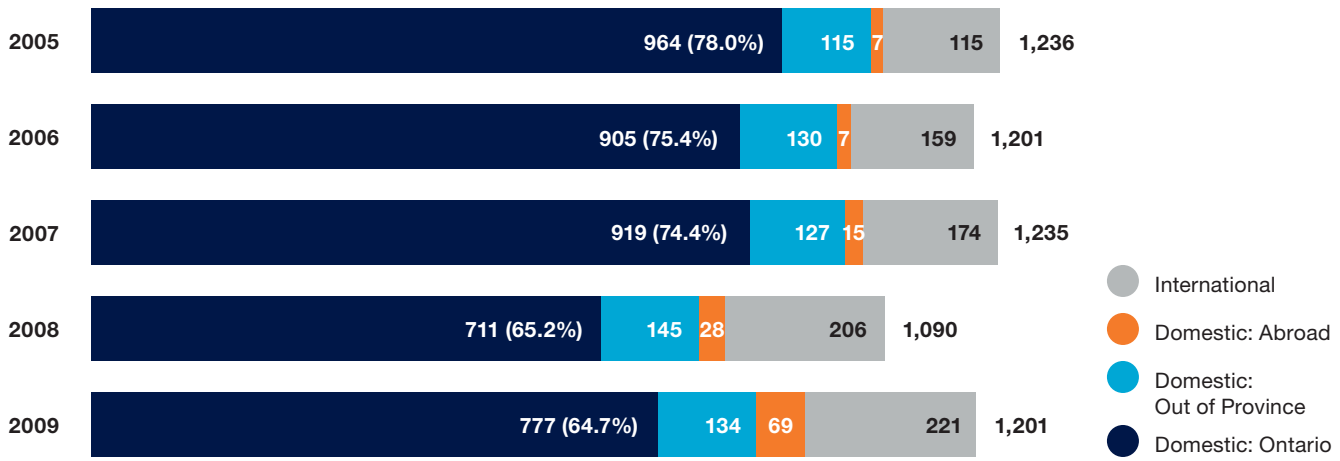
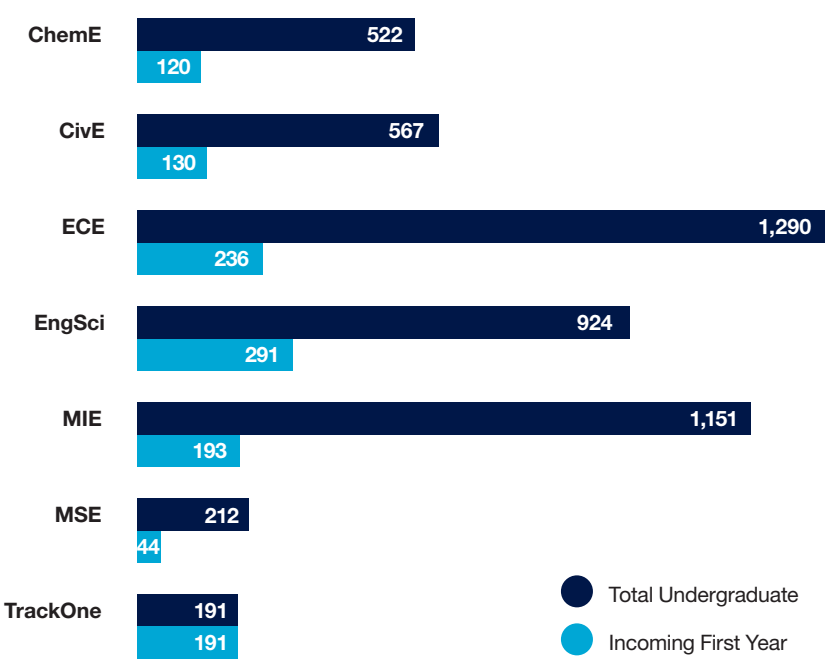


Figure 3.5
Incoming First Year and Total Undergraduate Headcount by Academic Area
Fall 2009

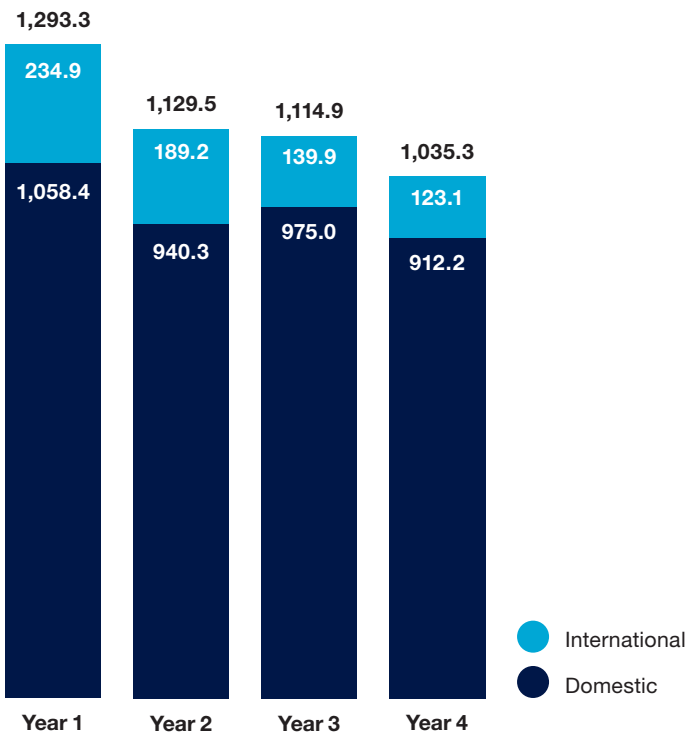


In 2009, 60% of our incoming students chose one of the Core 8 Engineering programs (Chemical, Civil, Computer, Electrical, Industrial, Materials Science, Mechanical, Mineral) for First Year studies. A further 24% entered Engineering Science and 16% selected TrackOne, a general First Year in Engineering. The popularity of TrackOne continues to grow (Figure 3.7) as more students opt for the flexibility of choosing their area of study at the end of First Year.

All Engineering Science students follow a common curriculum during their first two years, after which they select one of the eight majors available to them for years three and four: Aerospace; Biomedical; Electrical and Computer; Energy Systems; Engineering Mathematics, Statistics and Finance; Engineering Physics; Infrastructure; and Nanoengineering. At several points during their first year, Engineering Science students also have the option of transferring into one of our Core 8 programs.

Note 3.4: Domestic students are defined as citizens or permanent residents of Canada.
Note 3.5: For the purpose of the Annual Report, "Academic Area" refers to these departments, divisions and institutes: UTIAS, IBBME, ChemE, CivE, ECE, MIE and MSE. While TrackOne is not an academic unit or an academic program, it is also included as an academic area in Chapter 3. Please refer to the Glossary for a full list of academic terms used in the Annual Report.

Figure 3.6a
Full-Time Equivalent Undergraduates by Year of Study
Fall 2009



In fall 2009, 4,573 full-time equivalent (FTE) students comprised the largest undergraduate population in our Faculty's history. This was due to three main factors: a larger yield on offers than forecasted; an increase in retention rates for First Year students; and fewer students in the Professional Experience Year program due to the economic recession. Going forward, our goal is to reduce our student intake to reach an undergraduate population of 4,000 FTE students.

The Faculty also had the most international students to-date, reflecting a 22.2% increase over the fall 2008 count. This upward trend suggests that our targeted recruitment efforts in regions outside of North America have been effective in promoting our Faculty as an international leader in engineering education and research, ultimately fulfilling the Faculty's ongoing commitment to diversity in our classrooms.

Figure 3.6b
Full-Time Equivalent Undergraduates
Fall 2001 to Fall 2009

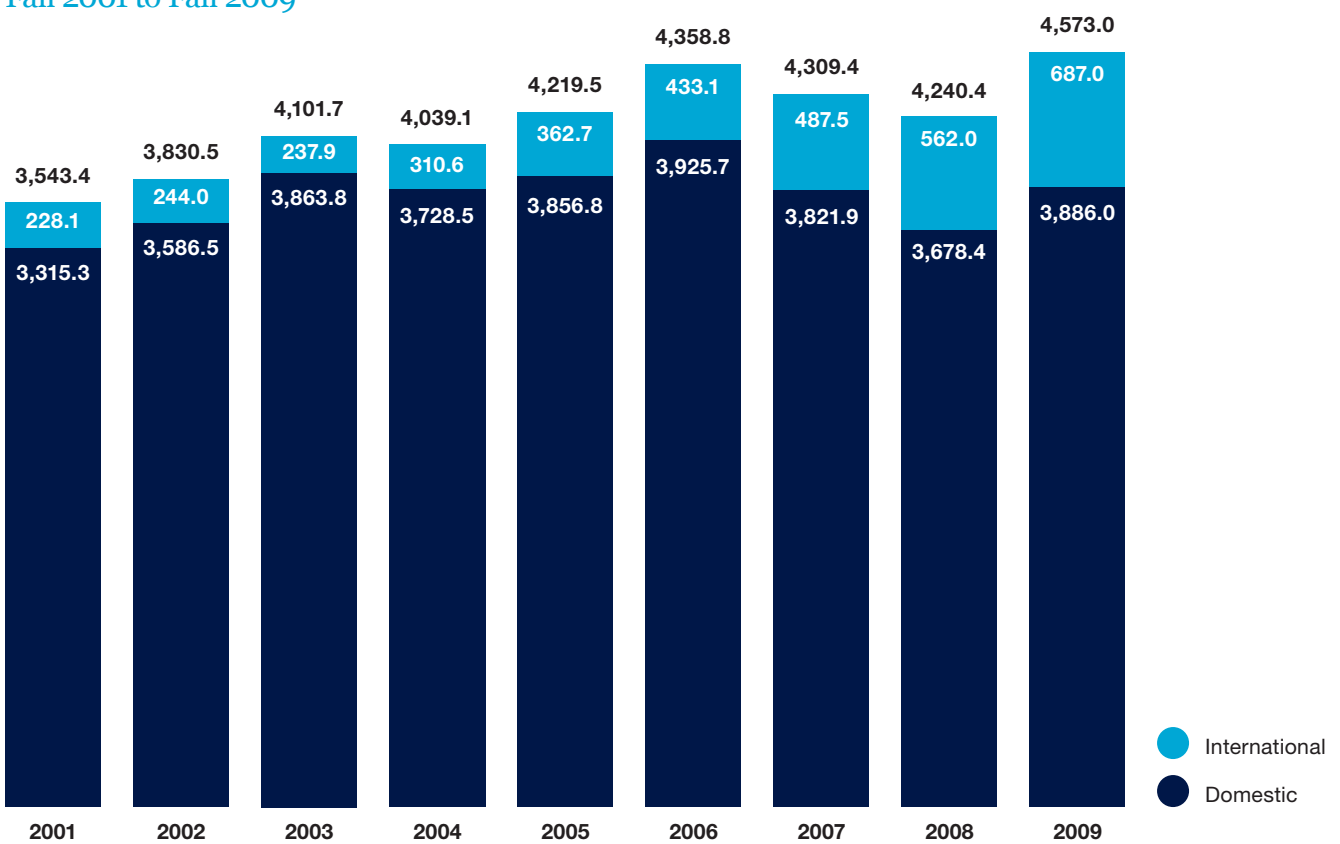


Figure 3.7
Undergraduate Headcount by Academic Area
2001 to 2009

The circles in Figure 3.7 illustrate our undergraduate student body by academic area over time. In 2009, our student population was up by roughly 4% over the previous year, and by 34.7% since 2001. As a proportion of the total First Year class, TrackOne has nearly doubled since its launch in 2007. While Electrical and Computer Engineering remained the largest undergraduate department over the past nine years, Mechanical and Industrial Engineering experienced the most significant increase in the proportion of students since 2001.

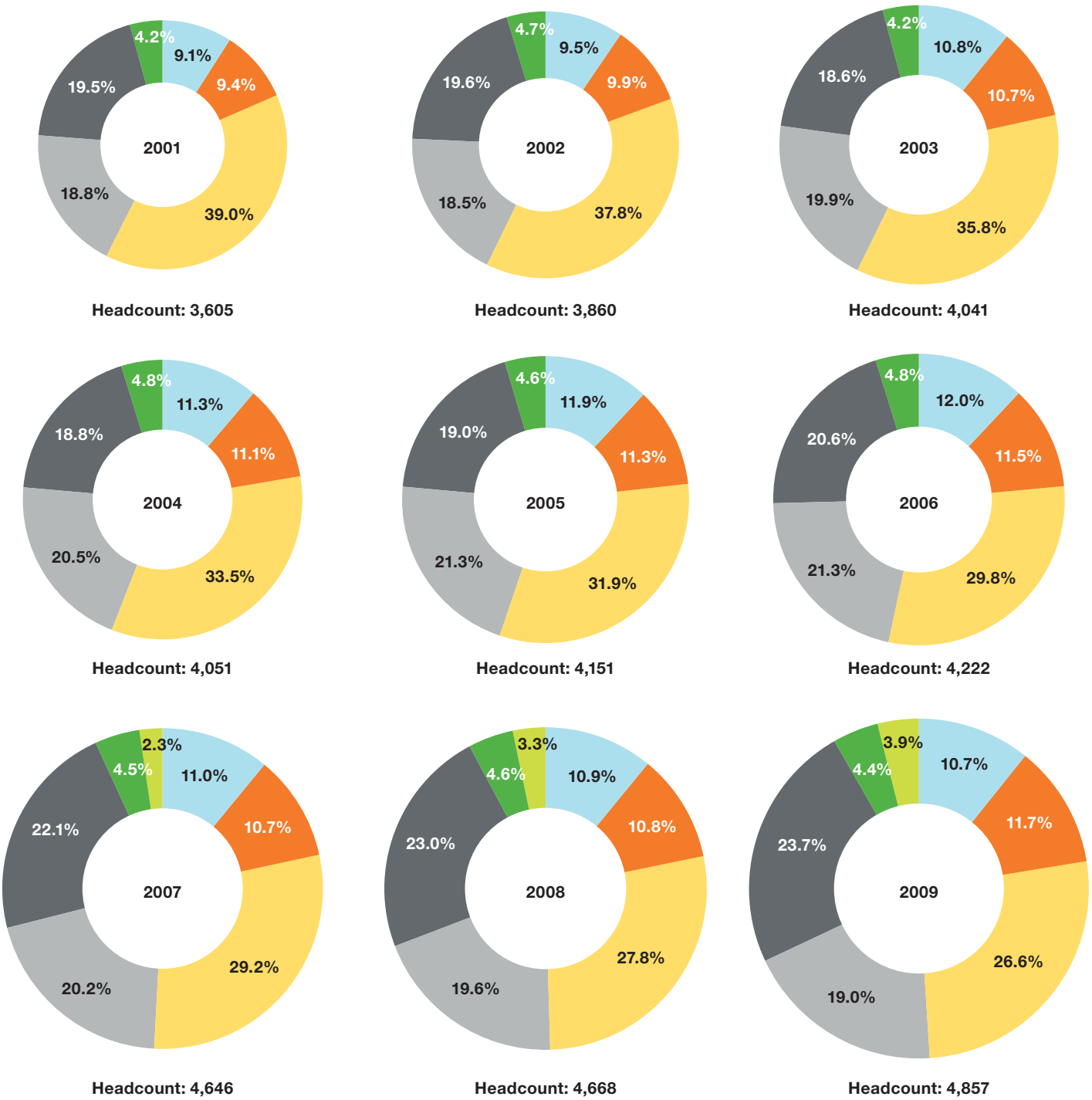


Figure 3.8a
Undergraduate Degrees Awarded by Academic Area
2001–2002 to 2009–2010

The high number of degrees granted in 2006–2007 reflects the graduation of the double cohort of students who entered in 2003–2004. Those who chose to pursue the PEY program graduated the following year. Our Faculty currently awards two types of degrees at the undergraduate level: Bachelor of Applied Science (BASc) and Bachelor of Applied Science in Engineering Science (BASc EngSci). Within each academic year, convocations occur in November, March and June, with the vast majority of undergraduate students graduating in June.

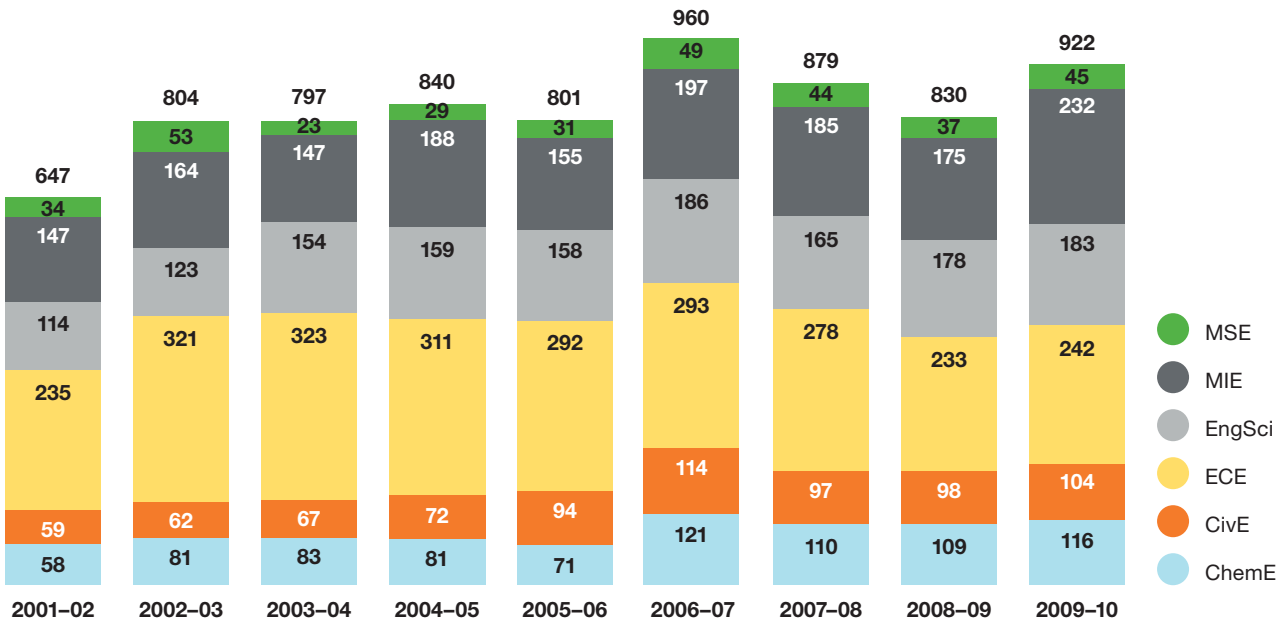
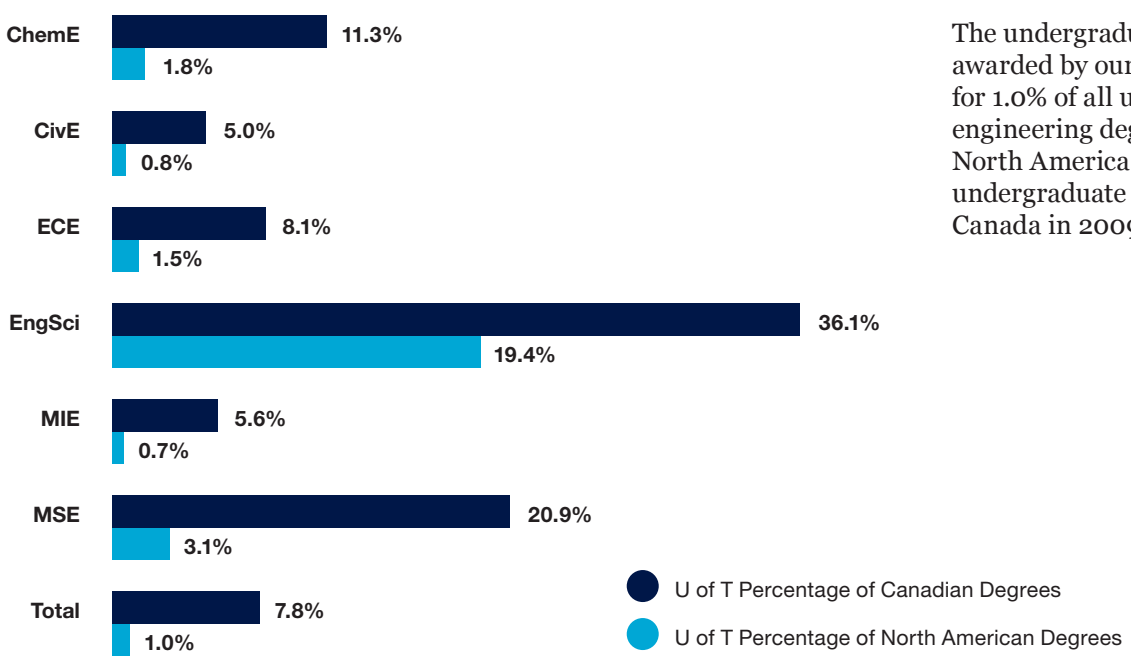


Figure 3.8b
U of T Engineering Degrees Awarded by Academic Area Compared with Canadian and North American Degree Totals
2009



The undergraduate degrees awarded by our Faculty accounted for 1.0% of all undergraduate engineering degrees awarded in North America and 7.8% of all undergraduate degrees awarded in Canada in 2009.

Note 3.8b: Data sourced from reports produced by Engineers Canada and the American Society of Engineering Educators. Total percentages represent all engineering degrees awarded in North America, including those in fields that are not specifically identified at U of T.

Figure 3.9
Undergraduate and Graduate Full-Time Equivalent Student-Faculty Ratios
2001–2002 to 2009–2010

A key feature of an Engineering education at U of T is the opportunity to interact with our internationally renowned faculty. Our commitment to continue renewing and expanding our faculty complement is demonstrated by a 14% increase since 2001–2002 (Figure 9.3). Nevertheless, in all programs, rising student enrolment has outpaced faculty growth.

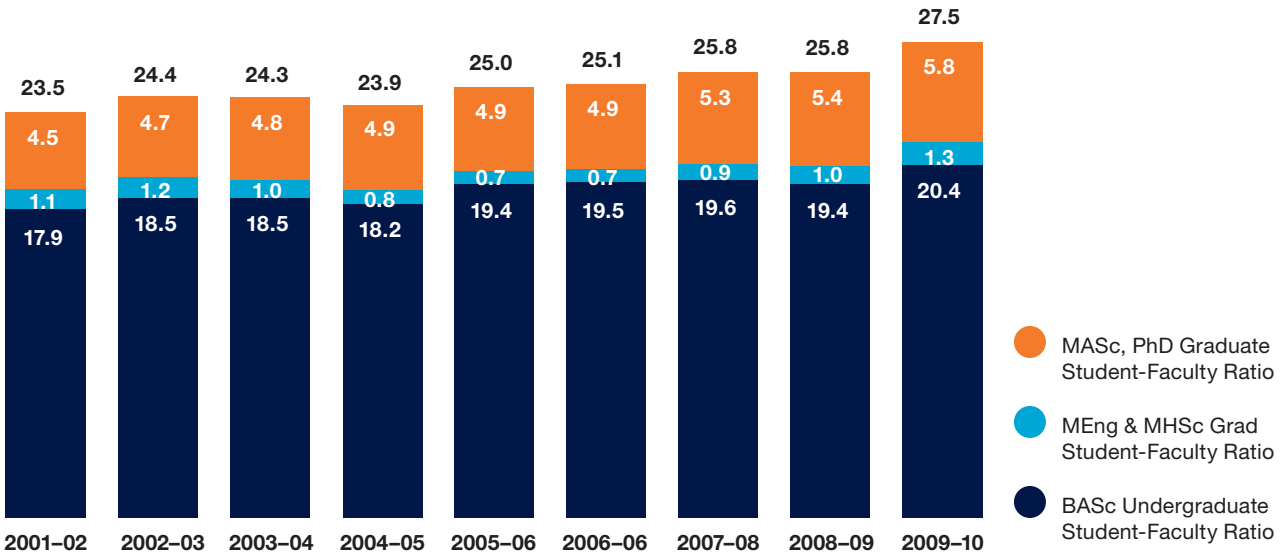


Figure 3.10
Undergraduate Course Teaching Evaluations by Academic Area
Fall 2005 to Winter 2010

At the end of each term, all students are encouraged to complete a teaching evaluation for each of their courses. Most of the 28 questions are scored out of seven, including the evaluations in Question 16, shown here, which asks students to provide their "overall rating of this instructor as a teacher."

	Fall 2005	Winter 2006	Fall 2006	Winter 2007	Fall 2007	Winter 2008	Fall 2008	Winter 2009	Fall 2009	Winter 2010
First Year	5.18	5.22	5.21	5.36	5.16	5.27	5.38	5.43	5.37	5.30
UTIAS	5.35	5.65	5.38	5.60	5.53	5.47	5.50	5.29	5.57	5.56
ChemE	5.26	5.18	5.39	5.24	5.28	5.39	5.44	5.18	5.51	5.37
CivE	5.45	5.50	5.52	5.25	5.53	5.18	5.57	5.36	5.49	5.16
ECE	5.59	5.36	5.47	5.42	5.68	5.66	5.57	5.57	5.68	5.71
MIE	5.31	5.27	5.19	5.28	5.45	5.20	5.46	5.39	5.49	5.28
MSE	5.19	4.85	5.22	5.10	5.24	5.19	5.34	5.37	5.61	5.28
Other	5.08	5.08	5.22	5.07	5.54	5.21	5.62	5.47	5.52	5.56
Faculty Average	**5.32**	**5.25**	**5.33**	**5.30**	**5.42**	**5.34**	**5.48**	**5.40**	**5.52**	**5.39**

Note 3.9: Student-Faculty ratio calculations include Assistant Professors, Associate Professors and Professors.
Note 3.10: Except for First Year, in which courses are taught by instructors from different departments, the evaluation results above are tabulated according to the home department or institute of the instructor, including those courses taught for Engineering Science. Mineral Engineering courses are included within CivE. "Other" includes courses in Years 2 to 4 with the following designations: APS (Faculty of Applied Science & Engineering), BME (Institute of Biomaterials & Biomedical Engineering), MAT (Department of Mathematics), PHY (Department of Physics), CSC (Department of Computer Science), STA (Department of Statistics), and HPS (Institute for the History of Philosophy of Science and Technology), as well as EngSci Option Seminars, Capstone courses and Theses.

Engineering Student Clubs and Teams

Student life in Engineering is as dynamic and diverse as our students. A full list of student clubs—athletic, cultural, performance, design, social, publications and more—can be found in the Appendix. Supported by the Engineering Society, the following clubs and teams enjoyed notable achievements in 2009–2010.

Canadian National Concrete Canoe Competition (CNCCC)

- Hosted 16th annual competition
- Placed fifth among eleven universities from across Canada and third in the Final Product category
- Designed the lightest canoe for the fourth competition in a row, weighing less than 50 kg

Chinese Engineering Students' Association (CESA)

- Not-for-profit organization dedicated to promoting Chinese culture, friendship and communication to its diverse membership
- One of the largest student clubs within U of T Engineering
- Celebrated its 36th anniversary

Eyes of Hope

- Works to alleviate poverty by building resources in local and international communities and raising funds for charity
- Built a school in Sierra Leone
- Contributions to-date: $8,500 to Free the Children, $16,400 to Habitat for Humanity and $2,700 to World Vision
- Currently expanding charitable initiatives for the homeless

Great Northern Concrete Toboggan Race

- Placed ninth of 20 teams in the Great Northern Concrete Toboggan Race in Hamilton, Ontario, Canada
- Earned second-place finish in the CIRCA Award for Most Effective Use of Fly Ash in Concrete; placed third in Braking/Frame Design, fifth for spirit and seventh for Best Technical Report

Human Powered Vehicle Design Team

- Designs and builds streamlined bicycles
- Placed third at the 2010 American Society of Mechanical Engineers Human Powered Vehicle Challenge
- Set the second-highest world speed record for Collegiate Teams (102 km/h) and acheived the fastest Women's Collegiate Speed Record (89 km/h) during their debut at the World Human Powered Speed Challenge in Battle Mountain, Nevada

Iron Dragons

- Placed first at the Milton Dragon Boat Festival
- Took third place in the University Cup and in the D Division final at the Toronto International Dragon Boat Race Festival
- Preparing to compete at the Montreal International in July 2011 and the Great White North Challenge in September 2011

Undergraduate Engineering Research Day (UnERD)

- Annual, student-run undergraduate conference where students present their summer research in a competition-style forum
- More than 70 students presented their research at UnERD in August 2010, at which Professor Yu-Ling Cheng (ChemE) gave the keynote address

U of T Engineering First Responders (UTEFR)

- Provided first-aid coverage for National Engineering Month events, U of T Engineering Kompetitions, U of T Science Rendezvous and the Varsity Blues Mountain Biking Team
- Participated in the National Conference of Campus Emergency Response
- Acquired an Automated External Defibrillator

U of T Engineering Toastmasters (UTET)

- Provides training to Engineering students in all forms of public speaking
- 50 Engineering students attended an information session in July 2010 with Accenture Co.
- Ranked as one of the top five Toastmaster clubs in the Greater Toronto Area
- Received the top award from Toastmasters International for three consecutive years

U of T Robotics Association (UTRA)

- Won gold medal at the 2010 RoboGames in California in the 120-pound weight class
- Competes in several categories: Sumo Robots, Robot Fire Fighting, Robot Soccer, Autonomous Robot Racing, 3D Printers
- Hosts a UT-FIRST mentorship program with 150 members

Pre-University Engineering Outreach

Since fall 2009, the Engineering Student Outreach Office (ESOO) supports the delivery of outreach activities by students, staff and faculty in the Faculty of Applied Science & Engineering. ESOO is now the Faculty's central unit for outreach activities, promoting Science, Technology, Engineering and Math (STEM) education to a range of audiences. The office designs and delivers pre-university programs and coordinates activities with student clubs, faculty members and within academic areas. Engineering community outreach programs increase the profile of our Faculty locally, and serve several important goals of the Faculty:

Educate and Inspire the Next Generation of Global Engineers

Each year, hundreds of Grades 7 to 12 students participate in our pre-university outreach programs. Da Vinci Engineering Enrichment Program (DEEP) Summer Academy, for example, teaches high school students about topics based on U of T Engineering research. In July 2010, 370 high school students participated in DEEP Summer Academy, where 24.1% were women and 22.0% came from outside of Canada, largely from South Korea, the United States, Turkey, Hong Kong and Venezuela.

Many outreach initiatives are designed to inspire interest in engineering among populations typically underrepresented in the profession, including women, Aboriginal and African-Caribbean communities. Through a grant from the Ontario Ministry of Training, Colleges and Universities, we offered 17 full scholarships to students from Aboriginal communities to participate in Jr. DEEP.

Build Leadership and Professional Skills in Current Engineering Students

All pre-university outreach programs are coordinated and taught by U of T Engineering students. In 2009, 37 Engineering graduate students taught DEEP Summer Academy courses, while 29 undergraduate students served as teaching assistants and coordinators. Through these teaching opportunities, our students develop invaluable leadership and professional skills while playing an active role in educating youth and building ties within Toronto's communities.

Attract Qualified Students to Undergraduate Studies at U of T Engineering

Students in our outreach programs are often high academic achievers with an aptitude for and interest in engineering. As they learn in an interactive setting, they form ties to our Faculty, facilities and students. This bond affects the choices they make for university studies. For example, in 2009, 17 DEEP Summer Academy students applied for undergraduate studies at U of T Engineering; 13 were offered places and nine of those accepted their offers of admission.

Promote Positive Relationships Between the Faculty and our Community

Our outreach programs help develop meaningful and reciprocal partnerships with community organizations. For instance, in partnership with Visions of Science, we offered engineering programming to underrepresented groups including Aboriginal and African-Caribbean communities in Toronto. Youth taking part in our outreach programs also have the opportunity to learn about the application of engineering and technology from industry partners such as General Electric Canada.

In 2009–2010, the Faculty offered five pre-university programs:

1. **DEEP (Da Vinci Engineering Enrichment Program) Summer Academy**, an advanced summer program for domestic and international high school students
2. **ENGage**, a week-long summer program in cooperation with the U of T Chapter of the National Society of Black Engineers (NSBE), for students in Grades 7 and 8 from local African-Caribbean communities
3. **Go Eng Girl**, an interactive one-day event for girls in Grades 7 to 10 featuring hands-on activities, workshops and guest speakers
4. **Jr. DEEP**, a summer program for Grade 7 and 8 students showing an aptitude for math and science, including a stream for students from local First Nation and Aboriginal communities
5. **Let's Talk Science**, a partnership with Stem Cell Network, is a full-day symposium for senior-level high school students to discuss stem cell biology and stem cell banking with leading scientists and ethicists
6. **Saturday Science and Engineering Academy**, a fall and spring program for students in Grades 7 to 12

Engineering Career Centre

Since 1979, the Engineering Career Centre has supported our students' career development through a breadth of programming, including the Professional Experience Year (PEY), Engineering Summer Internship Program (eSIP) and Infrastructures Opportunity Program (IOP).

The PEY internship program provides student opportunities to work in industry or business for 12 to 16 months after their second or third year of study. The global economic recession resulted in a decline in co-op and internship opportunities for students during 2009–2010, including some students who were let go after starting their PEY placements. More than 80% of the displaced students were able to complete their internships at other companies. Relative to other engineering internships of the same length, our own PEY program was the least affected by the economic downturn, experiencing a 14% placement drop from 2008–2009 to 2009–2010, compared to 35% in Canada's second-largest internship program.

Figure 3.11a
PEY Internship Placements for Engineering Students
2004–2005 to 2009–2010

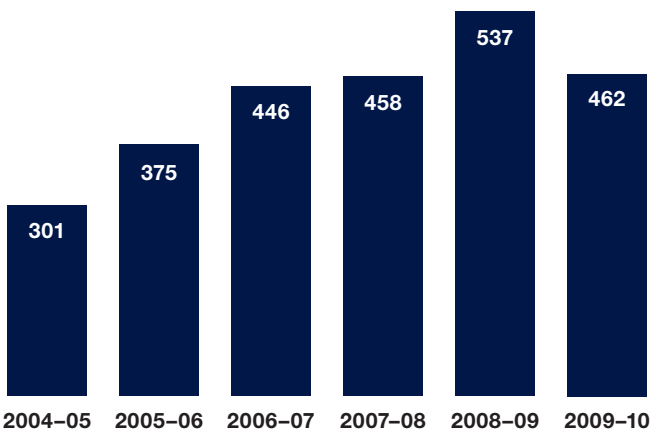


Figure 3.11b
Canadian and International PEY Internship Placements for Engineering Students
2004–2005 to 2009–2010

	Canadian Placements	International Placements
2004–05	275	26
2005–06	348	27
2006–07	423	23
2007–08	427	31
2008–09	490	47
2009–10	426	36

Summer Research Opportunities

Figure 3.12
Undergraduate Participation in Summer Research Opportunities
Summer 2010

	Local Research Participation	International Research Participation	Total Research Participation
ChemE	66	3	**69**
CivE	9	2	**11**
ECE	70	2	**72**
EngSci	8	17	**25**
MIE	27	2	**29**
MSE	21	0	**21**
Total	**201**	**26**	**227**

Each summer, many of our undergraduate students work alongside faculty members from our departments, divisions and institutes to gain engineering research experience. During the summer of 2010, 227 Engineering students contributed to ongoing research projects both locally and abroad.

Note 3.12: Of the 227 students listed above, 20 undergraduates were hosted by UTIAS and 16 undergraduates were hosted by IBBME. Some EngSci students have been included in the local research participation reported for ChemE. Twenty-four international research opportunities were coordinated by the University's Centre for International Exchange; the remaining two were coordinated by the Engineering Science Research Opportunity Program.

4. Graduate Studies

As one of the top engineering schools in the world, our Faculty attracts exceptional students to our research and professional graduate programs. Through their studies and research activities with top scholars, as teaching assistants, and in the relationships they cultivate, our students graduate as leaders and agents of change, advancing knowledge and technological innovation.

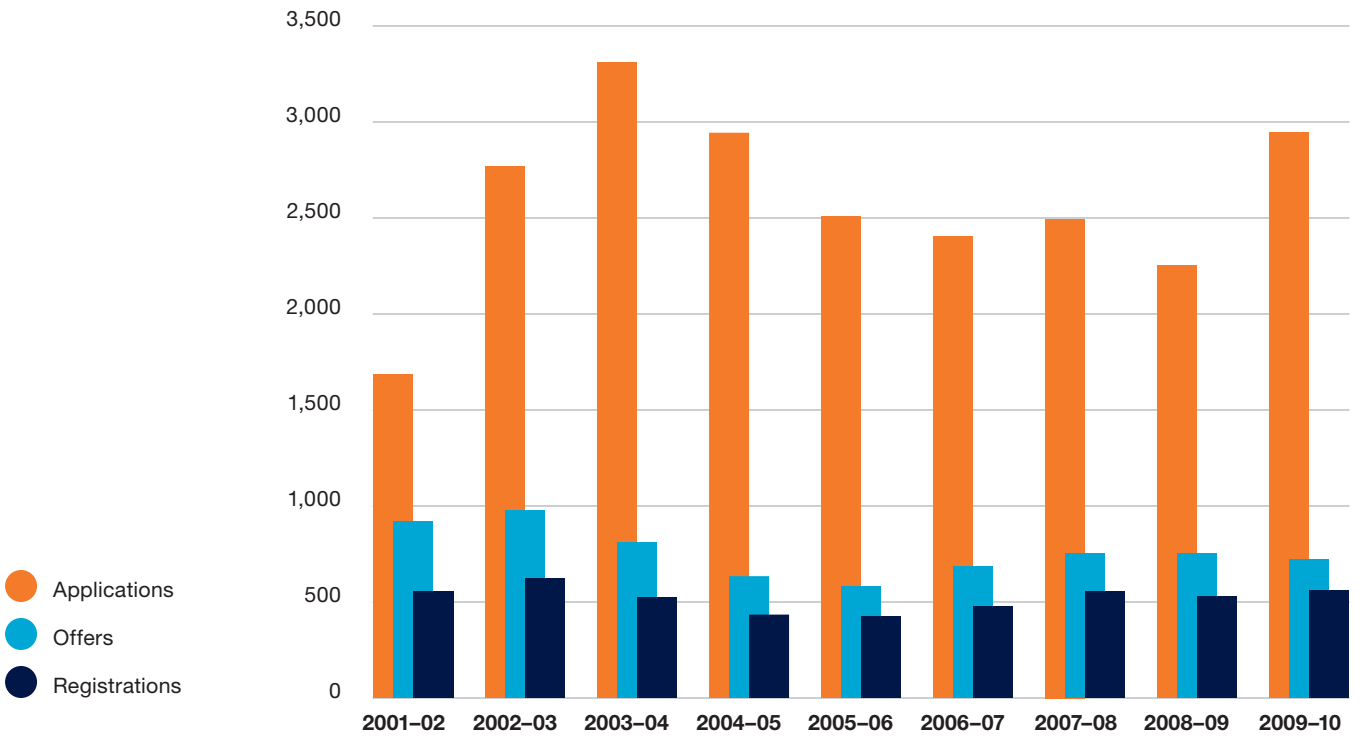
In 2009–2010, our Faculty experienced increases in graduate student applications, enrolment, degrees awarded and overall graduate student funding. The Faculty's vigorous recruitment efforts have produced a rising trajectory in enrolment since 2006. The combination of increased applications and record yield rates resulted in a peak number of graduate students entering our programs, exceeding the previous year by 25%.

We continue to enhance and expand our MEng program. In addition to the two existing certificate programs in Entrepreneurship, Leadership, Innovation and Technology in Engineering, and in Engineering and Public Policy, we launched a new MEng certificate in Engineering and Globalization, enabling our students to take a global perspective in their professional masters degree. 2010 also marked the graduation of the first cohort of the joint MEng program with the Stronach Centre for Innovation, a collaborative initiative between our Faculty and Magna International Inc. that was launched in 2008.

Although there were fewer total scholarships available due to faltering global markets in 2009–2010, this was balanced by the Faculty's record number of awards from the Natural Sciences and Engineering Research Council (NSERC), and through increased faculty research funding to students. Starting in 2006–2007, we established processes whereby exceptional MASc students can fast-track to a PhD program. Fast-tracking, along with our strategic recruitment efforts, has yielded the largest number of PhD students in our Faculty's history to a total of 676, an 11% growth in the past year.

Figure 4.1a
Applications, Offers, Registrations, Selectivity and Yield of Graduate Students
2001–2002 to 2009–2010

The total number of applications to our graduate programs rose by one third in 2009–2010 compared to the year before. While all graduate programs experienced increases, the PhD and MASc programs had the highest year-over-year surge of applicants, with 41% and 35% respectively. At the same time, the number of students who applied to the MEng program reached the highest ever.



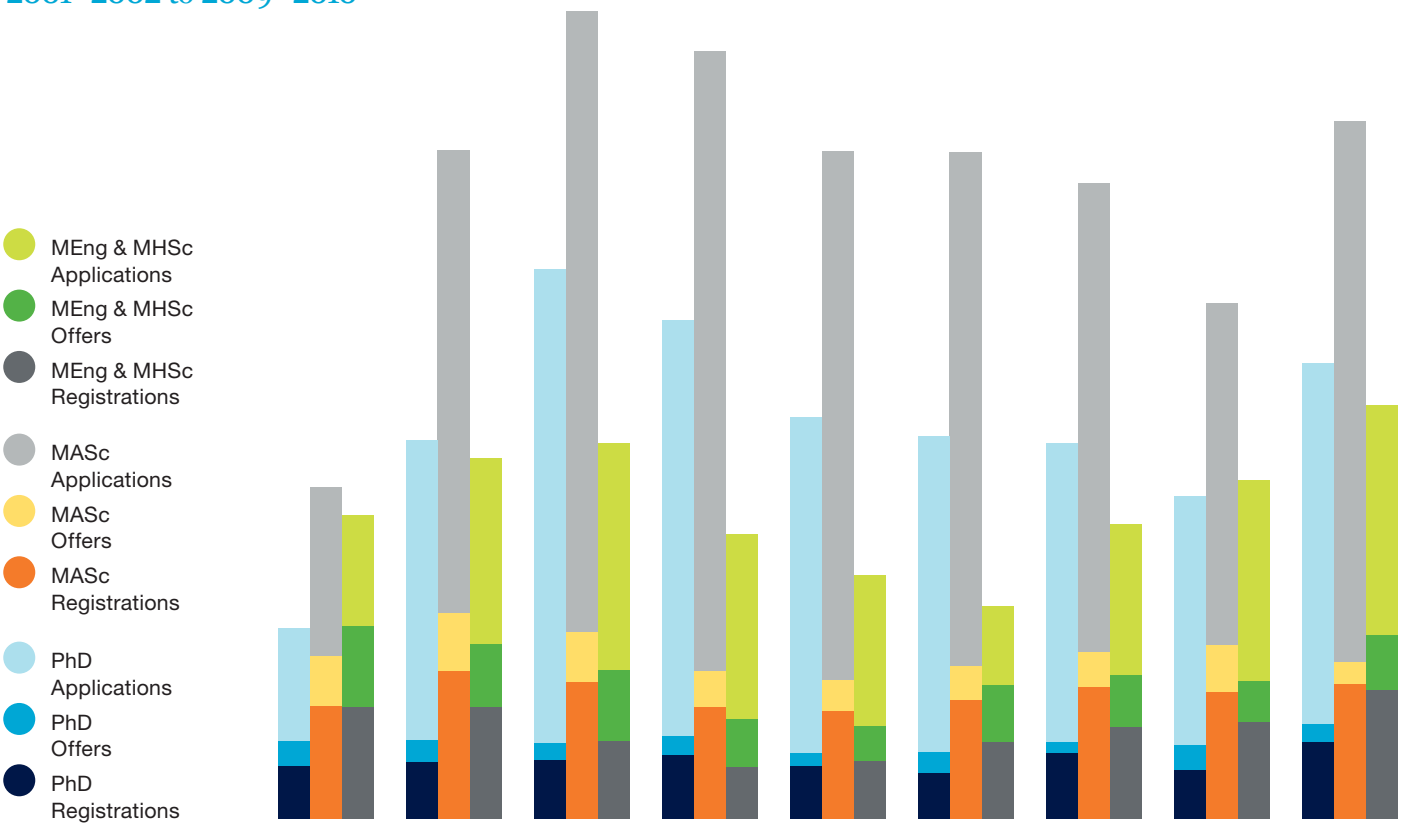
	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Applications	1,562	2,668	3,285	2,939	2,489	2,391	2,475	2,230	2,968
Offers	820	871	782	628	565	669	735	732	825
Registrations	527	602	517	432	416	461	549	519	647
Selectivity	0.52	0.33	0.24	0.21	0.23	0.28	0.30	0.33	0.28
Yield	0.64	0.69	0.66	0.69	0.75	0.69	0.75	0.71	0.78

As shown in Figure 4.1b, the yield on our offers of admission to both masters degree programs met or exceeded all-time high levels. PhD yield was also up sharply over the previous year. The combination of increased applications, the most offers since 2002–2003, and record yield rates, meant that the number of graduate students who entered our programs in 2009–2010 exceeded the previous year by 25%.

This overall trend is partly due to the enhanced profile of our Faculty and our graduate programs among prospective students. During the 2009–2010 academic year, we attended ten graduate fairs, updated our marketing materials and created a more cohesive online presentation of graduate studies on the Faculty website, launched in April 2010. In addition to our enhanced recruitment efforts, the increases, particularly for MEng students, could be attributable to more employment-seeking professionals wishing to upgrade their skills and qualifications in an increasingly competitive job market impacted by the recent economic downturn.

Note 4.1a: Throughout this chapter, all graduate student enrolment counts are shown as of the official November 1 count. Applications and offers represent a full-year admission cycle. Selectivity = Offers ÷ Applications; the proportion of applicants who were offered admission. Yield = Registrations ÷ Offers; the proportion of students who accept our offers.

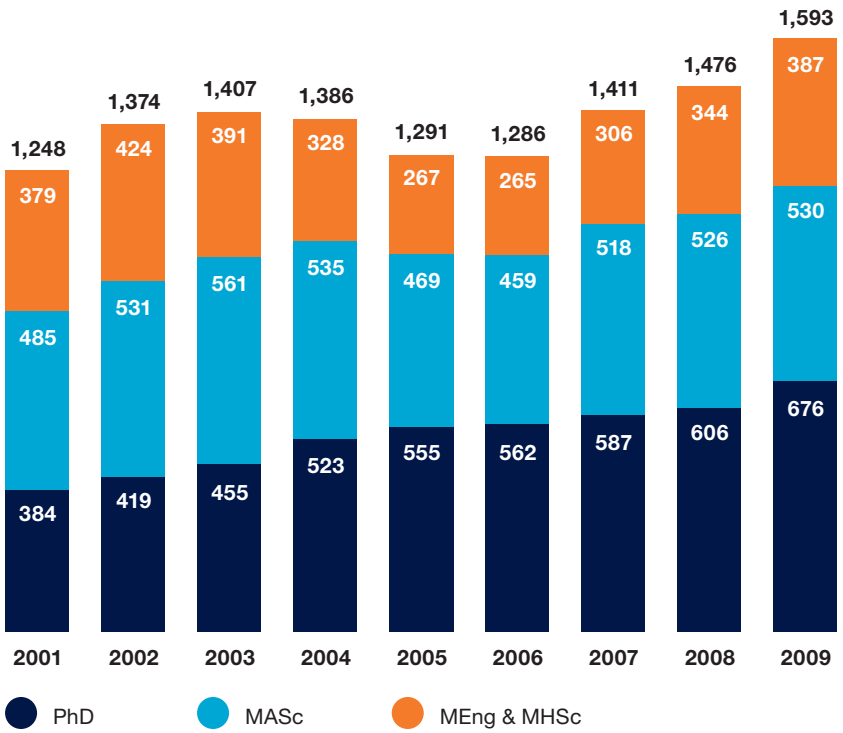
Figure 4.1b
Applications, Offers, Registrations, Selectivity and Yield of Graduate Students by Degree Type
2001–2002 to 2009–2010



		2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Applications	**PhD**	360	717	1042	946	762	725	713	612	864
	MASc	628	1,268	1,532	1,455	1,265	1,263	1,205	977	1,322
	MEng & MHSc	574	683	711	538	462	403	557	641	782
Offers	**PhD**	148	150	145	158	125	126	148	141	181
	MASc	308	390	355	282	264	290	316	329	297
	MEng & MHSc	364	331	282	188	176	253	271	262	347
Registrations	**PhD**	101	109	111	121	101	88	125	94	147
	MASc	214	282	259	214	206	226	250	242	256
	MEng & MHSc	212	211	147	97	109	147	174	183	244
Selectivity	**PhD**	0.41	0.21	0.14	0.17	0.16	0.17	0.21	0.23	0.21
	MASc	0.49	0.31	0.23	0.19	0.21	0.23	0.26	0.34	0.22
	MEng & MHSc	0.63	0.48	0.40	0.35	0.38	0.63	0.49	0.41	0.44
Yield	**PhD**	0.68	0.73	0.77	0.77	0.81	0.70	0.84	0.67	0.81
	MASc	0.69	0.72	0.73	0.76	0.78	0.78	0.79	0.74	0.86
	MEng & MHSc	0.58	0.64	0.52	0.52	0.62	0.58	0.64	0.70	0.70

Note 4.1b: Selectivity = Offers ÷ Applications; Yield = Registrations ÷ Offers.

Figure 4.2a
Graduate Student Headcount by Degree Type
2001 to 2009



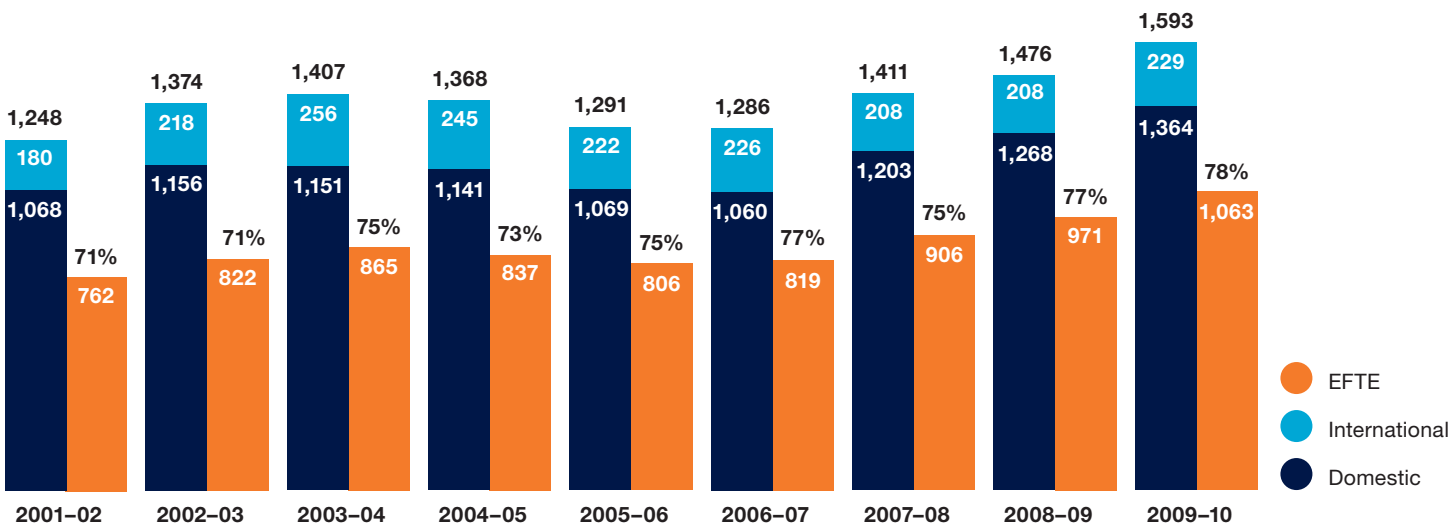
The Faculty's strategic efforts to increase the proportion of graduate students in our enrolment mix, combined with government incentives encouraging graduate expansion, have yielded a steady growth in our graduate population over the past four years, reaching 1,593 students in 2009, the highest in our history. During this period, our MEng and MHSc student population has grown by 46%, the PhD population by 20%, and the MASc population by 15%.

As noted in Figure 4.2a, enhanced recruitment efforts added to the prior trend to produce a particularly dramatic 8% increase in graduate enrolment in 2009 in comparison to 2008. The MEng and MHSc and PhD programs experienced the highest growth at 12% and 11% respectively.

Figure 4.2b
Graduate Students: International, Domestic and Eligible Full-Time Equivalent (EFTE)
2001–2002 to 2009–2010

In 2009–2010, our Faculty had the largest population of international graduate students of the past five years, a trend we aim to continue. International students bring a global perspective that enriches our students' experience and enhances our research endeavours.

The number of domestic students eligible for government funding (Eligible Full-Time Equivalent, or EFTE) has been on the rise since 2006–2007, roughly proportional to the overall increase in graduate students. Students who have exceeded the period of eligibility no longer attract government grants, and typically operating funds or additional research grants are required. The overall increase in the proportion of our graduate students who are eligible for grant funding is a positive trend that the Faculty hopes to continue.



Note 4.2a: All headcounts are as of November 1, the University's official enrolment reporting date.

Figure 4.3
Graduate Student Enrolment by Full-Time Equivalent (FTE) and Headcount (HC) by Academic Area 2001–2002 to 2009–2010

		UTIAS	IBBME	ChemE	CivE	ECE	MIE	MSE	Total
2001–02	FTE	68.2	15.0	153.3	175.9	310.4	293.7	57.2	**1,073.7**
	HC	71	15	161	213	372	356	60	**1,248**
2002–03	FTE	84.2	22.0	148.3	196.1	358.0	313.2	68.8	**1,190.6**
	HC	87	22	156	236	421	379	73	**1,374**
2003–04	FTE	89.9	48.0	159.4	184.2	383.6	228.5	77.0	**1,230.6**
	HC	92	48	165	222	441	355	84	**1,407**
2004–05	FTE	97.0	57.0	164.7	157.5	381.7	287.3	77.0	**1,222.2**
	HC	97	57	171	189	430	358	84	**1,386**
2005–06	FTE	85.3	52.0	142.1	150.4	380.5	278.8	71.1	**1,160.2**
	HC	86	52	147	170	428	332	76	**1,291**
2006–07	FTE	79.6	75.0	138.5	160.3	407.3	238.8	67.5	**1,167.0**
	HC	81	75	142	182	457	278	71	**1,286**
2007–08	FTE	105.0	115.0	150.0	183.3	438.1	227.3	71.2	**1,289.9**
	HC	105	115	157	212	478	270	74	**1,411**
2008–09	FTE	122.9	140.0	167.8	184.0	415.4	237.1	82.8	**1,350.0**
	HC	125	140	179	219	442	284	87	**1,476**
2009–10	FTE	130.6	153.0	209.1	200.2	421.5	284.3	70.4	**1,469.1**
	HC	132	153	221	238	453	320	76	**1,593**

Figure 4.4
Full-Time Equivalent (FTE) Graduate Student-Faculty Ratios by Academic Area and Degree Type 2009–2010

The student-faculty ratio calculations in Figure 4.4 include Assistant Professors, Associate Professors and Professors, and count FTE enrolments for graduate students in each academic area. IBBME is a uniquely interdisciplinary and widely collaborative unit that includes students from Engineering, Medicine and Dentistry. These students are supervised by faculty members from across Engineering, U of T, and numerous affiliated hospitals. When the students' advisors are from other Engineering units, the ratios in Figure 4.4 have been adjusted to reflect the shared efforts of the departments involved, and to emphasize the Faculty's strength in cross-disciplinary research and education.

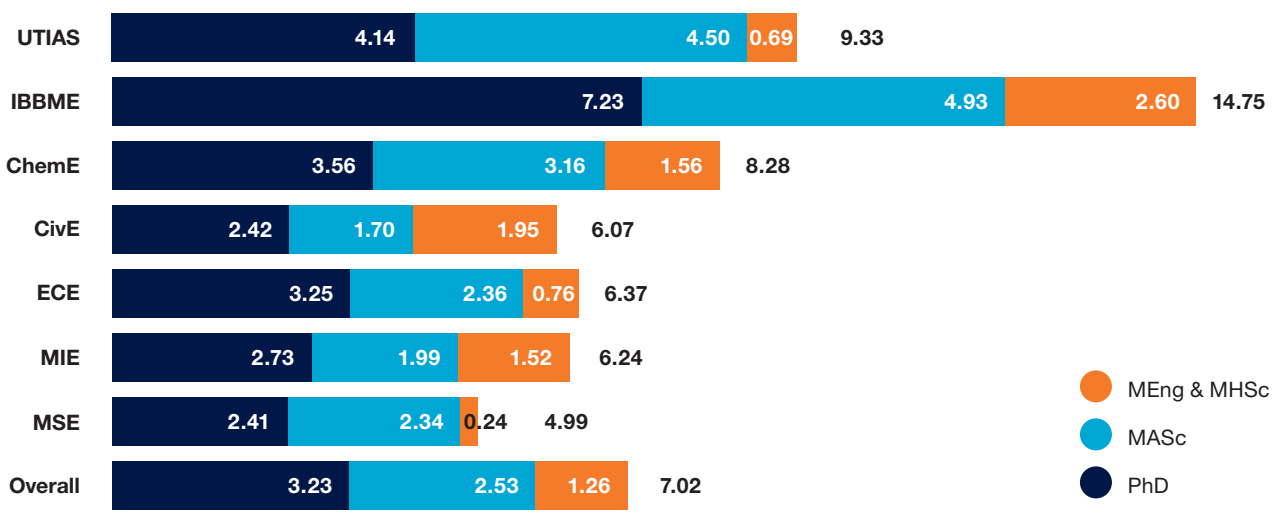


Figure 4.5
Number of Students Fast-Tracked from MASc to PhD, by Academic Area
2006–2007 to 2009–2010

	2006–07	2007–08	2008–09	2009–10
UTIAS	1	2	8	4
IBBME	2	8	9	5
ChemE	7	4	10	10
CivE	5	4	3	4
ECE	2	2	2	1
MIE	3	8	9	4
MSE	2	2	1	3
Total	**22**	**30**	**40**	**31**

In the past four years, the Faculty's graduate units have offered a PhD fast-track option for qualified MASc students. Each academic area implemented this option at different times, and has different policies concerning when fast-tracking occurs. Academically strong students in the MASc program are eligible to fast-track to the PhD program by the end of their first year. Fast-tracking typically enables students to achieve their doctoral degrees in a shorter period of time, allowing them to start their professional careers and apply their knowledge to the workplace sooner.

Figure 4.6
Time-to-Graduation for PhD, MASc and MEng & MHSc Graduate Students
2001–2002 to 2009–2010

Figure 4.6 shows the median number of years from time of entry into a graduate program (typically September) to time of convocation (which happens three times a year) for each graduating cohort. Length of time-to-graduation has stayed relatively stable in the past decade, with PhD students completing in roughly five years after their masters degree, and most MASc and MEng students graduating in approximately two years. The patterns in the time-to-graduation numbers reflect the fact that graduate students typically begin their programs in September. Most will graduate in either the June or November convocation, thus 1.8 or 2.2 years, respectively, for masters students, and 4.8 or 5.2 years for PhDs.

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
PhD	4.8	4.8	5.2	4.8	4.8	5.2	4.8	4.8	5.2
MASc	2.2	1.8	2.1	2.2	2.4	2.2	1.8	1.8	1.8
MEng & MHSc	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2

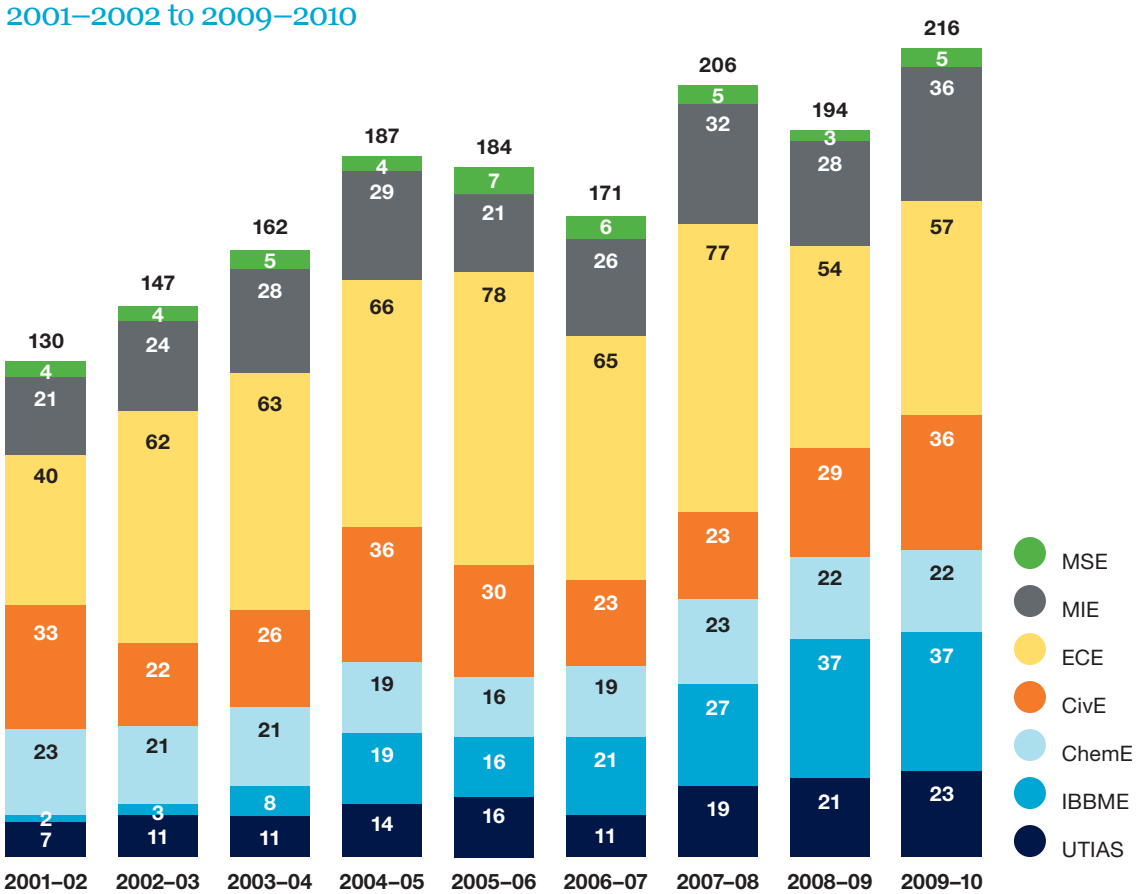
Figure 4.7a
External Graduate Student Scholarships by Source
2001–2002 to 2009–2010

	NSERC	OGS	External–Other	Total
2001–02	$1,965,512	$776,859	$52,440	$2,794,811
2002–03	$2,260,280	$1,328,342	$14,705	$3,603,327
2003–04	$2,764,450	$1,479,994	$56,240	$4,300,684
2004–05	$3,221,367	$1,161,671	$77,334	$4,460,372
2005–06	$3,400,236	$1,106,665	$23,500	$4,530,401
2006–07	$3,228,150	$1,088,332	$31,100	$4,347,582
2007–08	$3,827,494	$930,000	$68,167	$4,825,661
2008–09	$3,737,157	$868,332	$111,770	$4,717,259
2009–10	$4,255,856	$838,334	$226,563	$5,320,753

Figures 4.7a and 4.7b demonstrate the exceptional quality of our graduate students as reflected in their ability to attract external scholarships from major funding organizations. While the graduate student population has increased by 28% since 2001–2002 (Figure 4.2a), the number of students receiving NSERC scholarships rose by 66%, and the total value of external graduate awards nearly doubled.

The sharp rise in the External–Other category over the past several years is an indicator of the increasing breadth and diversity of our research programs. Since 2007–2008 almost all of that funding has come from the Canadian Institutes of Health Research and the Social Sciences and Humanities Research Council — funding agencies that have not typically been associated with engineering research. We have more than doubled this funding category, which represents our successful and significant push to seek alternative funding with industry.

Figure 4.7b
Number of NSERC Graduate Student Award Recipients by Academic Area
2001–2002 to 2009–2010



Note 4.7a: External–Other includes awards from the Canadian Institutes of Health Research and the Social Sciences and Humanities Research Council, as well as foundations and industry sources.

Figure 4.8a
Graduate Student Funding by Category and Academic Area
2009–2010

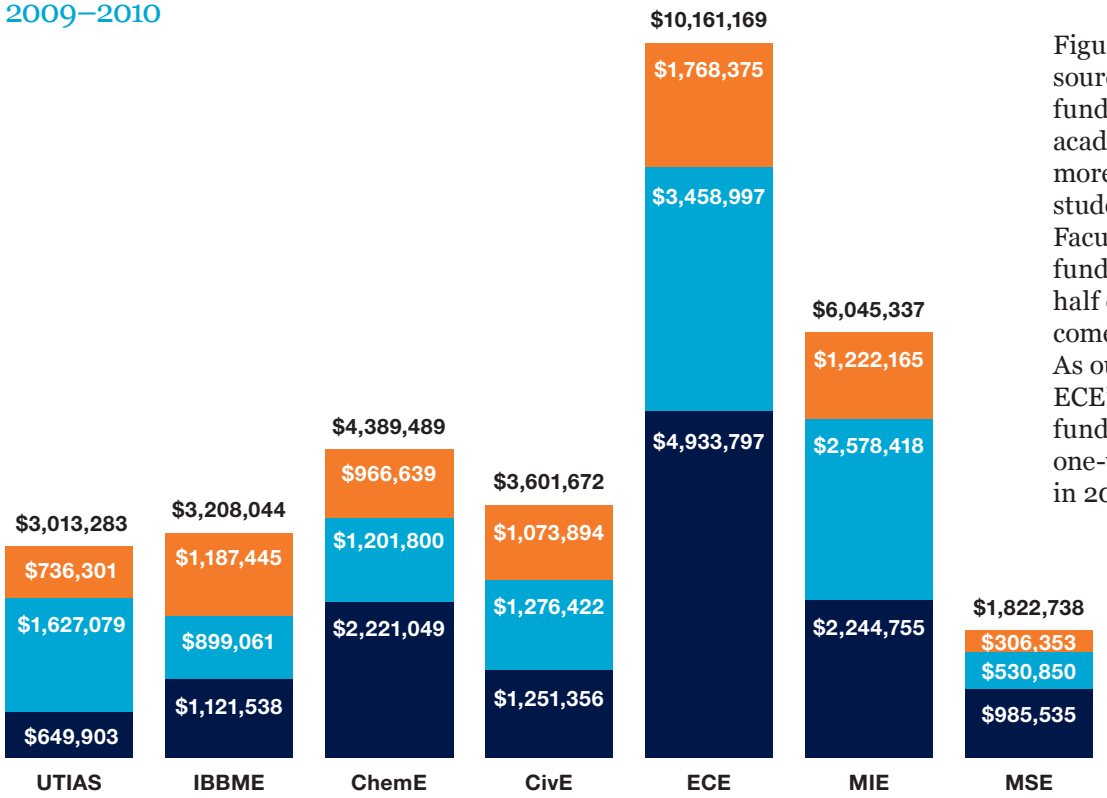
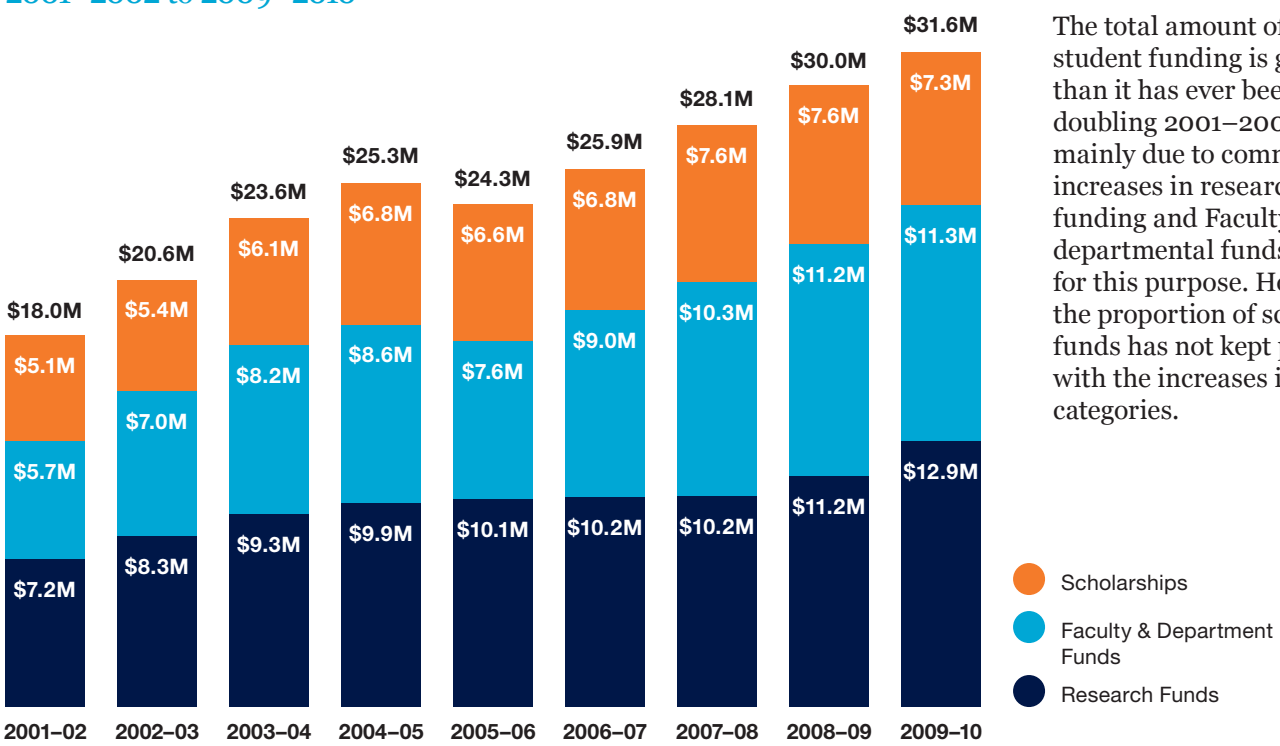


Figure 4.8a illustrates the sources of graduate student funding across our seven academic units. In UTIAS, more than half of graduate student funding comes from Faculty and departmental funds. Conversely, more than half of MSE's and ChemE's comes from research grants. As our largest department, ECE's graduate student funding represents almost one-third of the Faculty's total in 2009–2010 (Figure 4.8b).

Figure 4.8b
Graduate Student Funding by Category
2001–2002 to 2009–2010

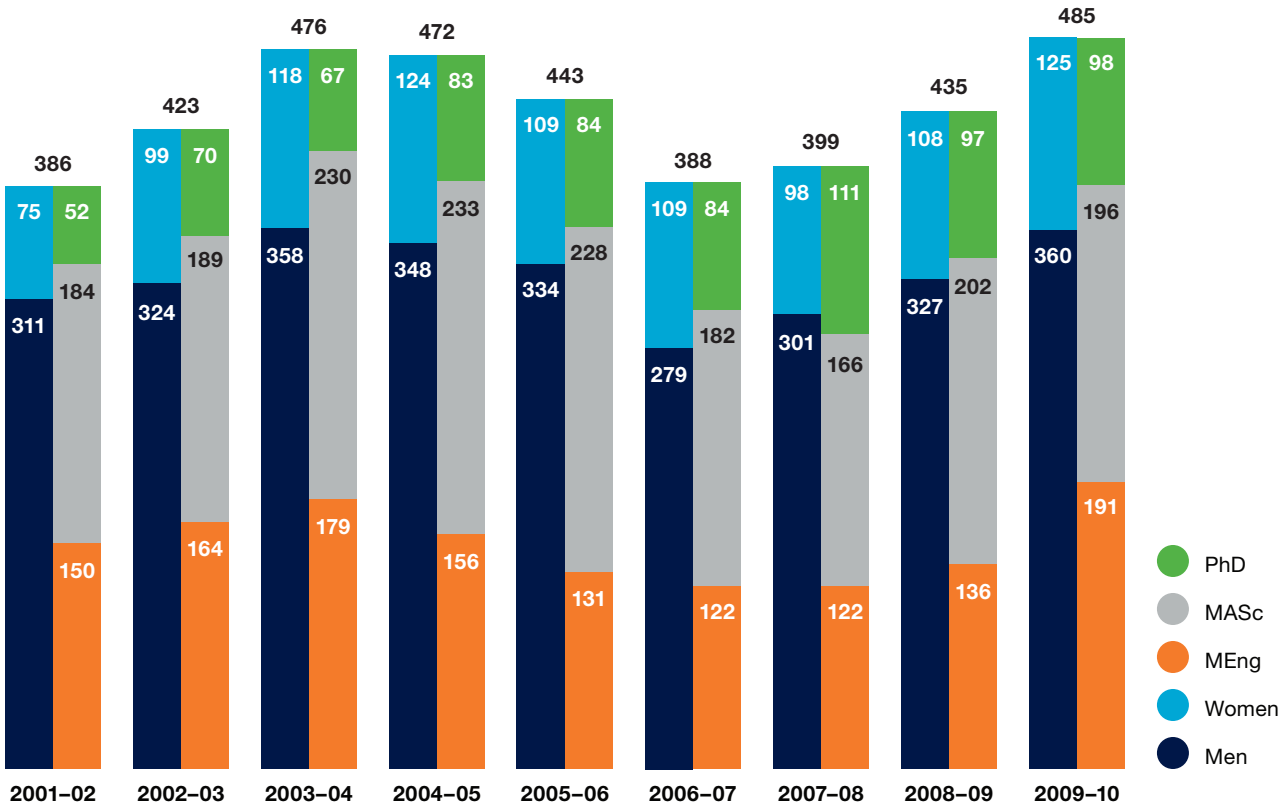


The total amount of graduate student funding is greater than it has ever been, almost doubling 2001–2002. This is mainly due to commensurate increases in research funding and Faculty and departmental funds provided for this purpose. However, the proportion of scholarship funds has not kept pace with the increases in other categories.

Note 4.8a and 4.8b: Faculty and departmental funds include operating funds, University of Toronto Fellowships (UTF) and Teaching Assistantships; for IBBME, they also include internships. Scholarships include all awards from external sources (as shown in Figure 4.7a) plus University-administered sources such as Ontario Graduate Scholarships in Science and Technology, the Connaught Fund and various U of T endowed scholarships.

Figure 4.9
Graduate Degrees Awarded by Degree Type and Gender
2001–2002 to 2009–2010

In 2009–2010, we awarded a record number of graduate degrees both overall and to women. Compared to 2008–2009, we also awarded 40% more degrees in our increasingly popular MEng program.



Certificates and Programs for Graduate Students

MEng/ELITE Certificate: Entrepreneurship, Leadership, Innovation, and Technology in Engineering

In 2007, the Faculty introduced a certificate in Entrepreneurship, Leadership, Innovation, and Technology in Engineering (ELITE), designed for engineers who are interested in being leaders, team-builders and innovators in their technical field. Students who complete four courses from the list of 14 ELITE courses are issued a certificate in addition to their graduate degree. These courses are designed to integrate into the existing MEng program, to enhance technical content and to provide complementary learning experiences. To meet the needs of our part-time students, we also offer intensive two-week courses in May and August, as well as Saturday morning courses.

In 2009–2010, 605 students took ELITE courses — an increase of 24% over the previous year — with the highest enrolment in Project Management and Financial Engineering courses. We also awarded 19 ELITE certificates.

Figure 4.10
ELITE Certificates Awarded
2008–2009 to 2009–2010

	2008–09	2009–10
AeroE		1
ChemE		1
CivE	2	7
ECE	1	3
MIE		7
Total	**3**	**19**

MEng/EPP certificate: Engineering and Public Policy

In collaboration with the School of Public Policy and Governance, our Faculty created a selection of nine graduate courses in 2008 that provide students with a foundation in public policy and opportunities to pursue policy aspects of their specific engineering discipline. Launched in 2009–2010, the Engineering and Public Policy (EPP) certificate offers MEng students background and training in policy-related issues central to the engineering profession, and helps prepare graduates for positions in areas such as transportation, the environment, decision-making, global energy, infrastructure, economics and strategic policy implementation. This year, 125 graduate students enrolled in the EPP courses.

MEng/Global certificate: Engineering and Globalization

Through the Dean's Task Force on Globalization and the subsequent creation of the Centre for Global Engineering, we are committed to providing students with engineering opportunities in a global context. One of the recommendations of the Task Force was to develop expertise in global knowledge through academic programs. In September 2010, our Faculty introduced a graduate certificate option in Engineering and Globalization.

Students must complete the equivalent of four half-courses to receive the certificate in Engineering and Globalization. The following courses are being offered in 2010–2011:

- Technologies and Organizations in Global Energy Systems
- Technology, Engineering and Global Development
- Introduction to the Development of the Global System
- Global Environmental Politics

Prospective Professors in Training (PPIT) Program

To prepare senior doctoral students for the rigours of careers in academia, we introduced the Prospective Professors in Training (PPIT) program in 2006–2007. PPIT students learn pedagogical fundamentals of teaching in higher education, including effective lecturing, course and curriculum design, grading systems, grant applications and practical background on university administration. Students generally take two years to complete the program, which consists of three main parts:

1. A course in Engineering Teaching and Learning
2. Core seminars on topics such as applying for academic positions, managing a classroom, starting a research program and applying for grants
3. Elective seminars covering topics on teaching and learning, offered by U of T's Centre for Teaching Support and Innovation

In 2009–2010, 13 students from across the Faculty graduated from the PPIT program.

MEng/SCFI (Stronach Centre for Innovation) Magna Program

Launched in September 2008, the SCFI Magna Program is a joint initiative between our Faculty and Magna International Inc., allowing employees the opportunity to pursue a specialized MEng at U of T Engineering. This program is a strategic response to the challenges faced by the Ontario manufacturing sector, and aims to commercialize new product ideas and develop a new profession of innovation managers, practitioners and executives. Over the course of 16 to 18 months, students complete a major technical project and take courses that range from innovation management to intellectual property. As shown in Figure 4.11, 31 students have enrolled in the program since 2008. Seven students from the September 2008 cohort graduated in June 2010.

Figure 4.11
MEng/SCFI Program Enrolment
September 2008 to September 2010

	Enrolment
September 2008	9
September 2009	8
January 2010	12
September 2010	12
Total	**31**

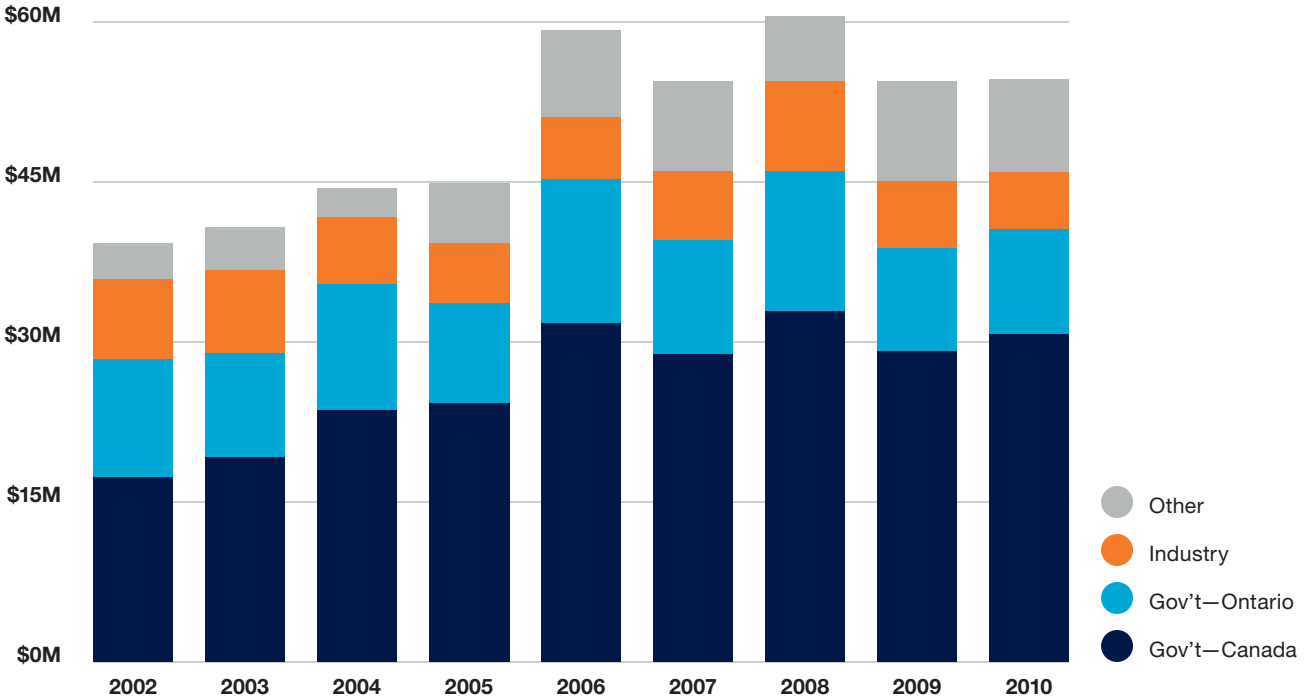
5. Research

Our faculty members pursue primary research, collaborative projects and industry partnerships that yield new knowledge, technologies, applications and systems that advance Canada's research agenda and keep our Faculty at the forefront of engineering research. Our researchers' activities also provide hands-on research opportunities for our undergraduate students. With projects and initiatives that make tremendous national and global impact, we have continuously attracted — and increased — research funding over the past decade, now 46% higher than our 2002 funding levels.

Despite the financial recession that impacted industry and government grants, our efforts ensured that overall funding did not fall below that of 2007. We continue to lead Canadian peer institutions in the proportion of research grants received from the Natural Sciences and Engineering Research Council (NSERC). In 2009–2010, we reached our highest proportion in a decade, garnering 9.4% of all NSERC funding received by all Canadian institutions.

Our ability to translate research results into innovative industrial applications is reflected in some of our most notable accomplishments for 2009–2010, such as the NSERC Synergy Award for Innovation, the NSERC Brockhouse Canada Prize, an NSERC Industrial Research Chair in Concrete Durability and Sustainability, and a $5-million NSERC grant to develop new plastics for Canadian industry. Fifty-four new inventions — representing approximately 39% of all U of T inventions last year — and two new spin-off companies are further evidence of our Faculty's capacity to develop commercially viable engineering technologies, products and processes.

Figure 5.1a
Research Funding by Year and Source
2002 to 2010



	Gov't—Canada	Gov't—Ontario	Industry	Other	Total
2002	$17,375,992	$11,057,996	$7,494,002	$3,395,584	**$39,323,574**
2003	$19,269,734	$9,698,916	$7,862,294	$3,978,904	**$40,809,848**
2004	$23,615,356	$11,833,039	$6,294,731	$2,700,674	**$44,443,800**
2005	$24,259,490	$9,396,036	$5,637,079	$5,668,567	**$44,961,172**
2006	$31,813,093	$13,521,323	$5,804,219	$8,138,939	**$59,277,574**
2007	$28,847,079	$10,684,567	$6,541,940	$8,377,310	**$54,450,896**
2008	$32,942,107	$13,154,160	$8,419,644	$6,032,196	**$60,548,107**
2009	$29,201,916	$9,656,600	$6,246,528	$9,414,589	**$54,519,633**
2010	$30,738,414	$9,891,088	$5,325,600	$8,719,300	**$54,674,402**

Overall, our Faculty has enjoyed a rising trend in our research funding since 2002. The notable spikes in 2006 and 2008 reflect our success in Canada Foundation for Innovation (CFI) and Ontario Research Fund (ORF) competitions that happened during those years. Following the economic downturn in 2008, industrial funding declined with a corresponding impact on matching government funding. Despite these challenges, our Faculty's efforts ensured that the total research funding has not fallen below 2007 levels. Through our increased endeavors to cultivate new partnerships, and with the upcoming CFI and ORF competitions, we aim to yield greater support for our Faculty's innovative research projects.

For a breakdown of funding for each academic area within our Faculty from 2002 to 2010, please refer to the Appendix. The Appendix also includes a list of Research Chairs for 2009–2010.

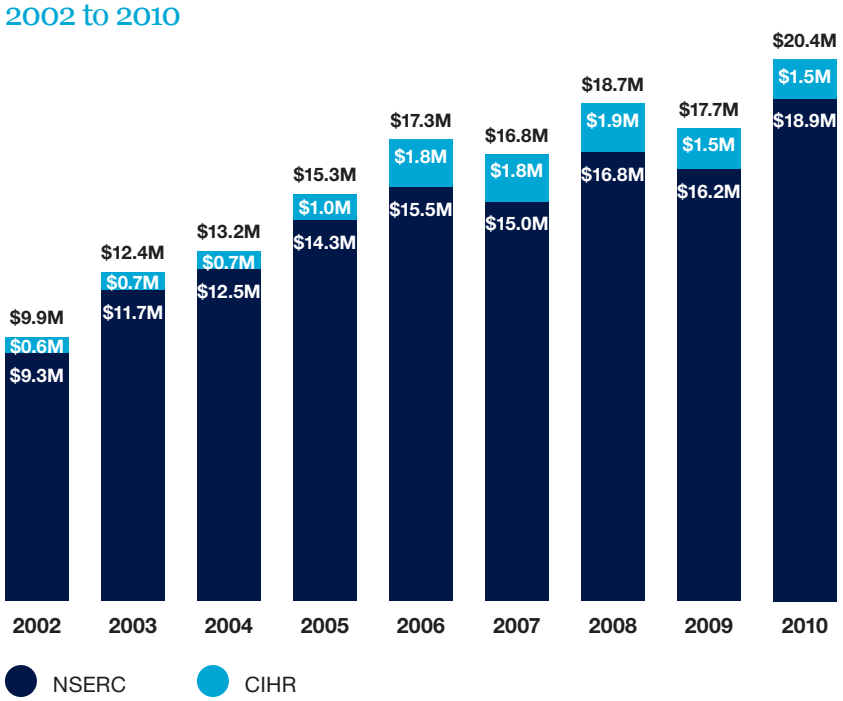
Note 5.1a: Data is current as of November 2010 and is shown by grant year (April to March), thus Grant Year 2010 corresponds to April 2009 to March 2010. "Gov't–Canada" includes primarily funding from the Three Councils (CIHR, NSERC and SSHRC), Canada Foundation for Innovation, Canada Research Chairs and the National Centres of Excellence; "Gov't–Ontario" includes primarily the Ministry of Research and Innovation, Ontario Research Fund and the Ontario Centres of Excellence; "Other" includes industry associations, research foundations, not-for-profit organizations and other universities.

Figure 5.1b
Infrastructure Funding as a Proportion of Total Research Funding
2002 to 2010

Figure 5.1b shows the relative proportion of funding we received for research and infrastructure. The primary sources of funding specifically designated for infrastructure are CFI, ORF and the NSERC Research Tools and Instruments program.

As noted in Figure 5.1a, Figure 5.1b more clearly highlights the outcomes from the infrastructure-focused CFI and ORF competitions that happened during the 2006 and 2008 grant years. Underlying and supporting those awards is a steadily increasing research funding that cumulatively represents a 46% increase over 2002 research funding levels.

Figure 5.1c
Canadian Institutes of Health Research (CIHR) and Natural Sciences and Engineering Research Council (NSERC) Funding by Year and Source *
2002 to 2010



The Faculty has continued to increase the amount of Tri-Council funding received. Approximately 93% of this comes from NSERC with the remaining from CIHR. We have been particularly successful in attracting funding for three NSERC Collaborative Research and Training Experience (CREATE) Programs which support training research teams of highly qualified students and postdoctoral fellows. The current CREATE programs are in: 1) nanoscience and nanotechnology; 2) rehabilitation engineering; and 3) microfluidic applications in cardiovascular health. In addition, the Faculty leads an NSERC Strategic Research Network on innovative plastic materials and manufacturing processes. We also continue to increase the level of NSERC Discovery Grant funding, with a success rate greater than 80% in the 2009–2010 competition.

Note 5.1b: Occasionally, some spending on infrastructure will come from regular research grants, typically for smaller items (less than $7,500) unless specifically requested in the original application.
Note 5.1c: Data is current as of November 2010 and is shown by grant year (April to March). Tri-Council refers to the three main federal government research funding agencies, the Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council (NSERC), and the Social Sciences and Humanities Research Council (SSHRC). (*) In a few of the years between 2002 and 2010, modest amounts of SSHRC funding were also received, totaling $217,868. Most of this came between 2003 and 2005, in three annual amounts of roughly $72,000 each. Because of the comparatively small amounts, SSHRC is not represented in Figure 5.1c.

Figure 5.2
Natural Sciences and Engineering Research Council (NSERC) Funding
2009–2010

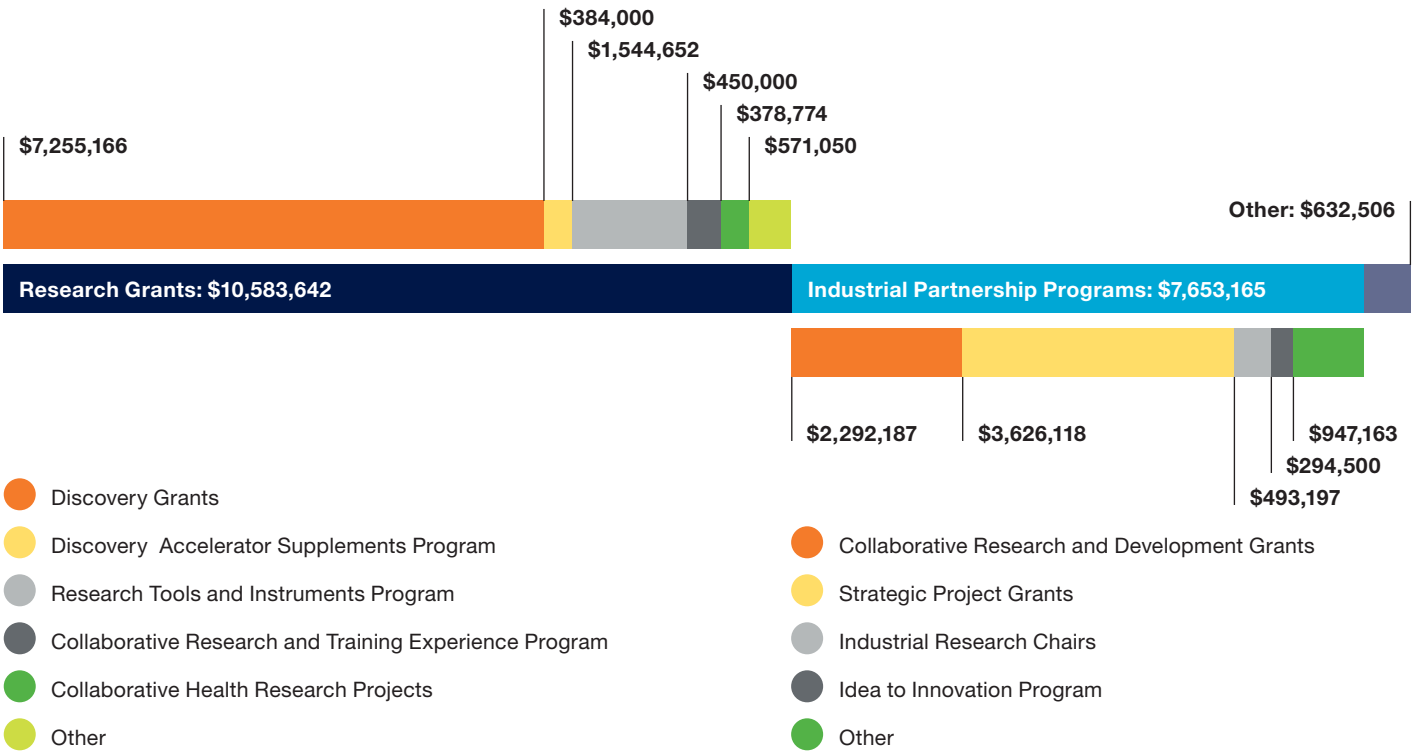


Figure 5.2 represents the spectrum of NSERC funding received by our faculty members in 2009–2010. This ranges from foundational support through collaborative programs and industry partnerships, to funding focused on technology development and commercialization.

The five-year Discovery Grants provide stable funding for long-term basic research, and are a key component of faculty funding portfolios. The three-year Discovery Accelerator Grants provide additional funds for those with the most outstanding and promising research programs. Research Grants towards the centre of this spectrum represent the support of collaborative projects involving graduate students (CREATE) and medical researchers.

The two largest Industrial Partnership Programs, and the Industrial Research Chairs, reflect the extent to which our faculty members are actively engaged in working with industry partners to develop engineering solutions to specific problems, and to apply the results of basic research to new industrial applications. The Idea to Innovation Program turns creative ideas into patents and business plans, supporting the technology transfer and commercial potential represented by U of T's long legacy of invention disclosures (see Figure 5.4) and spin-off companies.

Figure 5.3a
Canadian Peer Universities vs. University of Toronto Share of NSERC Funding for Engineering, Cumulative Five-Year Share 2006 to 2010

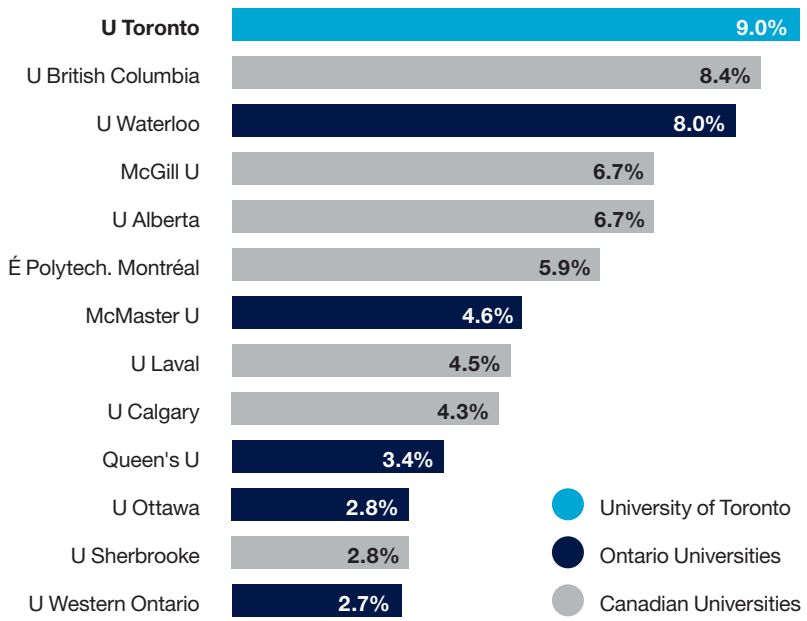


Figure 5.3b
U of T Annual Share of NSERC Funding in Engineering 2002 to 2010

	Percent Share of U of T NSERC Funding in Engineering
2002	8.9%
2003	9.0%
2004	8.2%
2005	8.9%
2006	9.1%
2007	9.0%
2008	9.2%
2009	8.5%
2010	9.4%

U of T Engineering continues to lead Canadian peer institutions in the proportion of NSERC research funding grants received. In the 2010 fiscal year, we received the highest percentage of grants of the past nine years. The dark blue bars in Figure 5.3a show U of T's cumulative five-year share relative to our peer Ontario universities.

Figure 5.4
Engineering Invention Disclosures by Academic Area 2006 to 2010

The Faculty submitted 54 inventions in the 2010 fiscal year, accounting for 39% of all invention disclosures University-wide. This showcases the tremendous creativity and innovation of faculty members, and demonstrates the application of our research.

All inventors at U of T are required, by the University's Inventions Policy, to fully and completely disclose their inventions to the University. In most cases, rights to the invention are then jointly owned by the University and the inventor. The growing list of such commercial spin-off companies (see the Appendix for a complete list) is a testament to the dynamic contribution our inventors are making to innovation in Canada.

In the 2009–2010 academic year, we added two new companies to our list of more than 100 Engineering spin-off companies: FOTA Technologies Inc (Tony Chan Carusone, ECE) and Arda Power Inc. (Peter Lehn, ECE).

	2006	2007	2008	2009	2010	5-Yr Total
UTIAS	2.8	0.0	0.5	1.0	1.0	**5.3**
IBBME	13.2	6.8	11.9	8.7	7.0	**47.6**
ChemE	4.2	2.7	6.4	2.8	6.5	**22.6**
CivE	1.0	1.0	1.2	1.0	0.5	**4.7**
ECE	24.8	50.3	38.5	33.1	30.8	**177.5**
EngSci	0.2	0.0	0.3	0.0	0.0	**0.5**
MIE	13.0	6.0	23.0	8.7	6.3	**57.0**
MSE	4.3	2.0	5.4	2.5	1.9	**16.1**
Annual Total	**63.5**	**68.8**	**87.2**	**57.8**	**54.0**	**331.3**
University Annual Total	**128**	**129**	**159**	**148**	**137**	**701**
Engineering Percentage	**50%**	**53%**	**55%**	**39%**	**39%**	**47%**

Note 5.3a and 5.3b: Data is from the NSERC advanced search website and is shown by NSERC's fiscal year (April to March).
Note 5.4: Data is shown by U of T's fiscal year (May to April). When all inventors are from the same academic area, that area is credited with one disclosure; when inventors are from different academic areas, each area is credited with a proportion of the disclosure.

Major Group Research Initiatives in 2009–2010

Electron Beam Lithography Lab

In 2009, our Faculty opened a new nanofabrication lab. The heart of this facility is the $6.5-million Electron Beam Lithography system, a tool that can define features as small as 10 nanometres — about 10,000 times narrower than the width of a human hair. The facility forms part of the Emerging Communications Technology Institute and is open to researchers from within and outside of the University. It is already becoming a hub for nanofabrication research in Ontario, supporting users from industry, teaching hospitals and universities across Ontario.

Industrial Research Chair for Concrete Durability and Sustainability

Professor R. Doug Hooton (CivE) was appointed to a new NSERC Industrial Chair in Concrete Durability and Sustainability. The Chair's funding is valued at $1.8 million over five years, with contributions from the University of Toronto, NSERC, the Cement Association of Canada, Holcim Canada and Whitemud Resources. Professor Hooton's research involving the degradation of concrete by alkali-silica reaction and the rate of corrosion of steel in concrete bridges has already been adopted by the Ontario Ministry of Transportation and by the American Standards for Testing and Materials.

Novel Cultures and Enzymes Discovered for Environmental and Biofuels Applications

Professor Elizabeth Edwards (ChemE) and her industrial partner, Geosyntec Consultants, were awarded the 2009 NSERC Synergy Award for Innovation in the Large Company Category. The Synergy Award for Innovation recognizes outstanding partnerships in research and development between universities and industry. This partnership focuses on the development of effective techniques for using bacteria to clean contaminated groundwater sites. This has led to the development of the bioaugmentation culture KB–1, which breaks down the chlorinated solvents used in drycleaning and industrial degreasing. Most recently, Professor Edwards and Geosyntec received a $10-million grant from Genome Canada towards the discovery and commercialization of novel cultures and enzymes for environmental and biofuels applications.

New Space Centre to Cultivate "Microspace" Opportunities

The $10-million Microsatellite Science and Technology Centre (MSTC), directed by Dr. Robert Zee (AeroE), will be a networking hub for space science and technology researchers to bring new nanosatellite and microsatellite technologies and space mission concepts to maturity for implementation. Funded by the Canada Foundation for Innovation and the Ontario Ministry of Research and Innovation, the MSTC will address the current lack of a dedicated Canadian program to cultivate new microspace opportunities (new missions, payloads and technology) with internationally recognized researchers. It will leverage the existing, highly successful UTIAS Space Flight Laboratory program, while advancing state-of-the-art microsatellite research and technology development.

Students Collaborate Through Three NSERC CREATE Programs

The NSERC Collaborative Research and Training Experience (CREATE) Program supports the professional development of students and postdoctoral fellows through training programs that encourage collaborative and integrative approaches while addressing significant scientific challenges associated with Canada's research priorities. In 2009–2010, our Faculty was awarded almost $5 million from NSERC CREATE to fund three such programs over the next six years:

1. The Nanoscience and Nanotechnology Program emphasizes the integration of electronics and photonics at the nanoscale while providing our undergraduate, graduate and postdoctoral fellows with opportunities for professional and research skills development.
2. Unique in Canada, the interdisciplinary Academic Rehabilitation Engineering Program prepares our students to become global leaders at the interface of engineering and rehabilitation sciences. Students are supervised by faculty within Engineering and in health-related fields.
3. A graduate training program at the University of Toronto and York University, the Program in Microfluidic Applications and Training in Cardiovascular Health equips our students with the scientific, technical and professional skills required to lead the development of transformative microfluidic technologies in industry and academia.

Innovative Plastics Developed for Canadian Industry

The microcellular and nanocellular plastics group led by Professor Chul Park (MIE), Canada Research Chair in Microcellular Plastics, has received a $5-million NSERC grant to develop innovative plastic materials, giving numerous Canadian industries a global competitive edge. Over the last decade, Canadian plastic manufacturers have reduced their in-house research and development due to economic setbacks. This project proposes to remedy this decline in R&D with a comprehensive set of research initiatives into both the scientific and technological aspects of plastic materials and related manufacturing processes.

6. Cross-Faculty Education and Research

In the past year, U of T Engineering has continued to enhance cross-Faculty programs by launching two new undergraduate Minors, and developing new centres of excellence to foster innovative research and education. These initiatives increase curricular flexibility and enrich the experience of our students while promoting collaborative research within the Faculty.

As a way to provide undergraduates with more breadth in their studies and to help cross traditional departmental boundaries, the Faculty's new Environmental Engineering Minor and Sustainable Energy Minor join the existing Bioengineering Minor. With a jump in enrolment from 212 students in 2008–2009 to 528 students in 2009–2010, we are developing and plan to offer more Minors in the near future.

Collaborative and multidisciplinary educational and research programs continued to expand with two new efforts: 1) the Institute for Robotics & Mechatronics coordinates current Faculty academic and research activities in the areas of mechatronics and robotics; and 2) the Centre for Sustainable Energy works collaboratively within and outside of the University to foster energy-related initiatives. Both support the Faculty's research priorities of energy, environment and sustainability.

Building on the Engineering Leaders of Tomorrow program, the Institute for Leadership Education in Engineering (ILead) was launched in July 2010. ILead is the first such institute in Canada to provide curricular, co-curricular and extracurricular engineering leadership development programming.

Extra-departmental Units (EDU) are a range of interdisciplinary educational or research units that provide organizational focus and structure for defined academic areas. An EDU-C is typically a Faculty-wide multidisciplinary, multidepartmental research and/or academic unit that exists to foster research and scholarly interest in a particular area of academic work. An EDU-D, which usually exists within a department, is a group of scholars who together pursue specific research objectives or offer a set of courses in an area of academic interest.

Institute for Leadership Education in Engineering (ILead)

Background

The Task Force on Engineering Leadership Education was appointed in October 2009 to review the progress of leadership education in the Faculty and beyond, including the Faculty's Leaders of Tomorrow program. In May 2010, Faculty Council received the report and accepted its recommendation to create a new Institute for Leadership Education in Engineering. As a Faculty-wide EDU-C, the function of the Institute is threefold: teaching, research and outreach. The Institute is the first of its kind in Canada; its vision is "Engineers leading change to build a better world."

Objectives

- Provide and facilitate curricular, co-curricular and extracurricular leadership development programming
- Support faculty members offering team design courses to increase student learning and effectiveness in team projects
- Create a hub for student leadership programming and for faculty and staff who seek to teach and conduct research on engineering leadership education
- Build relationships and networks with leadership educators within the University community, at other engineering schools and with leaders in the engineering profession

Institute for Robotics & Mechatronics (IRM)

Background

In 2009–2010, the Dean and Chairs of MIE and ECE tasked a number of academics in the Faculty of Applied Science & Engineering to explore and propose the establishment of an Institute for Robotics & Mechatronics. The focus of the initiative is to coordinate current Faculty academic and research activities and facilitate the development of extensive teaching and research initiatives in the areas of mechatronics and robotics. In May 2010, Faculty Council established the Institute for Robotics & Mechatronics as an EDU-C.

Objectives

- Assemble a number of research groups in the areas of robotics and mechatronics to enhance and lead cross-disciplinary research programs and initiatives
- Facilitate the commercialization of technology through proper technology transfer mechanisms and industrial collaborations
- Lead the establishment of high-calibre teaching programs focused on robotics and mechatronics at the undergraduate and graduate levels and establish the necessary infrastructure to deliver such programs
- Enhance the University's and Faculty's visibility in research and teaching programs nationally and internationally
- Provide outreach to high schools and community, promote engineering and attract top students to the field of mechatronics and robotics

Centre for Sustainable Energy (CSE)

Background

The Centre for Sustainable Energy is an inclusive, multidisciplinary centre designed to bring together researchers, students and educators from across the University, together with partners from industry and government, with the goal of increasing energy efficiency and reducing the environmental impact of energy use and conversion. The Centre seeks to seed high-impact research projects and facilitate the formation of connections between researchers, students and educators interested in energy issues. The Centre currently maintains an EDU-D status within the Department of Mechanical & Industrial Engineering with plans to extend the status to a University-wide organization.

Objectives

- Bring together information about energy-related pursuits throughout the University in one, central location
- Organize seminars and events with an energy-related theme
- Facilitate the formation of multidisciplinary research or project teams to solve complex problems related to energy systems or to research advanced technologies that enable cleaner and more sustainable use, conversion, storage and distribution of energy
- Encourage an interdisciplinary approach in solving complex energy problems, in order to enable synergies between different energy sources and technologies to be identified and utilized for the design of more effective, larger-scale energy systems that can improve on the separate performance of the individual components
- Serve as a source of information for students and faculty members regarding scholarships, research opportunities, course offerings, thesis projects, funding opportunities, seminars, and opportunities for collaboration, all with an energy-related focus

Engineering Minors for Undergraduates

To support cross-Faculty initiatives at the undergraduate level, we created the Cross-Disciplinary Programs Office in 2009. This Office provides academic and administrative leadership to enhance educational activities that transcend departmental boundaries. To read more about this Office and its initiatives, please visit www.minors.engineering.utoronto.ca. Currently, we offer three Engineering Minors:

Bioengineering

Launched in 2006, students can enhance their education in a wide range of bioengineering-related fields including biomedical engineering, bio-imaging, nanotechnology in medicine, and environment and engineering design for human interfaces.

Environmental Engineering

The Environmental Engineering Minor was introduced in 2009, and gives students instruction in the technical, social and regulatory environments. This Minor evolved out of the Collaborative Program in Environmental Engineering, available to ChemE and CivE undergraduate students since 1996.

Sustainable Energy

Introduced in 2009, the Sustainable Energy Minor is tailored to students interested in energy, its sustainable generation and use, managing its demand, and the public policy on the regulation of energy use and production. “Sustainable energy” is treated broadly, reaching all areas of energy use, production, distribution, storage and development.

Figure 6.1
Enrolment in Engineering Minors
2007–2008 to 2009–2010

	2007–08	2008–09	2009–10
Bioengineering	111	138	195
Environmental Engineering (Collaborative)	(95)	(74)	135
Sustainable Energy	-	-	198
Total Enrolment	206	212	528

7. Advancement

Over the past two years, we have expanded and restructured our Office of Advancement. The team grew from six members in 2006 to ten in 2009 to bolster the areas of major gifts and leadership-level annual giving. As a result, the number of alumni and donor meetings increased from 20 in 2006 to more than 250 in 2009; almost one-third of these meetings included a faculty member.

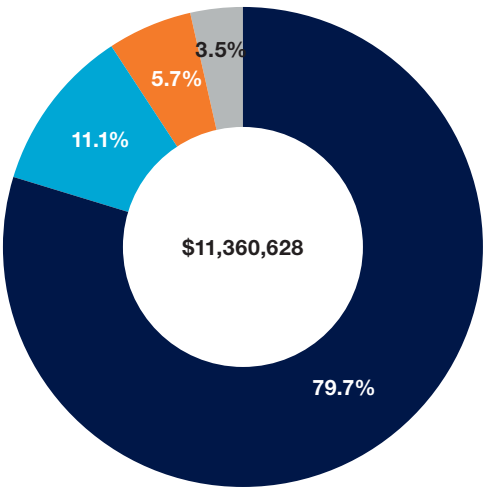
This period also led to the development of several new programs to enhance alumni involvement. Initiatives like Biz Skule™, the Calgary Chapter and renewal of the Engineering Alumni Association strengthened the Engineering alumni community. Departments, divisions and institutes have also increased their respective alumni relations activities, with many units initiating annual alumni dinners.

Our Faculty faces both challenges and tremendous opportunities for philanthropic fundraising. The challenge stems from the ongoing economic recovery from a deep, global recession. While philanthropy may be revived in line with the economy, donor confidence may not recover as quickly as hoped.

The University will soon launch the next major campaign. To fully realize a successful campaign for Engineering, the Office of Advancement will work to enhance our relationships across and outside of the Faculty, with alumni, friends and stakeholders. We are establishing a network of volunteer committees and boards focused on advancement. These senior volunteers will be critical in helping our Faculty achieve success in the upcoming campaign — a campaign that will enable the Faculty to make an even greater contribution to engineering education and research.

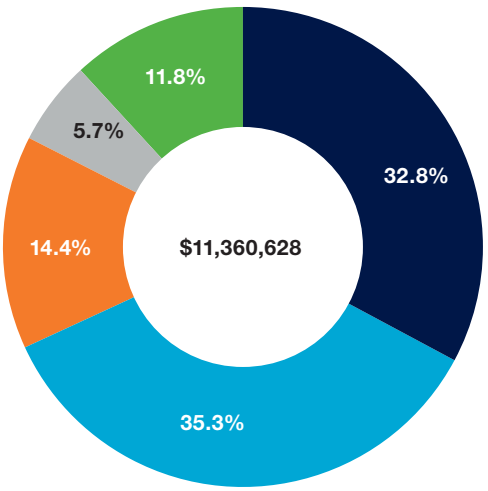
Results for the 2010 Fiscal Year

Figure 7.1a
Advancement Results
2010



- Major Gifts
- Planned Giving
- Skule™ Society
- Annual Fund

Figure 7.1b
Gift Designation
2010



- Student Scholarships & Awards
- Capital Projects
- Student Experience & Programs
- Research
- Area of Greatest Need

Initiatives and Projects for 2009–2010

Biz Skule™

Our alumni are at the forefront of a variety of industries including investment, management and professional advisory firms. Biz Skule™ celebrates these alumni, creating opportunities for networking and learning more about fellow alumni who have achieved success in their respective fields.

Calgary Skule™ Alumni Chapter

This past year, the Chapter launched the Calgary Student Send-off, welcoming Alberta students to the Skule™ community. Through their fundraising efforts, we awarded scholarships to two deserving students from Alberta, joining U of T Engineering.

Advancement Workshop for Academic Leaders

In February, the Dean, Vice-Deans, Chairs and Directors joined other University academic leaders for a series of advancement workshops to strengthen and promote philanthropic fundraising skills.

Grenzebach Glier & Associates Study

U of T's Division of University Advancement completed the most comprehensive external review of Advancement in U of T's history. The review found ample evidence of the Faculty's potential to grow fundraising performance. These conclusions augur well for the Faculty and the University's planned campaign.

Student Thank-a-Thon

In October 2009, a dozen student club leaders participated in the Faculty's first Thank-a-Thon, calling alumni who recently made gifts to the Skule™ Fund for Education, the Faculty's Annual Fund. Student leaders repeated this event in March, thanking more than 400 alumni donors whose contributions provide key funding to support a broad spectrum of Engineering student clubs.

Note 7.1a and 7.1b: Data is shown by fiscal year (May to April).

Alumni Relations Activities

Figure 7.2
Active Alumni by Academic Area
2009–2010

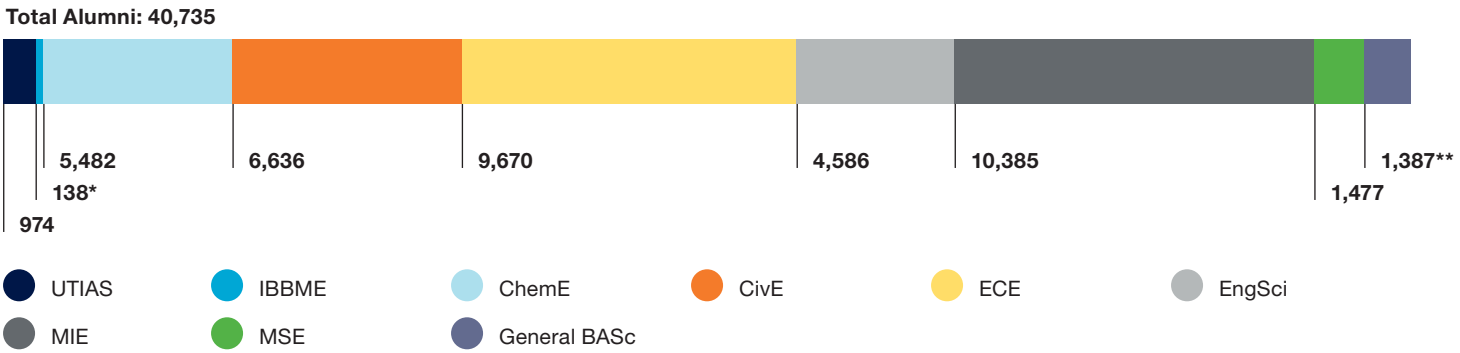
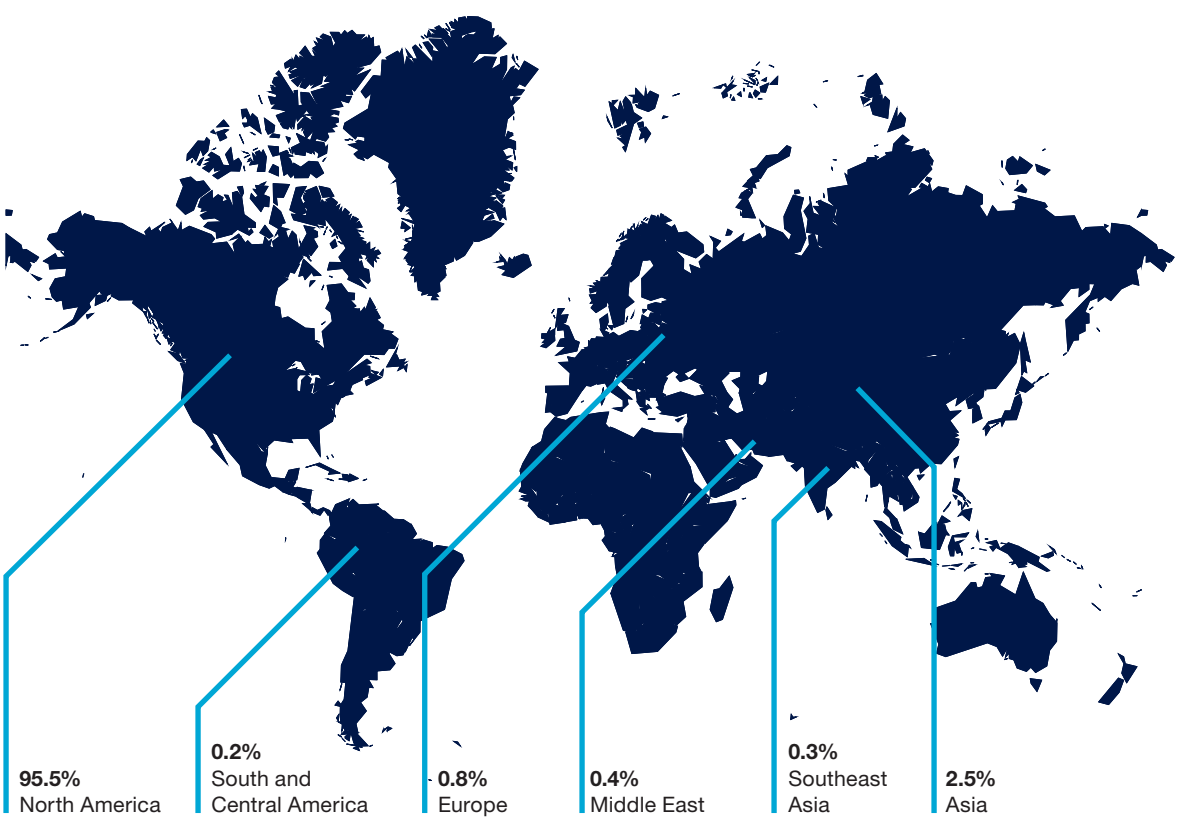


Figure 7.3
Geographic Location of Contactable Alumni
2009–2010



Alumni Demographics for Top Five Countries:

1. Canada: 26,503
2. USA: 2,224
3. Hong Kong: 438
4. Great Britain: 108
5. Singapore: 91

Note 7.2: Includes alumni of graduate and undergraduate programs. (*) When including students from the Collaborative Program in Biomedical Engineering, we have more than 700 IBBME alumni. (**) General BASc refers to alumni whose degrees do not link to an existing department, division or institute.
Note 7.3: This figure plots the current location of alumni of our graduate and undergraduate programs for which we have contact information. While many of our alumni originate from other parts of the world, most reside in North America. Not shown in map – 0.2% living in Oceania (includes Australia and other counties in the Pacific Ocean) and 0.1% living in Africa.

Figure 7.4
Events Attended by Alumni
May 2009 to April 2010

Event Name	Event Date	Alumni Attendance
Entrepreneurship Series	May 1, 2009 to April 30, 2010	32
Biz Skule™ Spring Lecture	April 28, 2010	57
CivE Imagine Your Future Event	April 10, 2010	10
MIE Alumni Dinner	April 10, 2010	65
Engineering Society 125th Anniversary	April 8, 2010	24
EngSci 75th Lecture Series	April 7, 2010	14
ChemE Annual Alumni Dinner	March 26, 2010	61
EngSci 75th Lecture Series	March 1, 2010	42
CivE Alumni Dinner	February 26, 2010	84
MIE Etiquette Dinner	February 4, 2010	3
EngSci 75th Lecture Series	January 27, 2010	8
MIE Career Panel Reception	January 21, 2010	11
Mentorship Career Night	January 19, 2010	10
EngSci 75th Anniversary Celebration	December 17, 2009	86
EngSci Ottawa Event	November 28, 2009	42
Calgary Skule™ Fall Alumni Reception	November 23, 2009	36
MIE Scholars and Leaders Reception	November 19, 2009	31
MIE Ace the Interview Event	November 11, 2009	15
Engineering Alumni Association Annual Awards Dinner	November 5, 2009	61
IBBME Alumni and Awards Dinner	October 15, 2009	22
ChemE Scholars and Leaders Reception	October 14, 2009	23
Skule™ Mentorship Program Kick-Off Event	October 14, 2009	35
Skule™ Idol	October 9, 2009	16
Biz Skule™ Fall Lecture	September 22, 2009	123
CivE Survey Camp Reunion	September 19, 2009	20
Calgary Student Send-Off	July 15, 2009	17
CivE Class of 5T0 Mining Alumni Luncheon & Meeting	June 23, 2009	5
Engineering 20-Year Reunion Event	June 11, 2009	41
UTIAS Industry-Alumni-Student Dinner Event	June 4, 2009	21
Engineering Spring Reunion	May 30, 2009	238
ChemE Spring Reunion Alumni Lunch	May 30, 2009	36
CivE Spring Reunion Alumni Lunch	May 30, 2009	14
ECE Spring Reunion Lunch	May 30, 2009	20
EngSci Spring Reunion Lunch	May 30, 2009	8
Western Canada Alumni Event	May 11, 2009	9
Total Alumni Attendance		**1,267**

Figure 7.5
Alumni Communications and Audience Reach
2009–2010

Email

Special Correspondence	82
Invitations & Outreach	68,334
E-newsletters	63,947
Total Emails	**132,363**

Mail

Special Correspondence	1,552
Invitations & Outreach	16,209
Newsletter & Magazine	36,959
Total Mailed Pieces	**54,720**

Telephone

Thank-a-Thon	475
Total Telephone Contacts	**475**
Total Alumni Communications	**187,558**

Major Gift Highlights for the 2010 Fiscal Year

The 2010 fiscal year brought gifts that support a variety of Faculty projects, including the Innovation Centre for Canadian Mining Industry, Engineering Leaders of Tomorrow, international research collaborations and numerous undergraduate and graduate scholarships. Some highlights include:

Pierre Lassonde

Philanthropist and talented entrepreneur Pierre Lassonde is recognized as one of Canada's foremost experts in the area of mining and precious metals. He has been a tireless and visionary supporter and patron of the Lassonde Institute. In September 2009, we announced a gift of $5 million, in support of the Institute that bears his name. His latest donation includes $4 million that will go towards construction of the new Innovation Centre for the Canadian Mining Industry and another $1 million for scholarships.

Including other donations, Lassonde has made to the University, his cumulative giving exceeds $10 million, the largest contribution to mineral engineering education in Canadian university history. In recognition of this business visionary's extraordinary commitment to education and research in mining at the University of Toronto, the Mining Building now bears the name: Lassonde Mining Building.

Hatch Ltd.

Recognizing that energy is at the heart of many of the world's greatest challenges, Mississauga-based Hatch Ltd. has donated $1 million in support of sustainable energy research within our Faculty. The donation endows scholarships for Engineering graduate students engaged in research related to one of the Faculty's strategic research areas, sustainable energy.

"Hatch is at the forefront of advancements in efficiency and sustainability, employing some of the world's most accomplished specialists in water and wind resource management, alternative energies, thermal and nuclear power and transmission and distribution," said Kurt Strobele, Chair & CEO, Hatch Ltd. "Addressing the challenge of energy will require research on a wide range of issues, and we are confident that the University of Toronto's Faculty of Applied Science & Engineering has the talent to develop solutions to these complex problems."

Lyon Sachs

Increased globalization requires us to further incorporate an international dimension to the Faculty's research programs. With his gift of $1 million, Lyon Sachs (IndE 4T9) established an international Collaborative Research Fund and created six Lyon Sachs Fellowships, which enable post-doctoral exchanges between U of T Engineering and The Technion in Israel. The first post-doctoral exchanges began in fall 2010 with the arrival of Dr. Victor Chernov and Dr. Sivan Klas from The Technion. Several visits are planned for the 2010–2011 academic year, made possible by the fund that Mr. Sachs established. The Faculty looks forward to building stronger collaborations with The Technion and enhancing our collective research efforts.

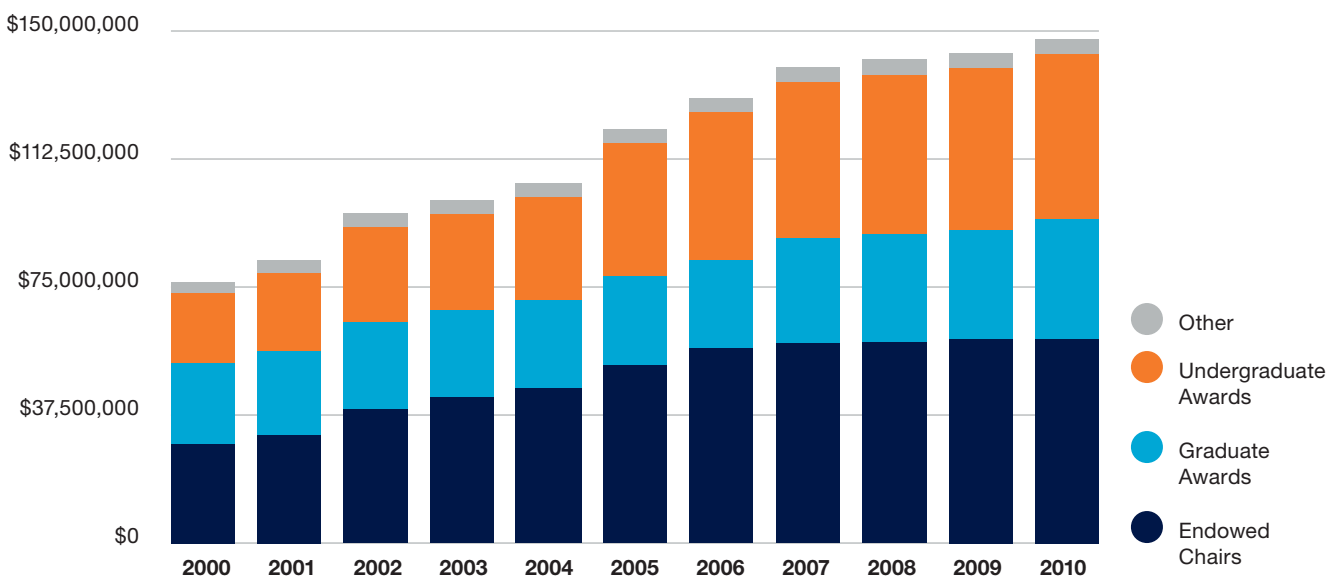
Clement Bowman

Dr. Clement Bowman (ChemE 5T2, MASc ChemE 5T8, PhD ChemE 6T1) is an internationally-recognized expert in energy systems and their related environmental issues. He and his wife, Marjorie Bowman, wanted to give back to the Faculty to encourage the next generation of engineers to address energy and sustainability problems facing the world today. After learning of the Faculty's plans to establish its Centre for Global Engineering, the couple doubled their original pledge with a gift of $100,000, establishing the C.W. Bowman Graduate Scholarship in Energy Research with a Focus on Environmental Issues. The Bowman Scholarship supports graduate students whose area of research relates to energy systems, either in Canada or around the world, for the purpose of alleviating issues raised by energy consumption.

Kenneth M Molson Foundation

Established in 1968, the Kenneth M Molson Foundation is a devoted supporter of aviation and wildlife community organizations in Canada. Since 1996, the Kenneth M Molson Foundation has generously supported aeronautical and space systems engineering at the Faculty of Applied Science & Engineering through the creation of graduate scholarships, sponsorship of remote-access undergraduate labs and support of research and design courses. This past year, the Foundation established its second graduate-level scholarship with a new gift of $150,000, that was then matched by the Graduate School Endowment Fund. Through this generous gift, the Foundation further strengthens its role in helping engineers become leaders in their profession while assisting the Faculty in recruiting the most promising students in the fields of aeronautical and space systems engineering.

Figure 7.6
Endowments
2000 to 2010



Note 7.6: Data is shown by fiscal year (May to April). Graduate awards (non-government matched) were held at School of Graduate Studies until October 2006. The transfer value of $20,326,113 was added to the graduate awards total for the 2000 to 2006 fiscal years.

8. Communications

Engineering Strategic Communications' role is to communicate the research, educational programs, expertise, uniqueness and experience of U of T Engineering to our internal and external stakeholders. These efforts help our audiences set the Faculty apart from peers, draw attention to our work and consider us the first choice for Engineering education, collaboration, media coverage, academic advancement and expertise.

Communication tools like our e-newsletters, *Skulematters*, as well as our revamped website have broadened to reach internal and external audiences. We listen carefully to those audiences: for example, we launched a readership survey of *The Engineering Newsletter* in Summer 2010. We responded to the results that told us that this internal newsletter is well read, very well liked and preferred on a monthly basis.

And we pay attention to other aspects of our communications, too. While U of T Engineering has received growing attention from print media in the past months, we aim to attract the interest of radio, television and online media. We have respectable web traffic, and we need to increase our Internet presence, not only as a website, but in all forms of social media and mobile device applications.

Our faculty, staff, alumni and students are change agents. We make a difference together in the world and have an abundance of stories to tell. We are building the foundations now of a leading-edge communications team well-suited to the mobile, global, social and evolving future of Engineering education and research at one of the world's top-ranked universities.

Our Tools, Our Message

We have developed a variety of print and electronic vehicles to communicate with our internal and external stakeholders. They include:

- three e-newsletters
- annual report
- *Skulematters*, the alumni magazine
- suite of recruitment, admissions, outreach and advancement collateral

In 2009, our e-newsletter series grew from one to three to reach new audiences in new ways. Modelled on *The Engineering Newsletter* for faculty and staff, the new monthly undergraduate and alumni e-newsletters present each audience with timely, relevant news about our Faculty's initiatives and accomplishments.

Internal E-newsletter Survey

In an effort to better tailor *The Engineering Newsletter* to our audience, the Faculty administered a readership survey in Summer 2010. Survey yield was strong with a 14% response rate, representing 107 readers.

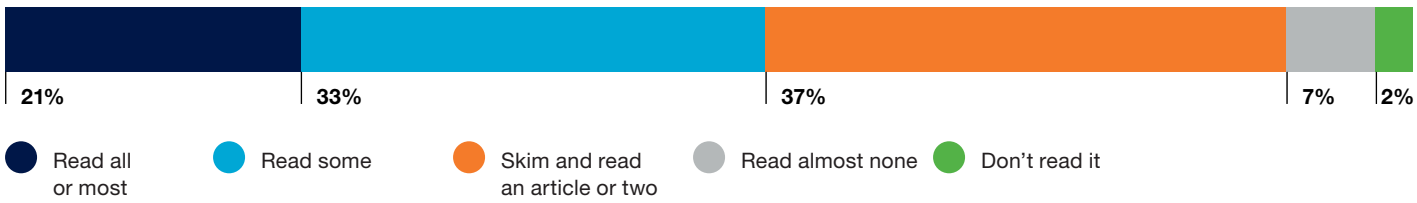
We have responded to results (Figure 8.1) by tightening our articles and changing newsletter frequency from semi-monthly to monthly. The results also suggest we should create an electronic newsletter readable on a smartphone that builds community and celebrates Faculty achievements and breakthroughs. A means of electronic feedback (via a wiki for comments) might also be valuable, and is under exploration.

Key Survey Findings

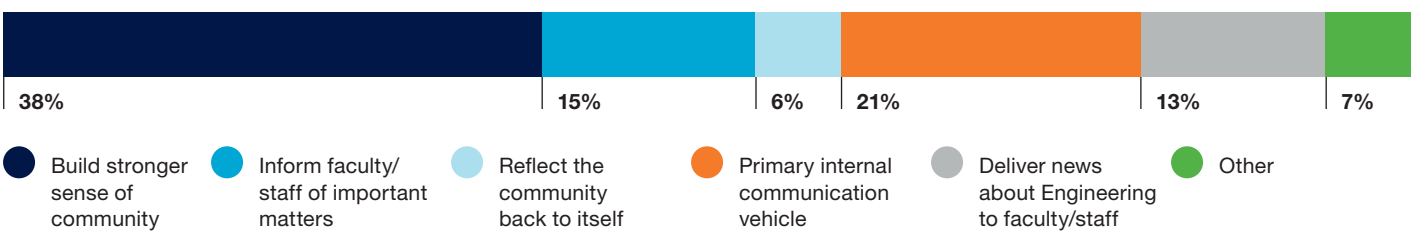
- *The Engineering Newsletter* is well read and very well liked.
- The average reader spends about 10 minutes reading it.
- Readers value the sense of community it offers and are comfortable reading it electronically (75% have smartphones) and would like to see it delivered monthly.
- About 75% feel the stories are just about the right length, while 25% would like to see shorter pieces.
- Readers enjoy the design, photography and writing.
- Readers enjoy stories about research and new initiatives the most, while issues of governance were of less interest.

Figure 8.1
Select Results from *The Engineering Newsletter* Survey
Summer 2010

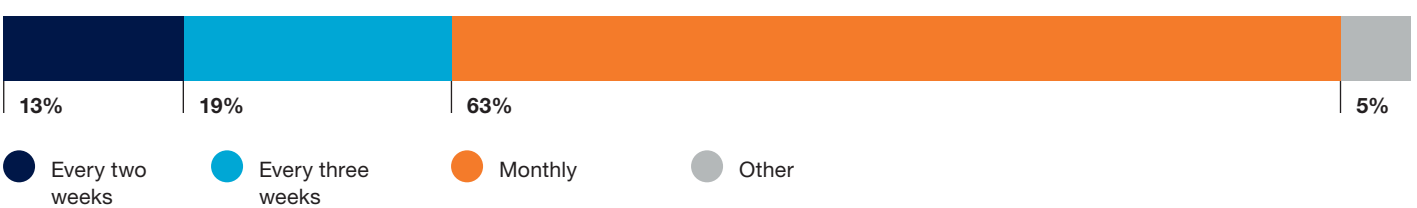
Which statement most accurately reflects your reading of *The Engineering Newsletter*?



Primary role of *The Engineering Newsletter*?



Desired frequency?



Desired length of stories in *The Engineering Newsletter*?

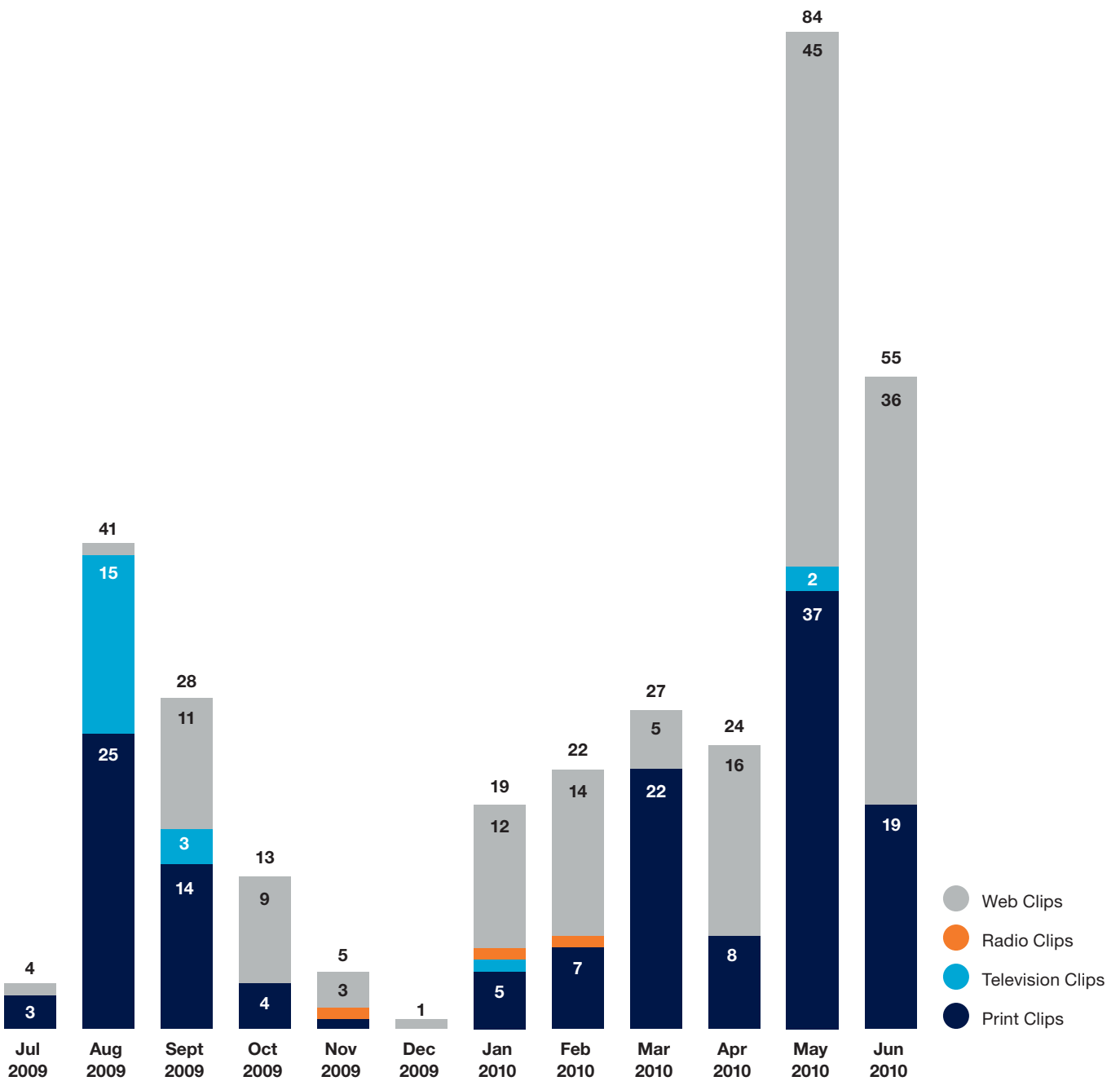
Devices readers use regularly?

Media Coverage

The bar graph below shows web, radio, television and print clippings that made mention of the Faculty of Applied Science & Engineering.

Print and web clips dominate the coverage we received last year. Apart from a burst in August, we earned little television mentions and fewer radio. We plan on increasing the audio and video visibility of the Faculty in the coming year, both on the web and in traditional broadcast.

Figure 8.2
Media Coverage of U of T Engineering News
July 2009 to June 2010



Note 8.2: Media coverage presented above reflects data as recorded by University of Toronto Strategic Communications.

U of T Engineering Website Statistics since Launch in April 2010

From April to June 2010, our website had nearly 45,900 visits from more than 28,800 individuals. That is over 680 visits a day with an average dwell time of over three minutes.

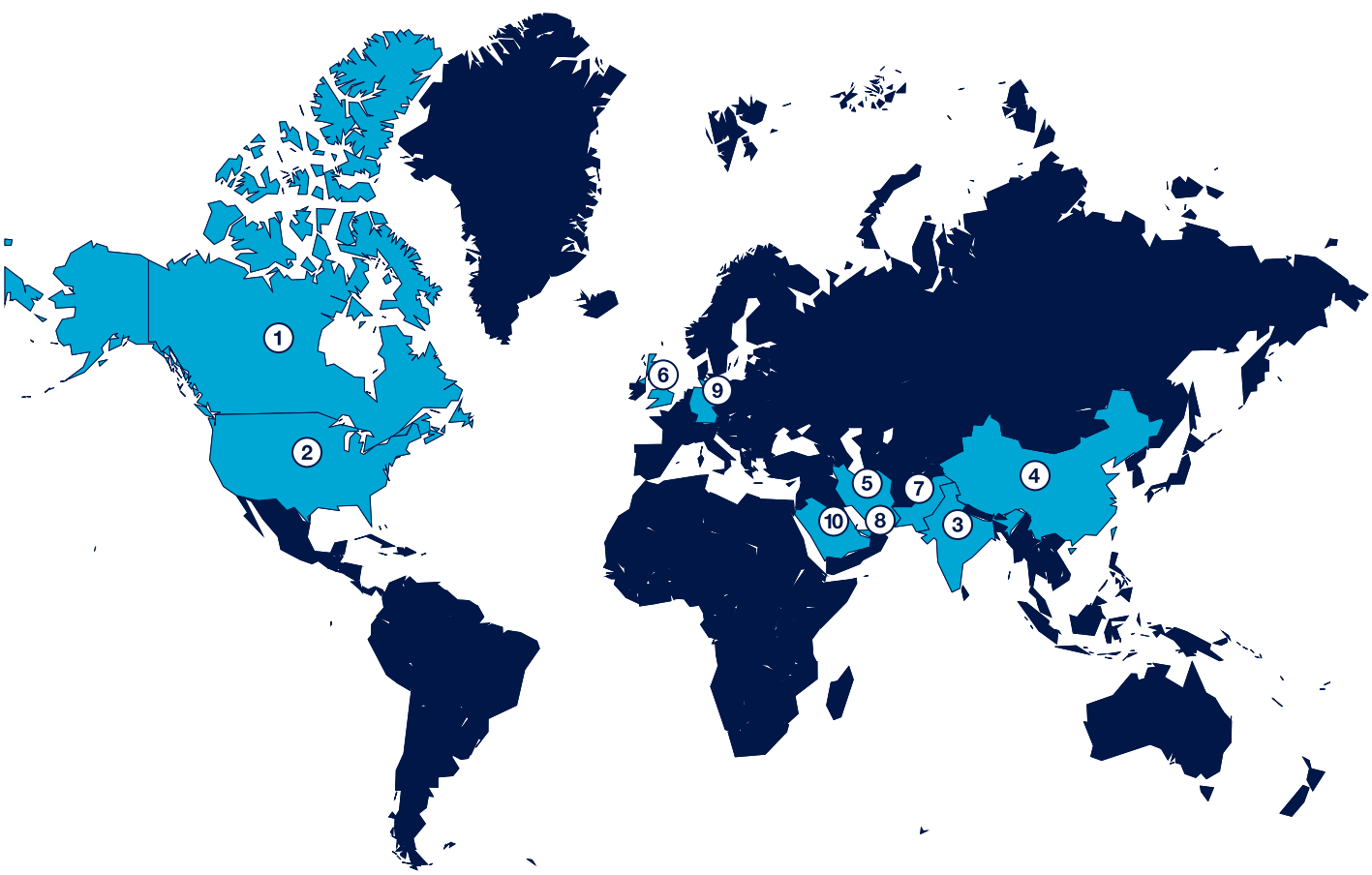
After the home page, the top three most-visited pages on the site are:

1. Undergraduate Studies (in Future Students)
2. Recruitment & Outreach (in Directory)
3. Graduate Studies (in Future Students)

Summary of Analytics for www.engineering.utoronto.ca

- 45,870 visits
- 28,012 unique visitors
- More than 3 pageviews on average per visit
- 3 minutes and 3 seconds average time on site
- 684.6 average pageviews per day
- 923 pages were viewed a total of 142,437 times
- Visitors came from 2,228 cities in 157 countries
- Most Canadian visitors came from Ontario. Outside of Ontario, visitors came from Vancouver, Montreal, Calgary and Edmonton
- U.S. visitors came primarily from California and New York

Figure 8.3
Visitors to U of T Engineering Website: Top 10 Countries
April 2010 to June 2010



1. Canada: 33,665 visitors (73.4%)
2. United States: 2,348 visitors (5.1%)
3. India: 1,211 visitors (2.6%)
4. China: 758 visitors (1.7%)
5. Iran: 588 visitors (1.3%)
6. United Kingdom: 500 visitors (1.1%)
7. Pakistan: 440 visitors (1.0%)
8. United Arab Emirates: 351 visitors (0.8%)
9. Germany: 323 visitors (0.7%)
10. Saudi Arabia: 285 visitors (0.6%)

9. Diversity

Recognized as one of Canada's Best Diversity Employers for 2010, University of Toronto values and promotes diversity as an institutional priority.

The Faculty of Applied Science & Engineering at U of T underscores this commitment. Our community's blend of cultural and geographic backgrounds enriches our students' experiences and helps prepare them for the global marketplace by introducing diverse perspectives. In addition to our recruitment efforts outside of North America, students from around the world are attracted to U of T Engineering as one of the top international Engineering schools.

We have continued our efforts to attract more female undergraduates through recruitment activities designed for girls and women — including Go ENG Girl, which provides an opportunity for girls in Grades 7 to 10 to learn about engineering. We have also strengthened our leadership team with international scholars in engineering education and research, including two female departmental Chairs and two female centre Directors.

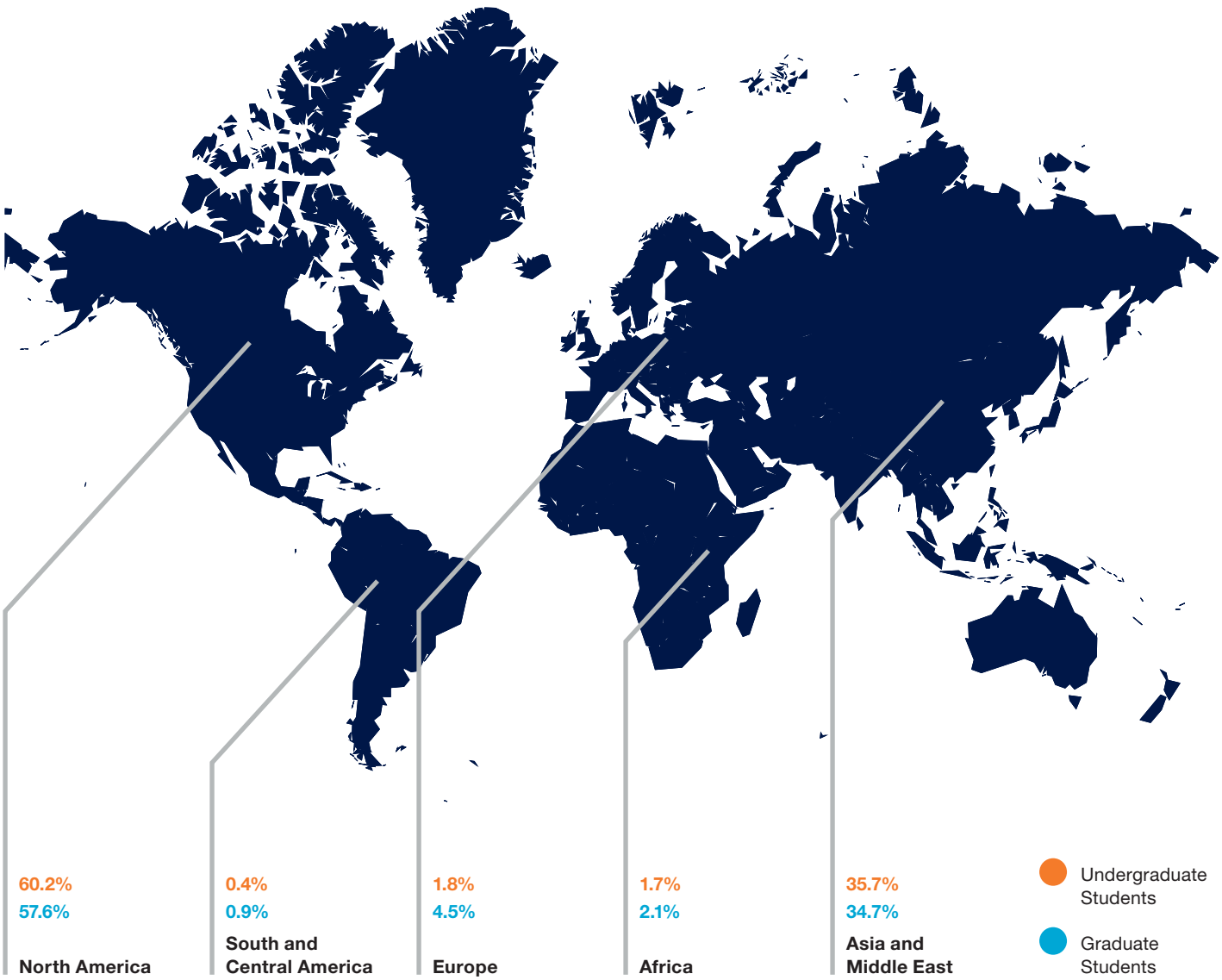
There has been a continuing upward trend in the number of female First Year undergraduates in Engineering in 2009–2010, while the percent of women pursuing graduate studies has remained steady.

Our students' Engineering Society hosted its first National Conference on Women in Engineering in November 2009, meeting with peers across Canada. Both graduate and undergraduate students actively participate in the U of T Women in Science and Engineering chapter, and in the newly formed Women Empowered in Engineering.

Our percentage of female faculty rose at each level in the past year, with female assistant professors growing to 41.5% from 37% last year. As reported by Engineers Canada, our proportion of female faculty bests Ontario and Canadian averages in all but one category.

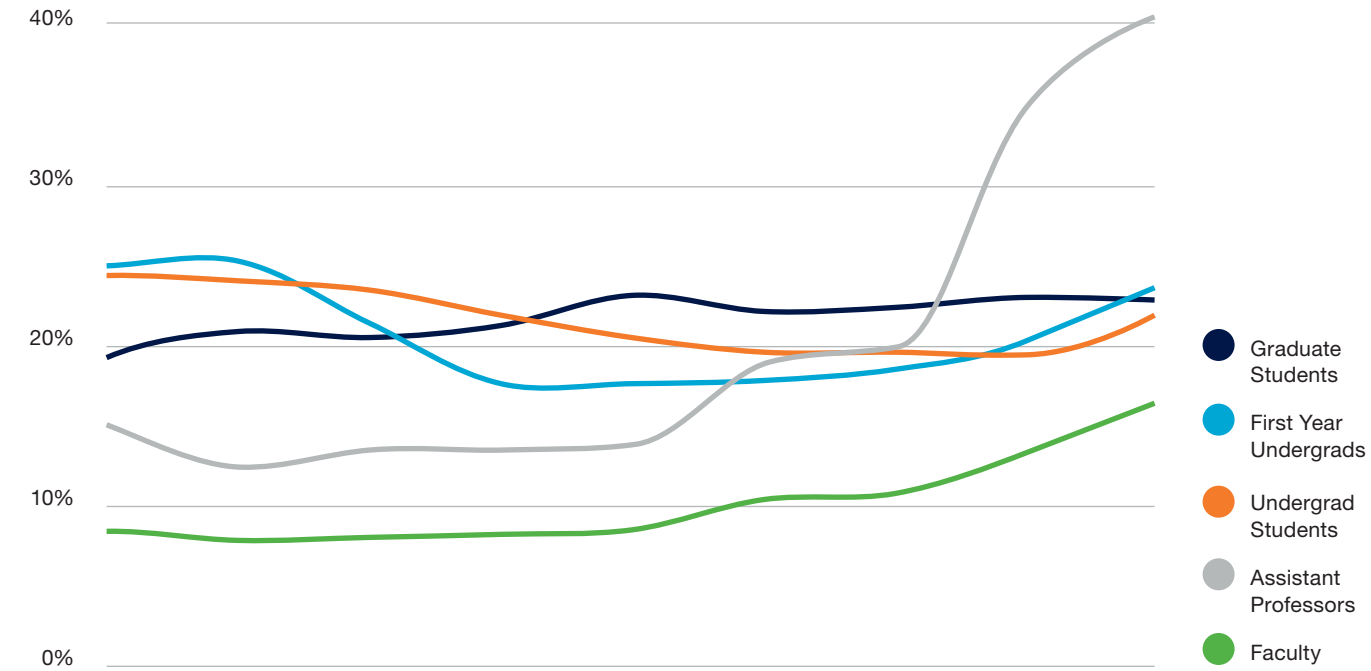
Cultural diversity enriches our students' learning experience while stimulating intellectual discourse both within and beyond the academic setting. Diversity is inextricably linked to excellence. Our students come from every part of the world and they can make an impact internationally through initiatives like the Centre for Global Engineering, Professional Experience Year internship program and the U of T Chapter of Engineers Without Borders. We aim to support the learning for internationally-minded, diverse and academically strong future engineers.

Figure 9.1
Country of Origin: Undergraduate and Graduate Students
Fall 2009



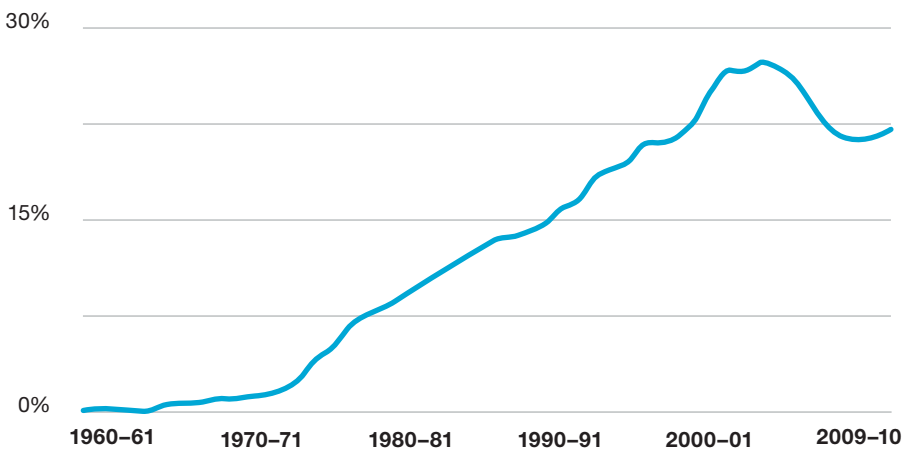
Note 9.1: Not shown—0.2% of undergraduate students and 0.2% of graduate students from Oceania, which includes Australia, New Zealand and other countries in the Pacific Ocean. Country of origin is derived from a combination of citizenship, location(s) of previous studies (e.g., elementary school, high school and university) and permanent address. This information does not indicate current Canadian immigration status, which is used to determine domestic/international student status for tuition and funding purposes.

Figure 9.2a
Percentage of Women Graduate Students, Undergraduate Students, First Year Students and Faculty in Engineering
2001–2002 to 2009–2010



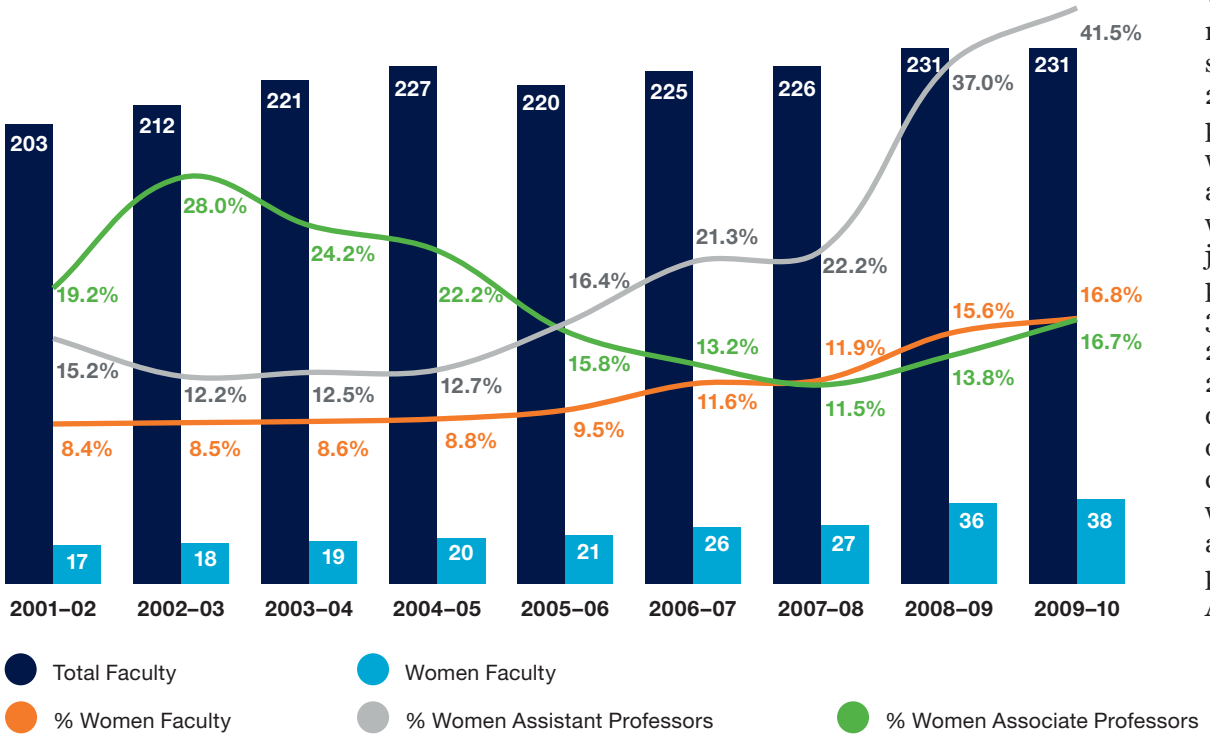
	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Graduate Students	20.1%	22.6%	23.6%	23.7%	25.2%	25.0%	24.9%	25.5%	25.4%
First Year Undergrads	26.9%	27.2%	23.7%	20.3%	20.3%	20.4%	21.2%	22.8%	23.9%
Undergrad Students	26.3%	27.2%	26.4%	24.5%	22.8%	21.6%	21.2%	21.3%	22.1%
Assistant Professors	15.2%	12.2%	12.5%	12.7%	16.4%	21.3%	22.2%	37.0%	41.5%
Faculty	8.4%	8.5%	8.6%	8.8%	9.5%	11.6%	11.9%	15.6%	16.5%

Figure 9.2b
Undergraduate Women in Engineering
1960–1961 to 2009–2010



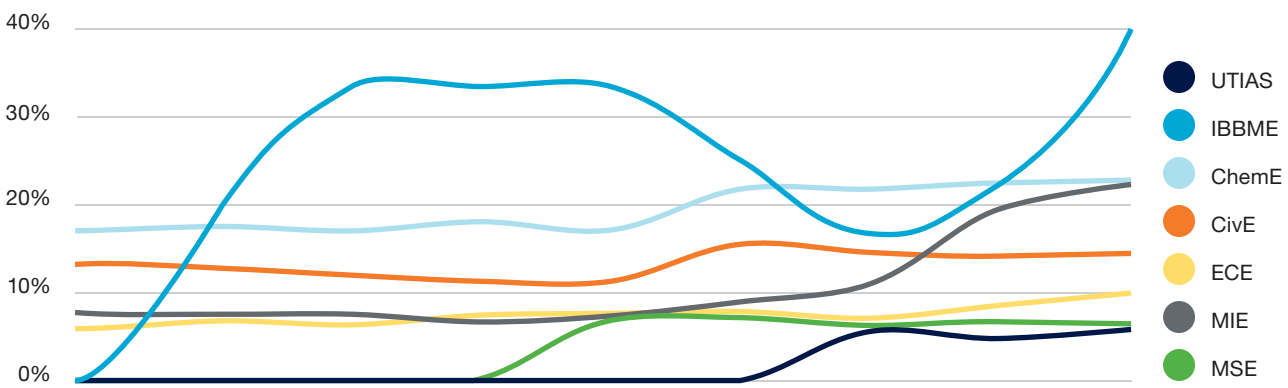
Having peaked in 2002–2003, female undergraduate enrolment has been on the rise again since 2007–2008, with women comprising 22.1% of the undergraduate population in 2009–2010. The percentage of women entering undergraduate studies also rose by almost a full point from last year, to 23.9% of the First Year class.

Figure 9.3
Total Number of Faculty with Percentage of Women
2001–2002 to 2009–2010



While the total number of faculty stayed at 231 in 2009–2010, the percentage of women increased at all levels, with the biggest jump in assistant professors from 37.0% in 2008–2009 to 41.5% in 2009–2010. For a detailed analysis on our faculty composition within each academic area, please see the Appendix.

Figure 9.4
Percentage of Women Faculty by Academic Area
2001–2002 to 2009–2010



	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
UTIAS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.6%	5.9%	6.3%
IBBME	0.0%	20.0%	33.3%	33.3%	33.3%	25.0%	16.7%	22.2%	40.0%
ChemE	17.1%	17.6%	17.1%	18.2%	17.2%	21.9%	21.9%	22.6%	22.6%
CivE	13.3%	12.9%	12.1%	11.4%	11.4%	15.6%	14.7%	14.7%	14.7%
ECE	6.1%	6.9%	6.5%	7.6%	7.8%	8.0%	7.2%	8.7%	10.0%
MIE	7.9%	7.7%	7.7%	6.8%	7.5%	9.1%	11.1%	20.0%	22.0%
MSE	0.0%	0.0%	0.0%	0.0%	6.7%	7.1%	6.3%	7.1%	7.1%
Faculty	8.4%	8.5%	8.6%	8.8%	9.5%	11.6%	11.9%	15.6%	16.5%

Figure 9.5
Academic Administrative Faculty Roles and Percentage of Women
2001 to 2009

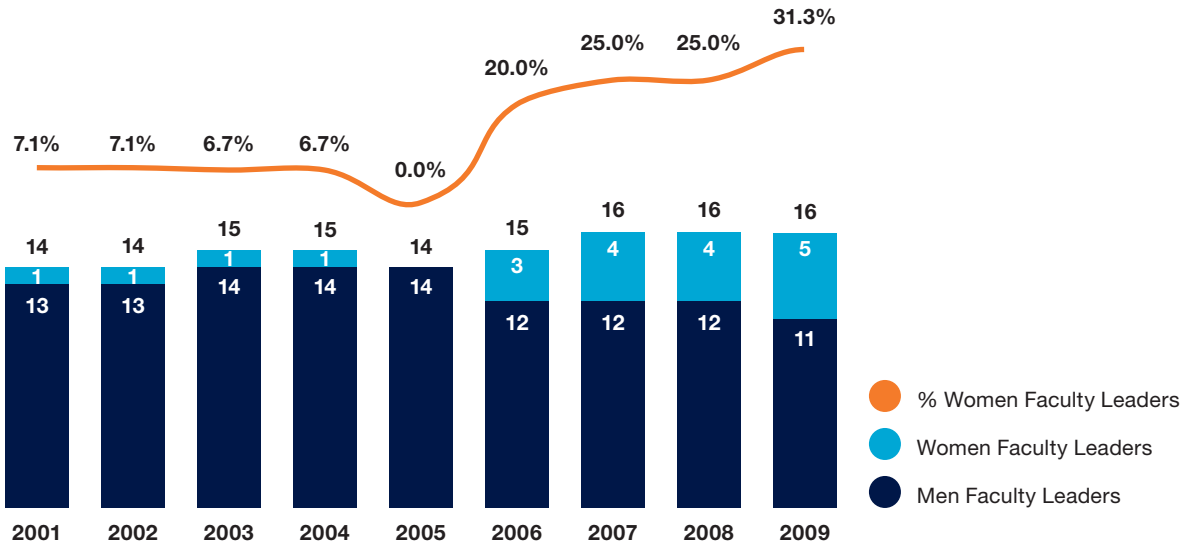
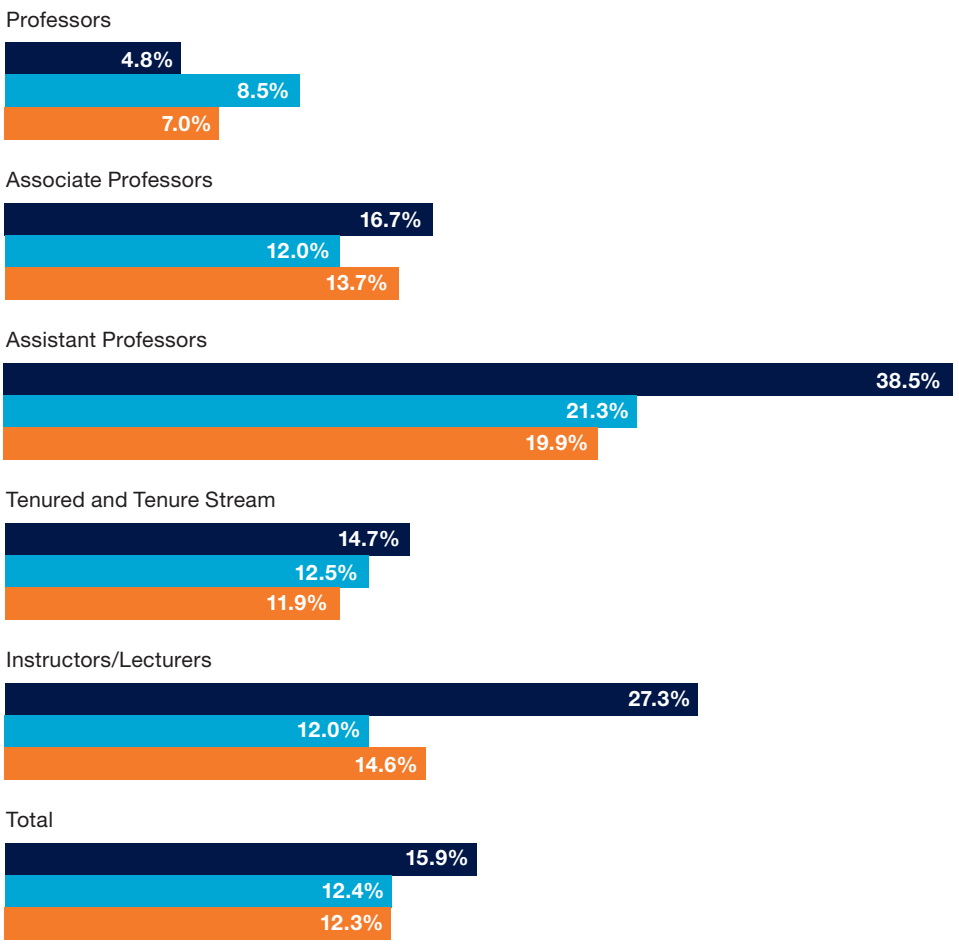


Figure 9.6
Percentage of Women Faculty at U of T Engineering Compared with Women Faculty in Ontario and Canadian Engineering Faculties
2009



Engineers Canada produces an annual report each fall based on November 15 data collected from all Canadian engineering schools. Figure 9.6 shows a snapshot of the percentage of our women faculty in comparison to women engineering faculty across Ontario and Canada on that date. As such, these numbers are slightly different than those reported in Figure 9.3, which represents a summary of our faculty complement based on the calendar year.

Note 9.6: Based on November 15, 2009 data analysed by Engineers Canada.

10. Financial and Physical Resources

In May 2010, we rolled out a redesigned budget allocation process. The objective of the new approach is to align the funding received by each of the departments and institutes more closely with each unit's activity, such as numbers of students and professors, and the teaching of students in First Year and Engineering Science.

The process was also designed to lessen the transition from old to new by including an equalization process that preserves roughly 10% of each unit's historic allocation. The new allocation algorithm allows for greater transparency, and departments and institutes can directly benefit from their research fundraising, philanthropic donation successes and their strategic decisions related to enrolment. The 2011 fiscal year is the first year in which this process has been used to allocate budget funding.

The economic downturn had significant impact on our operating budget. The expected endowment revenues had not materialized and the shortfall was felt primarily in the scholarships and awards funding needed for September 2009. To meet commitments to both our students and donors, the Faculty took a loan of $4.3 million to cover the endowment payout shortfalls.

We met and exceeded our enrolment targets in September 2009. As well, we benefited from the province's reversal of a planned grant discount, a savings of over $1 million in utilities costs, and better than expected results on short-term investments. All of these factors contributed to a positive year-end adjustment to our budget of $8.4 million. On final tally, our 2010 fiscal year revenues grew over the previous year by 10%.

We have continued to address the findings of the Divisional Space Review conducted in 2008–2009, which found that our physical resources were no longer meeting the Faculty's needs. Several projects, including the improvement of research laboratories, student spaces and administrative offices, have been completed or are currently underway to better serve our students, faculty and staff.

The following figures show the total revenue earned by the Faculty and the associated central costs attributed to the Faculty since the inception of the University's new budget model in the 2007 fiscal year. Each year, an estimated budget amount is provided to the Faculty based on target enrolments. After year-end, an adjustment to the budget is made that reflects the Faculty's actual enrolments for the year.

The Faculty's total operating budget of $84.5 million for the 2010 fiscal year (Figure 10.6) is made up of three components: 1) net revenue (Figure 10.3); 2) allocation from the University Fund; and 3) divisional income.

Figure 10.1
Total Revenue
2007 to 2010

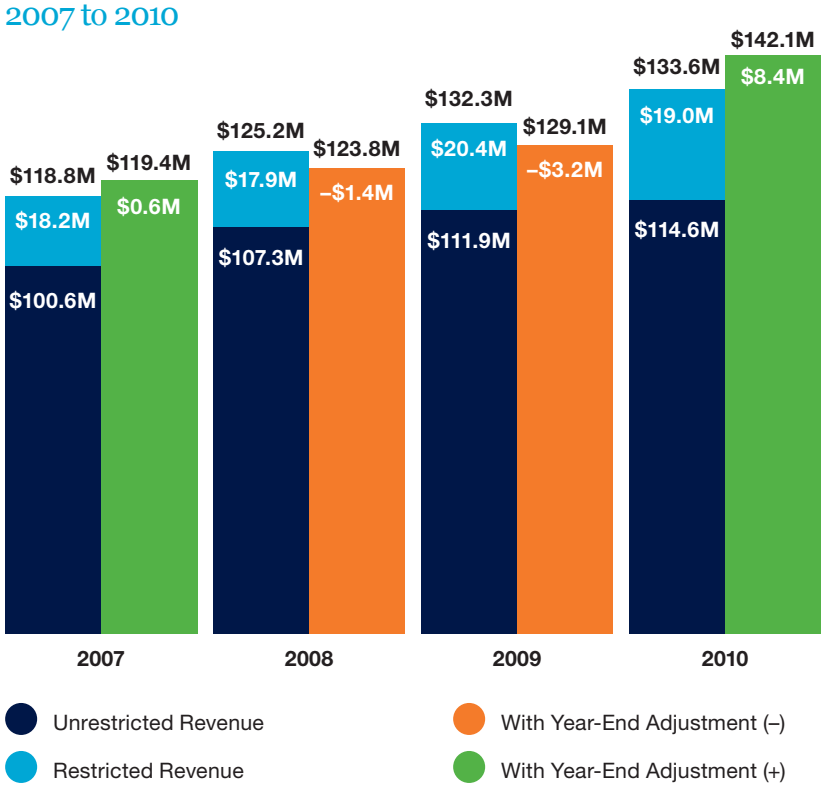


Figure 10.2
Total Central Costs
2007 to 2010

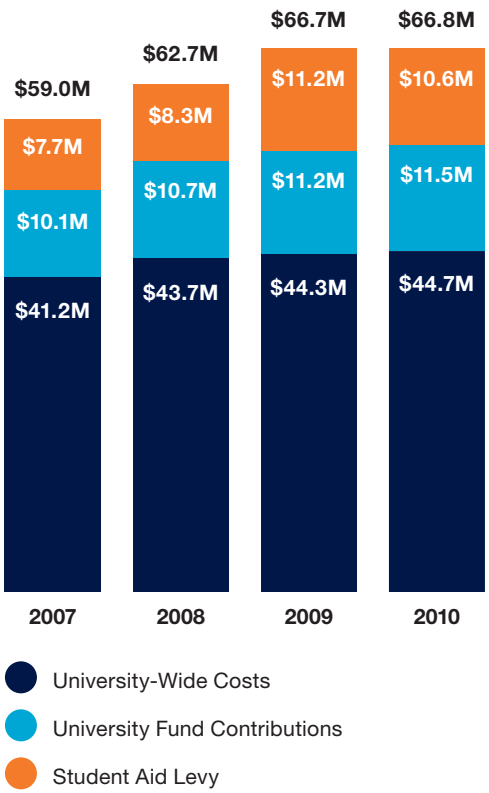


Figure 10.3
Budget Data
2007 to 2010

	2007	2008	2009	2010
Total Revenue	**$118,826,327**	**$125,233,418**	**$132,333,400**	**$133,571,789**
– Unrestricted Revenue	$100,663,690	$107,347,671	$111,937,605	$114,602,697
– Restricted Revenue	$18,162,637	$17,885,747	$20,395,795	$18,969,092
Total Central Costs	**$58,976,711**	**$62,755,042**	**$66,667,514**	**$66,768,403**
– University-Wide Costs	$41,180,986	$43,698,011	$44,307,203	$44,693,620
– University Fund Contribution	$10,066,369	$10,734,767	$11,193,761	$11,460,270
– Student Aid Levy	$7,729,356	$8,322,264	$11,166,550	$10,614,513
Net Revenue	**$59,849,616**	**$62,478,376**	**$65,665,886**	**$66,803,386**
Year-End Adjustment	**$553,886**	**$–1,380,831**	**$-3,233,099**	**$8,373,388**

Note 10.1, 10.2 and 10.3: Data is shown by fiscal year (May to April). For example, the 2010 fiscal year runs from May 2009 to April 2010.

Budget Overview for the 2010 Fiscal Year

The 2010 fiscal year was a financially difficult one due to the recession in late 2008 and the resultant loss of endowment income, which would normally be available for the 2010 budget. In order to mitigate the missing payout of about $4.8 million, used primarily to fund scholarships and student aid, the Faculty took a loan of $4.3 million in 2010. To be prudent, we also budgeted for the payout on endowed chairs in 2010 to be approximately half of what we would normally expect. Fortunately, the markets recovered well, and we earned closer to the full amount needed for endowed chairs by year-end. Repayment of the loan will commence in the 2011 fiscal year.

Figure 10.4
Revenue Sources
2010

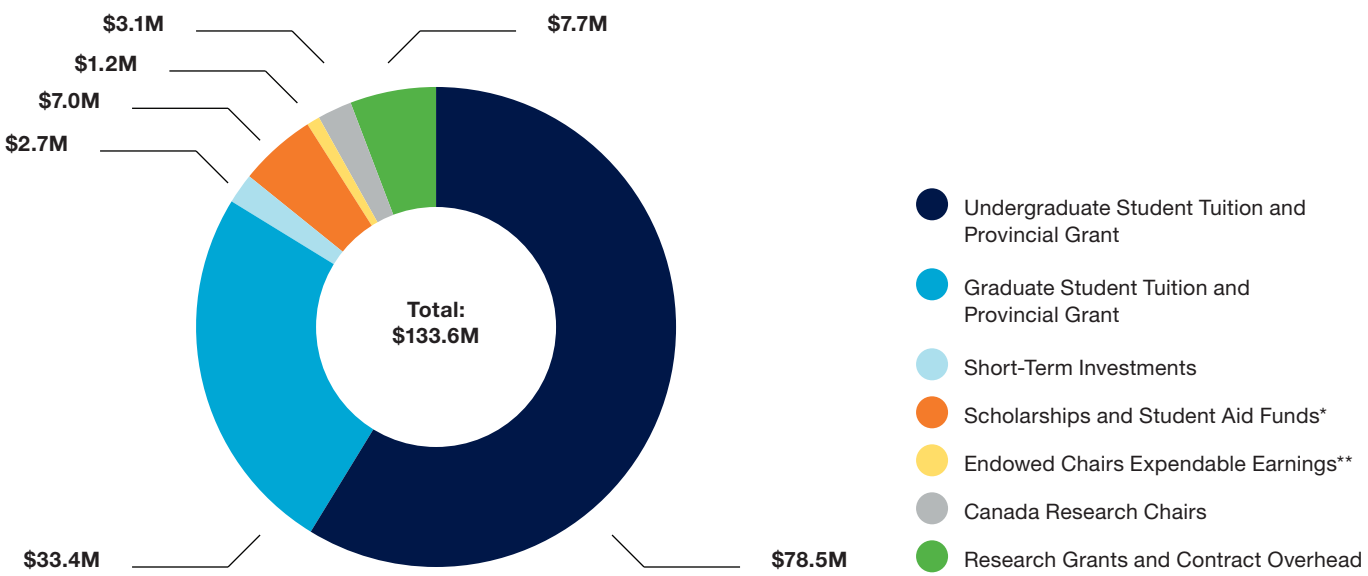
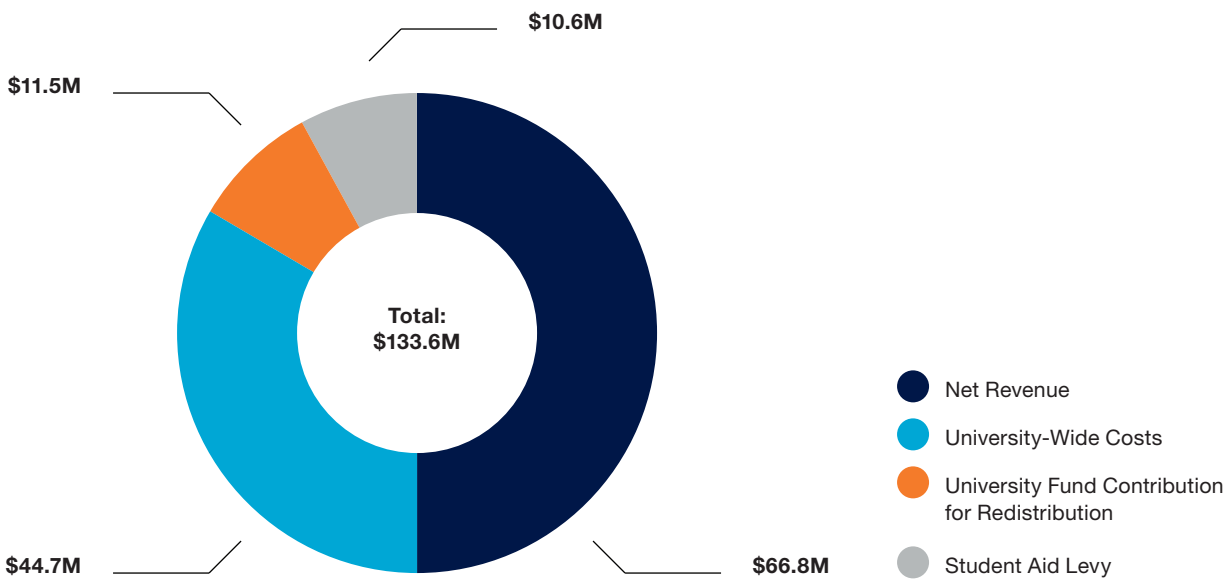
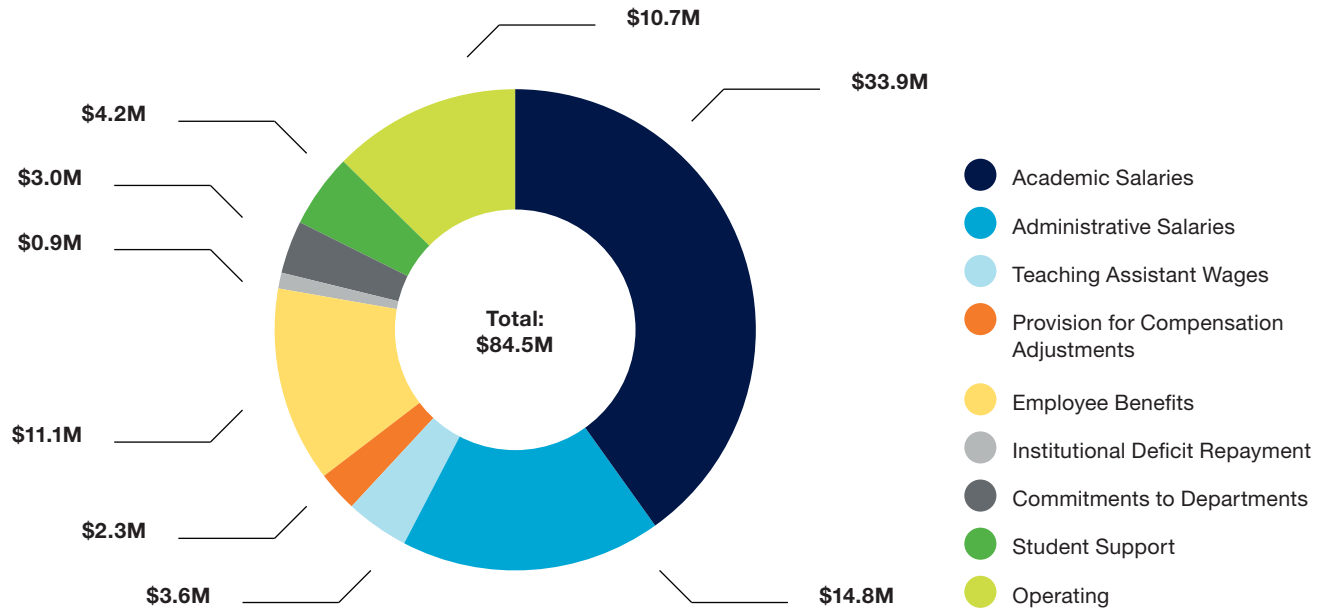


Figure 10.5
Revenue Distribution
2010



Note 10.4 and 10.5: Data is shown by fiscal year (May to April). (*) Prior to 2010 adjustment includes $4.3 million borrowed funds. (**) Prior to 2010 adjustment budgeted at half of usual amount.

Figure 10.6
Total Operating Budget: A Breakdown by Expense
2010



New Budget Model

Last year, we completed our development of a new budget allocation process and introduced it in the 2011 fiscal year. A hybrid of the University's new model, the process includes similar incentives for departments and institutes to manage their budget funding, increase revenues and contain costs. Figure 10.7 demonstrates the Faculty's new budget allocation process.

The Faculty's revenue is categorized as either *restricted* or *unrestricted*. Restricted revenues are those generated from Canada Research Chair grants, Endowments and Research Overhead and flow directly to internal units with no discount for central services. The remaining streams are considered unrestricted (Provincial Grant, Tuition, Investment and Other Income). From these revenues, we first pay for select University-wide and then central Faculty expenses. The method to allocate these revenues to the various internal units is based on a combination of undergraduate student count, graduate revenues, academic FTE and teaching in First Year and Engineering Science courses.

Specifically, the expenses paid by the Faculty to the University are the Student Aid Set Aside, the Faculty's contribution to the University Fund, and ten of the twelve cost bins. The two remaining cost bins, Occupancy and Research Administration, have been passed on to be paid directly by the Faculty's academic units. In total, these costs add to approximately 50% of all Faculty revenues (Figure 10.5).

The revenue then pays collectively for the central Faculty costs, which consist of salaries and benefits for the staff within the Administrative Units (Registrar's Office, Advancement, Student Recruitment and Retention, Outreach, Professional Experience Year (PEY), Engineering Computing Facility, Engineering Communication Program and Decanal portfolios), as well as the operating costs for those units. The cost for some units is partially offset by revenues from participants, most notably PEY. The central Faculty expenses also account for transfers to departments in support of research for Chairs and Directors as well as the Professional Expense Reimbursement Allowance for all academic staff. In total, the central expenses form approximately 16% of the net Faculty budget.

The final input to the Faculty's budget funding is the University Fund allocation. The Faculty is a net financial contributor to the University, contributing $11.5 million in the 2010 fiscal year, and receiving $5.4 million.

After an initial equalizing of new to old budgets in the 2009 fiscal year, the amount needed to achieve this equilibrium (representing 10% of unrestricted net revenues) is known as the Faculty Fund, and will be preserved going forward. A separate fund, known as the Strategic Fund, is a mechanism similar to the University Fund which is employed by the Dean to make discretionary allocations. It is generated each

Note 10.6: Data is shown by fiscal year (May to April).

year at a level of 5% of net Faculty revenues in support of strategic initiatives, institutional deficit repayment and loan repayment.

We apportion the pool of remaining revenues to the academic units based on several revenue drivers. The revenue associated with graduate students is distributed fully. The revenue associated with undergraduate students is divided as follows: 60% allocated to the academic units based on academic FTE and 40% distributed based on undergraduate student-generated revenues. Since students in First Year and Engineering Science are taught by the other academic units, we created an algorithm to allocate this revenue based on teaching. Similarly, courses taught for other units, specifically in minor programs, have been identified, and we constructed another algorithm to allocate this cost to the students' home departments.

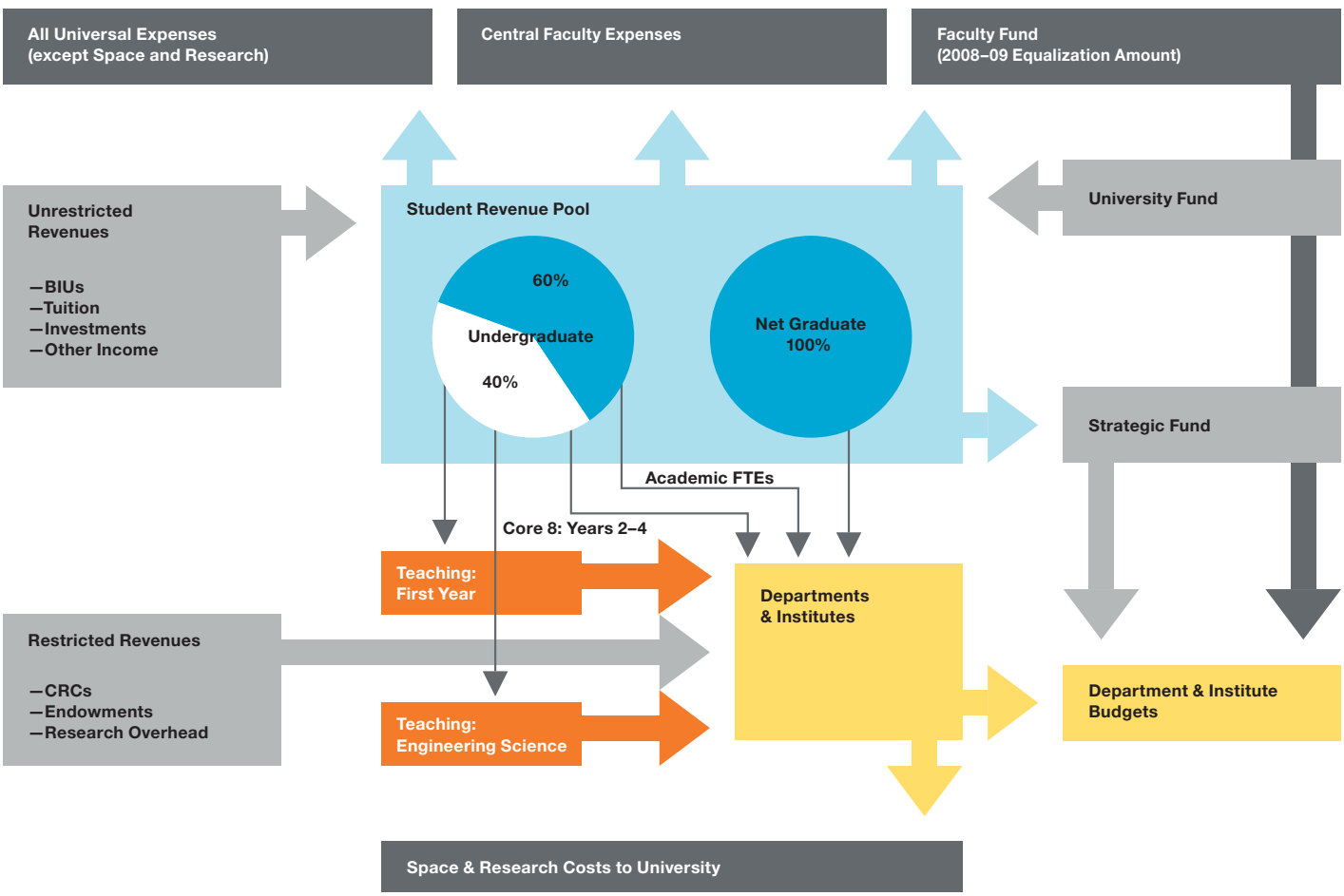
The departments and institutes also receive 100% of the revenues from Canada Research Chairs, endowed chairs and research overhead.

The academic units are then responsible for their Occupancy and Research Administration Costs. The cost driver for the Occupancy bin is the space in net assignable square metres (NASMs) in a department's or institute's inventory. The cost driver for the Research Administration bin is the research overhead on grants and contracts. The balance remaining is supplemented by their respective allocations from the Faculty Fund (as determined in the equalization fiscal year 2009). The total forms academic units' operating budget. During the year, academic units are funded on a one-time-only basis for approved initiatives from the Strategic Fund.

Since the inception of the new model, the University is charging the academic divisions an annual accumulated deficit payment. As well, the Faculty is paying off an interest-free loan borrowed during the financial recession. Both amounts are funded from the Strategic Fund.

Our goal is to recover the costs for Advancement, at both the Faculty and the University level, directly from future funds raised. This mechanism is not yet in place within the model and is being discussed with the central administration of the University.

Figure 10.7
Budget Model: How it Works



Physical Infrastructure

Our academic research and educational activities critically depend on physical infrastructure. In 2008–2009, the Faculty's comprehensive Divisional Space Review determined that our needs are no longer met by our current space; no major updates had occurred in decades. Since that time, we are upgrading our facilities, and this area remains a critical focus for our philanthropic fundraising.

Figure 10.8
Location Summary: 16 Buildings Used by Engineering 2009–2010

The following table summarizes the location of Engineering units within buildings, the NASMs assigned to each unit in each building, as well as the balance of space not assigned to Engineering. Most units have developed a shared presence in several buildings, notably the Bahen Centre and Sandford Fleming which is shared with the Faculty of Arts & Science. All University divisions, as well as the public, have access to classrooms in our buildings; these are operated by the Office of Space Management.

Code	Building	Dean's Office	EngSci	UTIAS	ChemE	CivE	ECE	IBBME	MIE	MSE	Total
AS	Aerospace			4,350							4,350
EA	Annex	310					947				1,257
BA	Bahen Centre	1,052	456				5,672		1,431		8,611
EA	Electrometal									149	149
GB	Galbraith	1,603				5,002	4,215				10,820
HA	Haultain	12			181	98			638	720	1,649
MC	Mechanical	63							5,483		5,546
MB	Mining					530		1,386	1,926	832	4,674
RM	256 McCaul	128							246		374
PT	Pratt						1,341			1,525	2,866
RS	Rosebrugh							810	2,084		2,894
SF	Sandford Fleming	878		698		1,548	3,580				6,704
WB	Wallberg	357			8,033		129			1,298	9,817
DC	CCBR				457	174		935			1,566
	Other	513			50						563
	Total Area	**4,916**	**456**	**5,048**	**8,721**	**7,352**	**15,884**	**3,131**	**11,808**	**4,524**	**61,840**
						61,840					

Note 10.8: CCBR is the Donnelly Centre for Cellular and Biomolecular Research.

Lassonde Mining Building Upgrades

The scope of work in the Lassonde Mining Building includes:

- new undergraduate computer design labs accommodating approximately 100 students on the fourth floor, in what was unused attic space, along with office space for 24 graduate students and an open lounge/event space;
- a new fifth floor seminar/conference room with video-conferencing capability, elevated above the current peaked roofline;
- a new atrium and elevator at the west end of the building, providing access to all levels of the building from a new exterior entrance off King's College Road that will be at grade to improve accessibility;
- the addition of an HVAC system, new ceilings and lighting, and laboratory renovations on the west wing of the third floor directly below the new attic construction. This will include the consolidation of the currently fragmented undergraduate bioengineering laboratory facilities at the northwest section of the floor.

Major exterior restoration is also in progress and includes roof and gutter replacement on the west wing of the building, brick and stone replacement and re-pointing, and window replacement in the west wing of the third floor. To meet Ontario Building Code requirements, the fire alarm panel will be updated and a fire pump will be added to install a sprinkler system in the newly constructed areas of the fourth and fifth floors and the west wing of the third floor.

Sustainability features will include a large photovoltaic array on the south-facing, sloped roof of the west wing. This will generate enough electricity to either meet the demands of the desktop computers in the new design labs or the lighting for the labs. A real-time display will be provided on the fourth floor to monitor the electricity generated by the photovoltaic installation. Rainwater from the roof drain system will also be collected in a cistern for use in irrigating the grounds surrounding the building.

Additional Infrastructure Upgrades

During 2009–2010, we engaged in the following projects:

Projects Initiated

- Attic Project – Lassonde Mining Building
- BioZone Phase II – Wallberg Buildilng
- Canadian Aerosol Research Network – Various Buildings
- Centre for Advanced Coatings Technologies Research Lab Upgrades – Bahen Centre for Information Technology
- Centre for Industrial Application of Microcellular Plastics – Off-Campus Rental Space
- Centre for Microfluidic Systems – Various Buildings
- Microsatellite Science and Technology Centre – University of Toronto Institute for Aerospace Studies
- Student Services Centre – Mechanical Engineering Building

Projects Completed

- Atrium Renovations – Sandford Fleming Building
- Civil Engineering Infrastructure Lab – Sandford Fleming Building
- Decanal Suite Consolidation – Bahen Centre for Information Technology
- ECE Research Lab – Galbraith Building
- Engineering Science Student Space Upgrade – Bahen Centre for Information Technology
- Registrar's Office – Galbraith Building

Planning Reports

- Centre for Enabling Technologies
- Centre for Innovation and Sustainability
- UTIAS Space Utilization Review

Glossary

Faculty of Applied Science & Engineering Academic Area Terms

Academic Area	For the purpose of the Annual Report, "Academic Area" refers to the following departments, divisions and institutes: UTIAS, IBBME, ChemE, CivE, ECE, MIE and MSE. While TrackOne is not an academic unit or an academic program, it is also included as an academic area in specific contexts in Chapter 3.
AeroE	Graduates who studied the discipline of Aerospace Engineering from the University of Toronto Institute of Aerospace Studies (UTIAS).
BioMedE	Graduates who studied the discipline of Biomedical Engineering at the Division of Engineering Science and the Institute of Biomaterials & Biomedical Engineering.
ChemE	Department of Chemical Engineering & Applied Chemistry: www.chem-eng.utoronto.ca Graduates who studied the discipline of Chemical Engineering are also designated as ChemE.
CivE	Department of Civil Engineering: www.civil.engineering.utoronto.ca Graduates who studied the discipline of Civil Engineering are also designated as CivE.
CompE	Graduates of The Edward S. Rogers Sr. Department of Electrical & Computer Engineering (ECE) who studied the discipline of Computer Engineering.
ElecE	Graduates of The Edward S. Rogers Sr. Department of Electrical & Computer Engineering (ECE) who studied the discipline of Electrical Engineering.
ECE	The Edward S. Rogers Sr. Department of Electrical & Computer Engineering: www.ece.utoronto.ca Graduates of Electrical Engineering are designated as ElecE; graduates of Computer Engineering are designated as CompE.
EngSci	Division of Engineering Science: www.engsci.utoronto.ca Graduates of this Division are also designated as EngSci.
IBBME	Institute of Biomaterials & Biomedical Engineering: www.ibbme.utoronto.ca Graduates who studied the discipline of Biomedical Engineering within this Institute are referred to as BioMedE.
IndE	Graduates from the Department of Mechanical & Industrial Engineering (MIE) who studied the discipline of Industrial Engineering.
MechE	Graduates from the Department of Mechanical & Industrial Engineering (MIE) who studied the discipline of Mechanical Engineering.
MIE	Department of Mechanical & Industrial Engineering: www.mie.utoronto.ca Graduates of Mechanical Engineering are designated as MechE; graduates of Industrial Engineering are designated as IndE.
MinE	Graduates from the Department of Civil Engineering (CivE) who studied the discipline of Mineral Engineering.
MSE	Department of Materials Science & Engineering: www.mse.utoronto.ca Graduates who studied the discipline of Materials Engineering are also designated as MSE.
UTIAS	University of Toronto Institute for Aerospace Studies: www.utias.utoronto.ca Graduates who studied the discipline of Aerospace Engineering within this Institute are designated as AeroE.

Additional Terms

AAAS	American Association for the Advancement of Science: www.aaas.org
Academic Year	The University of Toronto academic year runs from September to August. For example, the 2009–2010 academic year begins in September 2009 and ends in August 2010.
BASc	Bachelor of Applied Science
BIU	Basic Income Unit
CAE	Canadian Academy of Engineering
CCBR	Donnelly Centre for Cellular and Biomolecular Research: tdccbr.med.utoronto.ca
CFI	Canada Foundation for Innovation: www.innovation.ca/en
CIHR	Canadian Institutes of Health Research: www.cihr-irsc.gc.ca
CMHC	Canada Mortgage and Housing Corporation: www.cmhc-schl.gc.ca
CRC	Canada Research Chair
Domestic	Students who are citizens, landed immigrants or permanent residents of Canada
EDU	Extra-Departmental Unit: www.provost.utoronto.ca/policy/interdisciplinary
EDU:C	Typically a multidisciplinary multidepartmental research and/or academic unit with a defined research domain in a particular area of academic work. It exists to foster research and scholarly interest in the area. For more information: www.provost.utoronto.ca/policy/interdisciplinary
EDU:D	A group of researchers who come together for the purpose of pursuing specific research objectives. For more information: www.provost.utoronto.ca/policy/interdisciplinary
EIC	Engineering Institute of Canada: www.eic-ici.ca
EFTE	Eligible Full-Time Equivalent
ELITE	Entrepreneurship, Leadership, Innovation and Technology in Engineering: www.engineering.utoronto.ca/Future_Students/Graduate_Studies.htm
Engineering Society	Student government for Engineering students at the University of Toronto: www.skule.ca
EPP	Engineering and Public Policy
Fiscal Year	The University of Toronto fiscal year runs from May to April. For example, the 2010 fiscal year begins in May 2009 and ends in April 2010.
FTE	Full-Time Equivalent
Grant Year	The grant year runs from April to March. For example, the grant year 2010 runs from April 2009 to March 2010.
G13	Group of 13 leading, research-intensive universities in Canada, including: University of Alberta, University of British Columbia, University of Calgary, Dalhousie University, Université Laval, McGill University, McMaster University, Université de Montréal, University of Ottawa, Queen's University, University of Toronto, University of Waterloo, University of Western Ontario
Headcount	Number of degree-seeking students
IEEE	Institute of Electrical and Electronics Engineers: www.ieee.org

MASc	Master of Applied Science: www.engineering.utoronto.ca/Future_Students/Graduate_Studies.htm
MEng	Master of Engineering: www.engineering.utoronto.ca/Future_Students/Graduate_Studies.htm
MHSc	Master of Health Science in Clinical Engineering: www.engineering.utoronto.ca/Future_Students/Graduate_Studies.htm
MIT	Massachusetts Institute of Technology: www.mit.edu
NSERC	Natural Sciences and Engineering Research Council of Canada: www.nserc-crsng.gc.ca
NSERC CREATE	Collaborative Research and Training Experience program funded by NSERC: www.nserc-crsng.gc.ca/Professors-Professeurs/Grants-Subs/CREATE-FONCER-eng.asp
NOVOFER Foundation	Functions under the Hungarian Academy of Sciences: www.novofer.hu (Hungarian)
PhD	Doctor of Philosophy (doctoral program)
ROSI	Repository of Student Information: www.rosi.utoronto.ca
SCFI	Stronach Centre for Innovation
Special Student Status	Also known as a non degree-seeking student. A student who is enrolled in a class, but is not proceeding toward degree completion. Example: A special student is a visiting student from another institution who is taking a course to meet admission requirements for graduate studies.
SSHRC	Social Sciences and Humanities Research Council: www.sshrc.ca
SUNY	State University of New York: www.suny.edu
Teaching-Stream Faculty	Academic staff including lecturers, instructors and other teaching faculty with continuing appointments
Tenure-Stream Faculty	Academic staff including Assistant Professors, Associate Professors and Professors; excludes lecturers
Three Councils	Typically refers to NSERC, CIHR, SSHRC
UNENE	University Network of Excellence in Nuclear Engineering: www.unene.ca
U of T	University of Toronto: www.utoronto.ca
UOIT	University of Ontario Institute of Technology: www.uoit.ca
UT-FIRST	U of T Robotics Association volunteers who advise high school students on their robotics projects: www.utra.ca/category/teams/ut-first

Appendix

Figure A.1
Major International, National and Provincial Awards and Honours

International

AAAS Fellowship
Recognition for meritorious efforts to advance science or its applications from the American Association for the Advancement of Science

Guggenheim Fellowship
Intended for men and women who have demonstrated exceptional capacity for productive scholarship

MIT Top 35 Under 35
Awarded to world's top 35 young innovators under the age of 35 by *MIT Technology Review* magazine

NAE Fellowship
Election to the National Academy of Engineering is among the highest professional distinctions accorded to an engineer

National

3M Teaching Fellowship
Canada's highest teaching award in recognition of teaching excellence and educational leadership

Alan Blizzard Award
Recognition for exemplary collaboration in university teaching as it enhances student learning

Canada's Top 40 Under 40
Honours the top 40 Canadians who have reached a significant level of success prior to age 40

CAE Fellowship
Fellows elected by the Canadian Academy of Engineering for distinguished achievements and career-long service to the engineering profession

EIC Fellowship
Recognition for exceptional contributions to engineering in Canada and for service to the profession and to society by the Engineering Institute of Canada

Killam Research Fellowship
Awarded to an established scholar who has demonstrated outstanding research ability and has published research results in substantial publications in their field by the Canada Council for the Arts. Recipients have the opportunity to devote two years to full-time research

Killam Prize
Awarded to distinguished Canadian scholars conducting research in one of five fields of study, including engineering, by the Canada Council for the Arts

Royal Society of Canada Fellowship
Highest Canadian honour a scholar can achieve in the arts, humanities and sciences

Steacie Fellowship
Awarded to enhance the career development of outstanding and highly promising scientists and engineers by NSERC

Synergy Award for Innovation
Recognition for university-industry collaboration that stand as a model of effective partnership

Provincial

PEO Medal
Awarded to a PEO member who has contributed substantially to the advancement of the engineering profession in any of its branches

Note A.1: Referenced in Chapter 2, Awards and Honours.

Figure A.2
Engineering Student Clubs and Teams

Academic Clubs
- Chemical Engineering Club
- Civil Engineering Club
- Computer Engineering Club
- Electrical Engineering Club
- Engineering Science Club
- Industrial Engineering Club
- Materials Science & Engineering Club
- Mechanical Engineering Club
- Mineral Engineering Club
- TrackOne Committee

Athletic
- Engineering Athletic Association
- Iron Dragons Dragon Boat Team
- Parkour Club
- U of T Yoga Club

Cultural
- Chinese Engineering Students' Association
- Engineering Chinese Culture Club
- Iranian Engineering Students' Association
- Jewish Engineering Students' Association
- Korean Engineering Students' Association
- National Society of Black Engineers
- U of T Gujarati Council
- U of T Indian Students' Society

Design
- BlueGenes
- Destination Imagination
- U of T Aeronautics Team
- U of T Blue Sky Solar Racing
- U of T Concrete Canoe Team
- U of T Concrete Toboggan Team
- U of T Eco-Marathon Club
- U of T Engineering Acceleration
- U of T Formula SAE Racing Team
- U of T Human-Powered Vehicle Design Team
- U of T Mechatronics Design Association
- U of T Mining Games Team
- U of T Robotic Sailboat Club
- U of T Snowboard Design Team

Performance
- Brass Ring
- Rise and Improvise Dance Club
- Skule™ Arts Festival
- Skule™ Choir
- Skule™ Improv Society
- Skule™ Jazz Combo
- Skule™ Nite
- Skule™ Orchestra
- Skule™ Stage Band
- Skule™ Stage Band Blue

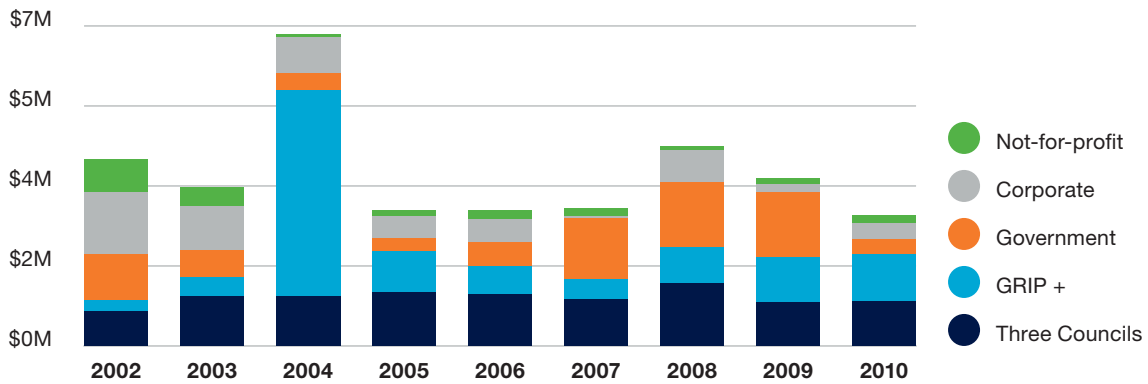
Professional
- American Society of Mechanical Engineers – U of T Chapter
- Astronomy and Space Exploration Society
- Canadian Society of Chemical Engineers – U of T Chapter
- Canadian Society of Industrial Engineers / Institute of Industrial Engineers – U of T Chapter
- Citizen Engineer
- Club for Undergraduate Biomedical Engineering
- Engineering Conservatives
- Engineering World Health – U of T Chapter
- Engineers in Borders
- Engineers Without Borders, U of T Chapter
- Environmental Management Committee
- Eyes of Hope
- Friends of Interdisciplinary Research in Medicine
- Hacker Academy
- Hi-Skule™ Committee
- IEEE University of Toronto Student Branch
- International Society of Pharmaceutical Engineering – U of T Chapter
- Material Advantage – U of T Chapter
- National Business and Technology Conference
- National Business and Technology Conference
- NSciential
- NSight
- Nspire
- Ontario Water Works Association
- Professional Engineers of Ontario Student Club – U of T Chapter
- Project Management Association of Canada – U of T Chapter
- Student Issues Committee
- Surface Mount Technology Association
- Sustainable Engineers Association
- Take Action! Organization
- Tetra Society at the U of T
- TrackOne Alumni Committee
- TrackOne Mentorship Program
- U of T Consulting Association
- U of T Engineering First Responders
- U of T Engineering Kompetitions
- U of T Engineering Toastmasters
- U of T Nano Club
- U of T Society of Manufacturing Engineers
- U of T Space Design Contest
- U of T Sustainable Energy Fair
- U of T Student Chapter of the Water Environment Association of Ontario
- Web Startup Society
- Women in Science and Engineering

Publications
- *Crumpled Paper* Arts and Creative Writing Magazine
- Skulebook
- *The Cannon* Newspaper
- *The Toike Oike* Newspaper

Social
- 1T1 Committee
- 1T2 Committee
- 1T3 Committee
- 1T4 Committee
- Blue and Gold Committee
- Engineering Friday All-Night Gaming
- Engineering Lego Group
- Engineers for Christ
- Eyes of Hope
- Lady Godiva Memorial Bnad [sic]
- Skule™ Juggling Club
- U of T Engineering Photography Club
- U of T Mandarin Chinese Christian Fellowship

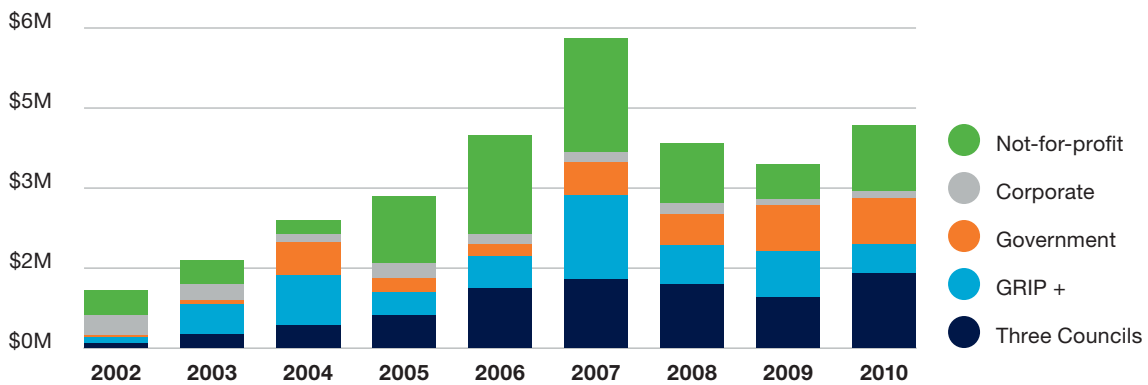
Note A.2: Referenced in Chapter 3, Undergraduate Studies.

Figure A.3
University of Toronto Institute for Aerospace Studies Research Funding by Source
2002 to 2010



	Three Councils	GRIP +	Government	Corporate	Not-for-profit	Total
2002	$765,835	$250,670	$990,244	$1,359,299	$732,781	**$4,098,829**
2003	$1,092,901	$426,834	$577,588	$973,032	$414,594	**$3,484,949**
2004	$1,097,545	$4,517,630	$358,267	$801,745	$61,614	**$6,836,801**
2005	$1,177,676	$914,700	$264,671	$498,461	$118,347	**$2,973,855**
2006	$1,145,706	$602,514	$531,325	$499,365	$210,069	**$2,988,979**
2007	$1,038,020	$428,043	$1,337,575	$60,000	$161,533	**$3,025,171**
2008	$1,380,627	$799,689	$1,413,347	$703,727	$71,667	**$4,369,057**
2009	$960,649	$1,000,000	$1,412,640	$172,002	$131,467	**$3,676,758**
2010	$980,262	$1,048,966	$315,400	$365,378	$165,138	**$2,875,144**

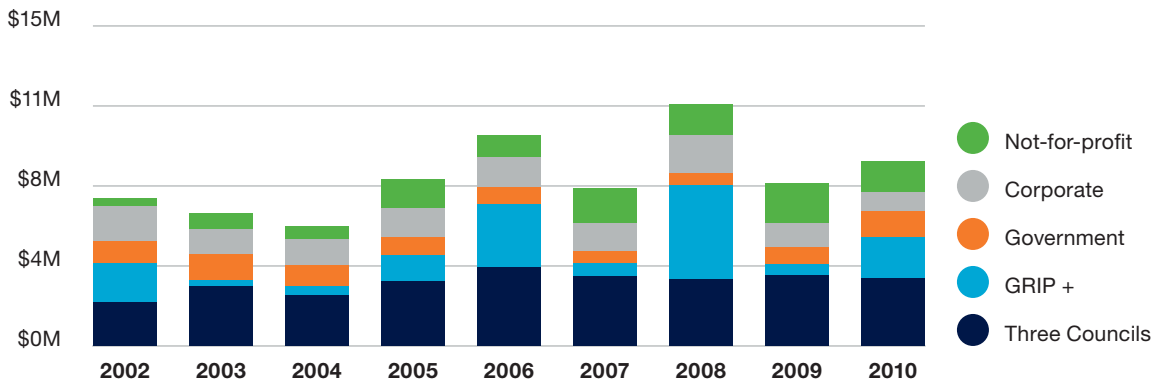
Figure A.4
Institute of Biomaterials & Biomedical Engineering Research Funding by Source
2002 to 2010



	Three Councils	GRIP +	Government	Corporate	Not-for-profit	Total
2002	$104,600	$100,000	$40,000	$382,105	$468,530	**$1,095,235**
2003	$271,851	$549,442	$83,681	$298,576	$465,733	**$1,669,283**
2004	$427,031	$951,219	$617,833	$142,307	$276,704	**$2,415,094**
2005	$618,433	$434,974	$265,402	$275,888	$1,257,129	**$2,851,826**
2006	$1,120,173	$617,945	$222,218	$176,220	$1,857,110	**$3,993,666**
2007	$1,288,595	$1,579,193	$628,970	$186,904	$2,137,485	**$5,821,147**
2008	$1,196,626	$749,398	$562,729	$222,300	$1,119,211	**$3,850,264**
2009	$956,484	$877,279	$849,579	$117,411	$663,498	**$3,464,251**
2010	$1,404,113	$552,931	$855,971	$144,429	$1,235,597	**$4,193,041**

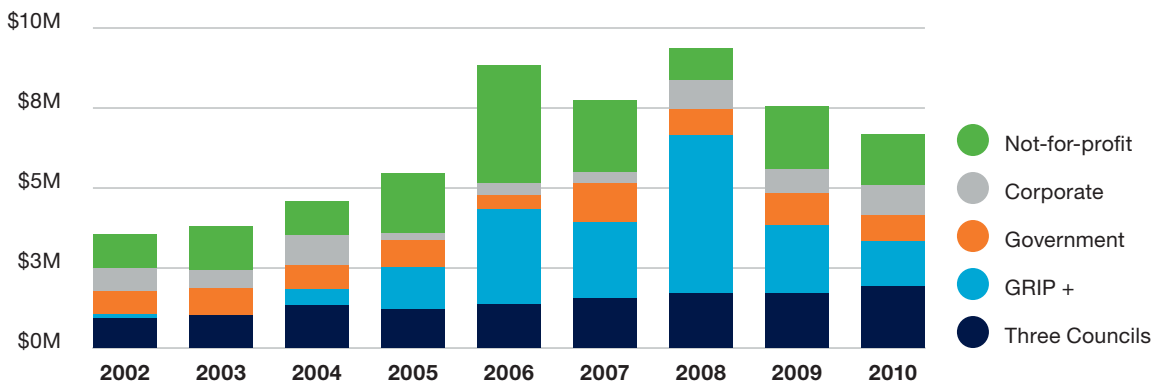
Note A.3 and A.4: Referenced in Chapter 5, Research.

Figure A.5
Department of Chemical Engineering & Applied Chemistry Research Funding by Source
2002 to 2010



	Three Councils	GRIP +	Government	Corporate	Not-for-profit	Total
2002	$2,064,747	$1,831,418	$1,067,723	$1,598,464	$417,169	**$6,979,521**
2003	$2,812,191	$302,266	$1,185,133	$1,214,611	$709,751	**$6,223,952**
2004	$2,399,608	$416,892	$992,675	$1,230,056	$603,308	**$5,642,539**
2005	$3,070,145	$1,206,256	$860,567	$1,351,931	$1,330,852	**$7,819,751**
2006	$3,730,726	$2,949,311	$788,157	$1,392,291	$1,049,174	**$9,909,659**
2007	$3,287,117	$621,673	$564,961	$1,281,035	$1,675,462	**$7,430,248**
2008	$3,162,791	$4,408,823	$529,199	$1,795,190	$1,461,064	**$11,357,067**
2009	$3,327,981	$527,478	$795,921	$1,118,128	$1,911,532	**$7,681,040**
2010	$3,183,060	$1,930,772	$1,259,619	$864,668	$1,420,342	**$8,658,461**

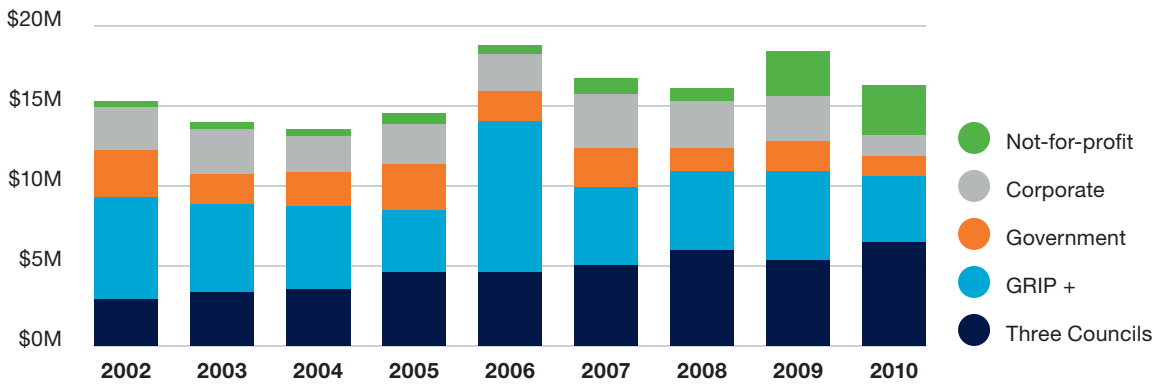
Figure A.6
Department of Civil Engineering Research Funding by Source
2002 to 2010



	Three Councils	GRIP +	Government	Corporate	Not-for-profit	Total
2002	$953,037	$121,883	$707,170	$733,905	$1,063,245	**$3,579,240**
2003	$1,024,945		$873,992	$548,843	$1,388,197	**$3,835,977**
2004	$1,355,862	$491,600	$758,630	$945,948	$1,059,729	**$4,611,769**
2005	$1,236,971	$1,311,923	$819,058	$225,653	$1,878,573	**$5,472,178**
2006	$1,392,203	$2,945,788	$467,971	$347,635	$3,715,020	**$8,868,617**
2007	$1,555,580	$2,388,172	$1,222,738	$337,126	$2,265,592	**$7,769,208**
2008	$1,711,461	$4,945,371	$815,963	$910,734	$1,016,093	**$9,399,622**
2009	$1,721,950	$2,137,856	$999,469	$730,076	$1,991,654	**$7,581,005**
2010	$1,949,056	$1,408,348	$797,819	$967,866	$1,565,895	**$6,688,984**

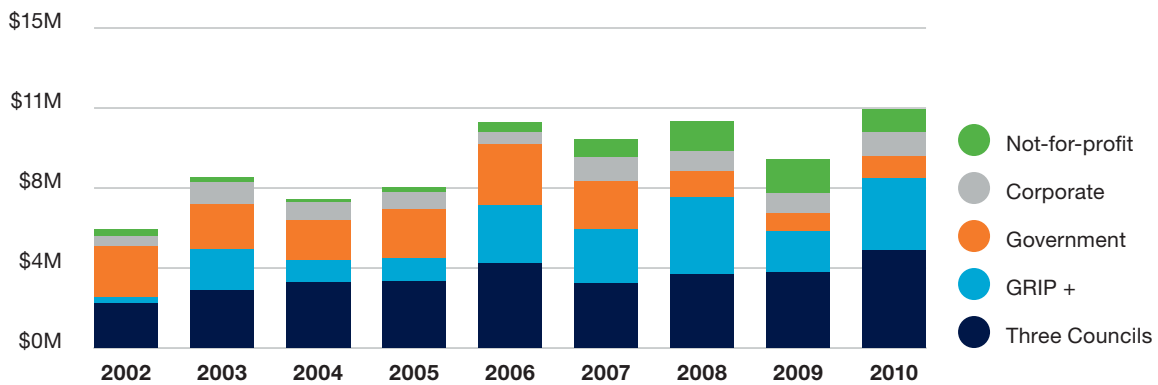
Note A.5 and A.6: Referenced in Chapter 5, Research.

Figure A.7
The Edward S. Rogers Sr. Department of Electrical & Computer Engineering Research Funding by Source 2002 to 2010



	Three Councils	GRIP +	Government	Corporate	Not-for-profit	Total
2002	$2,939,412	$6,377,961	$2,941,683	$2,737,229	$319,018	**$15,315,303**
2003	$3,395,965	$5,489,555	$1,924,348	$2,801,462	$419,862	**$14,031,192**
2004	$3,548,584	$5,196,090	$2,144,281	$2,251,341	$457,693	**$13,597,989**
2005	$4,633,523	$3,922,686	$2,844,856	$2,455,661	$713,252	**$14,569,978**
2006	$4,601,180	$9,467,119	$1,929,683	$2,266,096	$575,955	**$18,840,033**
2007	$5,045,765	$4,930,812	$2,436,761	$3,363,559	$957,306	**$16,734,203**
2008	$5,991,482	$4,987,696	$1,416,349	$2,940,516	$813,281	**$16,149,324**
2009	$5,381,412	$5,572,534	$1,879,779	$2,814,325	$2,789,468	**$18,437,518**
2010	$6,487,031	$4,173,178	$1,190,340	$1,374,253	$3,076,194	**$16,300,996**

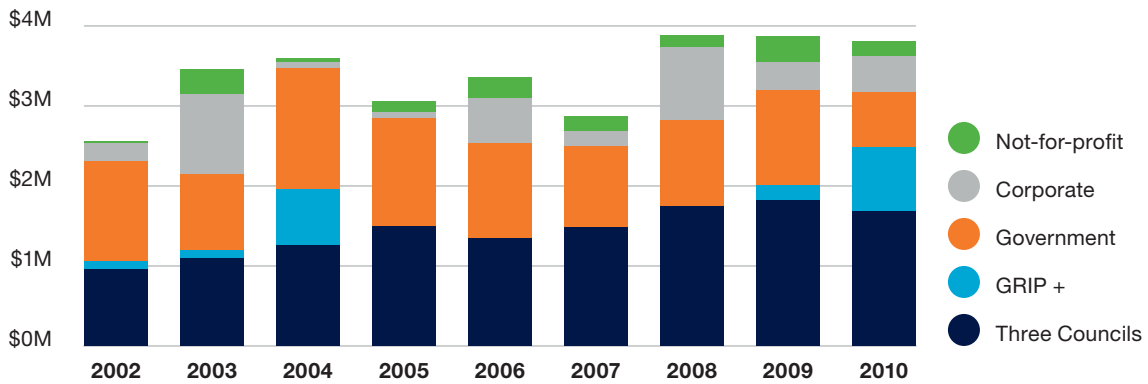
Figure A.8
Department of Mechanical & Industrial Engineering Research Funding by Source 2002 to 2010



	Three Councils	GRIP +	Government	Corporate	Not-for-profit	Total
2002	$2,101,533	$300,000	$2,413,842	$463,433	$316,841	**$5,595,649**
2003	$2,712,143	$1,928,000	$2,123,335	$1,019,462	$270,317	**$8,053,257**
2004	$3,082,435	$1,069,580	$1,856,197	$860,084	$139,626	**$7,007,922**
2005	$3,140,274	$1,090,642	$2,326,788	$766,235	$224,614	**$7,548,553**
2006	$3,992,829	$2,758,211	$2,842,771	$555,242	$473,811	**$10,622,864**
2007	$3,073,763	$2,506,210	$2,268,069	$1,105,048	$855,628	**$9,808,718**
2008	$3,496,045	$3,568,641	$1,255,786	$924,880	$1,412,630	**$10,657,982**
2009	$3,580,309	$1,922,433	$854,440	$925,364	$1,600,782	**$8,883,328**
2010	$4,593,286	$3,382,656	$1,032,909	$1,131,951	$1,080,884	**$11,221,686**

Note A.7 and A.8: Referenced in Chapter 5, Research.

Figure A.9
Department of Materials Science & Engineering Research Funding by Source
2002 to 2010



	Three Councils	GRIP +	Government	Corporate	Not-for-profit	Total
2002	$964,345	$102,314	$1,252,571	$219,567	$30,000	**$2,568,797**
2003	$1,106,510	$97,800	$947,170	$1,006,308	$306,450	**$3,464,238**
2004	$1,266,337	$706,303	$1,509,122	$63,250	$57,000	**$3,602,012**
2005	$1,497,840		$1,359,202	$63,250	$145,800	**$3,066,092**
2006	$1,355,437		$1,184,384	$567,370	$257,800	**$3,364,991**
2007	$1,493,835		$1,001,969	$195,024	$193,060	**$2,883,888**
2008	$1,752,647		$1,074,097	$922,297	$138,250	**$3,887,291**
2009	$1,828,158	$184,086	$1,199,099	$339,222	$326,188	**$3,876,753**
2010	$1,691,652	$795,815	$698,332	$447,055	$175,250	**$3,808,104**

Note A.9: Referenced in Chapter 5, Research.

Figure A.10
Research Chairs
2009–2010

Title	Chairholder	Sponsor	Tier	Department
Alumni Chair of Bioengineering	Cristina Amon	Endowed		MIE
Bahen/Tanenbaum Chair in Civil Engineering	Jeffrey Packer	Endowed		CivE
Bell Canada Chair in Multimedia	Dimitrios Hatzinakos	Endowed		ECE
Bell University Laboratories Chair in Computer Engineering	Baochun Li	Endowed		ECE
Bell University Laboratories Chair in Software Engineering	Hans-Arno Jacobsen	Endowed		ECE
Canada Research Chair in Autonomous Space Robotics	Tim Barfoot	NSERC	Tier 2	UTIAS
Canada Research Chair in Communication Algorithms	Frank Kschischang	NSERC	Tier 1	ECE
Canada Research Chair in Computational Aerodynamics and Environmentally Friendly Aircraft Design	David Zingg	NSERC	Tier 1	UTIAS
Canada Research Chair in Diffusion-Wave Sciences and Technologies	Andreas Mandelis	NSERC	Tier 1	MIE
Canada Research Chair in Digital Communications	Wei Yu	NSERC	Tier 2	ECE
Canada Research Chair in Fuel Cell Materials and Manufacturing	Olivera Kesler	NSERC	Tier 2	MIE
Canada Research Chair in Information Processing and Machine Learning	Brendan Frey	NSERC	Tier 2	ECE
Canada Research Chair in Intelligent Transportation Systems	Baher Abdulhai	NSERC	Tier 2	CivE
Canada Research Chair in Internet Video, Audio and Image Search	Parham Aarabi	NSERC	Tier 2	ECE
Canada Research Chair in Mechanobiology	Craig Simmons	CIHR	Tier 2	MIE
Canada Research Chair in Micro- and Nano-Engineering Systems	Yu Sun	NSERC	Tier 2	MIE
Canada Research Chair in Microcellular Plastics	Chul B. Park	NSERC	Tier 1	MIE
Canada Research Chair in Molecular Imaging	Christopher Yip	CIHR	Tier 2	ChemE
Canada Research Chair in Nano- and Micro-Structured Electromagnetic Materials and Applications	George Eleftheriades	NSERC	Tier 1	ECE
Canada Research Chair in Nanotechnology	Ted Sargent	NSERC	Tier 2	ECE
Canada Research Chair in Quantum Information	Hoi-Kwong Lo	NSERC	Tier 2	ECE
Canada Research Chair in Signal Processing Systems	Glenn Gulak	NSERC	Tier 1	ECE
Canada Research Chair in Smart and Functional Polymers	Hani Naguib	NSERC	Tier 2	MIE
Canada Research Chair in Stem Cell Bioengineering	Peter Zandstra	NSERC	Tier 2	IBBME
Canada Research Chair in Stem Cell Bioengineering and Functional Genomics	William L. Stanford	CIHR	Tier 2	IBBME
Canada Research Chair in Tissue Engineering	Molly Shoichet	NSERC	Tier 1	ChemE
Canada Research Chair of Biotechnology	Warren Chan	NSERC	Tier 2	IBBME
Canada Research Chair in Autonomic Service Architecture	Alberto Leon-Garcia	NSERC	Tier 1	ECE
Canada Research Chair in Photonic Technologies and Applications	Li Qian	NSERC	Tier 2	ECE
Celestica Chair in Materials for Microelectronics	Doug D. Perovic	Endowed		MSE
Chair in Computer Networks and Enterprise Innovation	Elvino Sousa	Endowed		ECE
Chair in Information Engineering (retired)	Joseph Paradi	Endowed		ChemE

Title	Chairholder	Sponsor	Tier	Department
Chair in Software Engineering	Tarek Abdelrahman	Endowed		ECE
Clarice Chalmers Chair of Engineering Design	William Cleghorn	Endowed		MIE
Dusan and Anne Miklas Chair in Engineering Design	Paul Chow	Endowed		ECE
Edward S. Rogers Sr. Chair in Engineering	Glenn Gulak	Endowed		ECE
Eugene V. Polistuk Chair in Electromagnetic Design	Costas Sarris	Endowed		ECE
Frank Dottori Chair in Pulp and Paper Engineering	Honghi Tran	Endowed		ChemE
Gerald R. Heffernan Chair in Materials Processing	Torstein A. Utiguard	Endowed		MSE
J. Armand Bombardier Foundation Chair in Aerospace Flight	David Zingg	Endowed		UTIAS
L. Lau Chair in Electrical and Computer Engineering	Mohammad (Reza) Iravani	Endowed		ECE
Michael E. Charles Chair in Chemical Engineering	Michael Sefton	Endowed		ChemE
Nortel Institute Chair in Emerging Technology	J. Stewart Aitchison	Endowed		ECE
Nortel Institute Chair in Network Architecture and Services	Jorg Liebeherr	Endowed		ECE
NSERC Industrial Research Chair in Design Engineering for the Urban Environment	Paul Gauvreau	NSERC		CivE
NSERC Industrial Research Chair in Drinking Water Research	Robert Andrews	NSERC		CivE
NSERC/Cement Association of Canada Industrial Research Chair in Concrete Durability and Sustainability	Doug Hooton	NSERC		CivE
NSERC/UNENE Industrial Research Chair in Corrosion Control and Materials Performance in Nuclear Power Systems	Roger Newman	NSERC/ UNENE		ChemE
Pierre Lassonde Chair in Mining Engineering	William Bawden	Endowed		CivE
Stanley Ho Professorship in Microelectronics	Sorin Voinigescu	Endowed		ECE
The Stanley L. Meek Chair in Advanced Nanotechnology	Harry Ruda	Endowed		MSE
University of Toronto Distinguished Professor in Plasma Engineering	Javad Mostaghimi	Endowed		MIE
Velma M. Rogers Graham Chair in Engineering	George Eleftheriades	Endowed		ECE
W.M. Keck Chair of Seismology and Rock Mechanics	Paul Young	Endowed		CivE
Wallace G. Chalmers Chair of Engineering Design	Lily H. Shu	Endowed		MIE

Note A.10: Referenced in Chapter 5, Research.

Canada Research Chair (CRC)
Established by the Government of Canada to attract and retain some of the world's most outstanding researchers in Canadian degree-granting institutions. The program invests a total of $300 million per year across the country. There are two types of CRCs: Tier 1, which is renewable and held for seven years. The University receives $200,000 annually per Tier 1 Chair; Tier 2 is a junior chair, held for five years and is eligible for renewal only once, unlike the Tier 1 level. The University receives $100,000 annually for Tier 2 CRCs.

Endowed Research Chair
Created with the generous support of donations and indicates a broad and continuing commitment to the position and discipline of research. Each faculty member who holds a Chair position is considered to be of great distinction and typically at the rank of Professor with tenure. Each Chair position is held for a fixed term.

Industrial Research Chair
Jointly funded by NSERC and industry to help universities build on existing strengths or develop major research capacity in areas of interest to industry.

U of T Distinguished Professor
Designed to advance and recognize faculty with highly distinguished accomplishments who display promise. This Chair is limited to no more than 3% of tenured faculty within a Faculty.

Figure A.11
Engineering Spin-Off Companies
1951 to 2010

Est.	Company Name	Engineering Affiliation	Department
2010	Arda Power Inc.	Peter Lehn	ECE
2010	FOTA Technologies	Tony Chan Carusone	ECE
2009	Chip Care Corp.	J. Stewart Aitchison	ECE
2009	Peraso Technologies Inc.	Sorin Voinigescu	ECE
2008	Ablazeon Inc.	Javad Mostaghimi	MIE
2008	Arch Power Inc.	Mohammad (Reza) Iravani	ECE
2008	AXAL Inc.	Milos Popovic and Egor Sanin	IBBME
2008	Incise Photonics Inc.	Peter Herman	ECE
2008	Quantum Dental Technologies	Andreas Mandelis	MIE
2008	Simple Systems Inc.	Milos Popovic, Aleksandar Prodic and Armen Baronijan	ECE, IBBME
2007	002122461 Ontario Inc.	Harry Ruda	MSE
2007	Cast Connex Corp.	Jeffrey Packer and Constantin Christopoulos	CivE
2007	Elastin Specialties	Kimberly Woodhouse	ChemE
2007	Inometrix Inc.	Michael Galle	ECE
2007	Modiface Inc.	Parham Aarabi	ECE
2007	Neurochip Inc.	Berj Bardakjian	IBBME
2007	Viewgenie Inc.	Parham Aarabi	ECE
2006	Anviv Mechatronics Inc. (AMI)	Andrew Goldenberg	MIE
2006	Hydratek and Associates Inc.	Bryan Karney and (since 2006) Fabian Papa	CivE
2006	InVisage Technologies Inc.	Ted Sargent	ECE
2006	Metabacus	Jianwen Zhu	ECE
2006	Vennsa Technologies Inc.	Andreas Veneris and Sean Safarpour	ECE
2005	Greencore Composites	Mohini Sain	Forestry, ChemE
2004	Field Metrica Inc. (FMI)	Tim DeMonte, Richard Yoon	IBBME
2004	Tissue Regeneration Therapeutics Inc. (TRT)	J.E. Davies	IBBME
2003	1484667 Ontario Inc.	Brad Saville	ChemE
2003	ArchES Computing Systems Corp.	Paul Chow	ECE
2003	Norel Optronics Inc.	Zhenghong Lu	MSE
2003	Vocalage Inc.	Mark Chignell	MIE
2002	Information Intelligence Corporation (IIC)	Burhan Turksen	MIE
2002	MatRegen Corp.	Molly Shoichet	IBBME, ChemE
2002	OMDEC Inc.	Andrew K.S. Jardine	MIE
2001	Fox-Tek	Rod Tennyson	UTIAS
2001	Insception Biosciences	Peter Zandstra	IBBME
2001	Interface Biologies	Paul Santerre	IBBME
2000	Biox Corporation	David Boocock	ChemE
2000	Photo-Thermal Diagnostics Inc.	Andreas Mandelis	MIE
2000	Simulent Inc.	Javad Mostaghimi	MIE
2000	Virtek Engineering Science Inc.	Andrew Goldenberg	MIE
1999	Accelight Networks Inc.	Alberto Leon-Garcia and Paul Chow	ECE
1999	em2 Inc.	J.E. Davies	IBBME
1999	Soma Networks	Michael Stumm and Martin Snelgrove	ECE
1999	Vivosonic Inc.	Yuri Sokolov and Hans Kunov	IBBME
1998	1208211 Ontario Ltd. (affiliate: Regen StaRR)	Robert Pilliar, Rita Kandel and Marc Grynpas	IBBME
1998	BANAK Inc.	Andrew K.S. Jardine	MIE
1998	BoneTec Corp. (Now owned by subsidiary of TRT)	J.E. Davies and Molly Shoichet	IBBME
1998	Right Track CAD Corp.	Jonathan Rose	ECE
1998	SMT HyrdaSil	Rod Tennyson	UTIAS
1998	Snowbush Microelectronics	Kenneth Martin and David Johns	ECE
1997	Rimon Therapeutics	Michael Sefton	IBBME, ChemE
1996	OANDA Corp.	Michael Stumm	ECE
1996	Rocscience Inc.	John Curran	CivE
1995	Amilog Systems		MIE
1995	Electrobiologies	Paul Madsen	IBBME

1995	Hydrogenics Corp.		MIE
1995	Tribokinetics Inc.	Raymond Woodhams	ChemE
1994	Key Lime Co.	Honghi Tran	ChemE
1994	Trantek Power		ECE
1993	Electro Photonics	Raymond Measures	UTIAS
1993	Liquid Metal Sonics Ltd.		MSE
1993	SAFE Nozzle Group	Honghi Tran	ChemE
1993	SmartSpeaker Corp.	Anees Munshi	ECE
1992	Condata Technologies Ltd.		ECE
1992	Gao Research & Consulting Ltd.	Frank Gao	ECE
1992	Novator Systems Ltd.	Mark Fox	MIE
1992	Paul Madsen Medical Devices	Hans Kunov	IBBME
1992	PolyPhalt Inc.	Raymond Woodhams	ChemE
1991	Advent Process Engineering Inc.		MSE
1991	LinShin Canada Inc.		IBBME
1991	Minnovex	Glenn Dobby	MSE
1991	Redrock Solvers Inc.	Michael Carter	MIE
1990	Fibre Metrics	Dale Hogg	UTIAS
1989	Apollo Environmental Systems Corp.	John Harbinson	ChemE
1989	Integrity Testing Laboratory Inc. (ITL)		UTIAS
1989	Translucent Technologies	Paul Milgram	MIE
1989	Xiris Automation Inc.	Cameron Serles	MIE
1988	Advanced Materials Technologies	Steven Thorpe	MSE
1988	Food BioTek Corp.	Leon Rubin	ChemE
1986	EHM Rehabilitation Technologies	Pomeranz Salansky	UTIAS
1986	LACEC Energy Systems Inc.	Charles Ward	MIE
1985	El-Mar Inc.		IBBME
1985	Electrocaps Inc.	J. Smith	ChemE
1985	Katosizer Industries Ltd.	W. Snelgrove	ECE
1985	Tibur-Howden		MSE
1984	ABIT Systems Inc.	Burhan Turksen	MIE
1984	Ergotechnics	P. Foley	MIE
1984	MERP Enhanced Composites Inc.	Michael Piggott	ChemE
1983	Human Factors North	N. Moray	MIE
1982	DMER	D. MacKay	ChemE
1982	Engineering Services Inc. (ESI)	Andrew Goldenberg	MIE
1982	Owl Instruments	J.W. Smith	IBBME
1980	Almax Ltd.	G. Sinclair	ECE
1980	Dynaco Inc.	Peter Hughes	UTIAS
1980	SatCon Power Systems Canada Ltd.	Shashi Dewan	ECE
1978	Aurora Scientific Inc.	David James	MIE
1978	Hummel Energy Systems Ltd.	R.L. Hummel	ChemE
1976	Hooper & Angus Consulting Engineers	Frank Hooper	MIE
1976	Kings Engineering Associates Ltd.	Iian Currie	MIE
1975	General Comminution Inc.	Olev Trass	ChemE
1974	Envirogetics	Frank Hooper	MIE
1974	MDS Sciex - Division of MDS Inc.	Barry French	UTIAS
1974	Tibur Metals Inc.		MSE
1973	Hooper & Hix, Engineers and Architects	Frank Hooper	MIE
1970	Eco-Tec Ltd.	R. Hunter	ChemE
1968	Electrical Engineering Consolidated Ltd.	K.C. Smith	ECE
1968	Vibron	D. Allen	MIE
1966	Aercol		UTIAS
1963	Chemical Engineering Research Consultants	William Graydon	ChemE
1960	Integral Apparatus Ltd.	Frank Hooper	MIE
1951	Sinclair Technologies Inc.	G. Sinclair	ECE

Note A.11: Referenced in Chapter 5, Research. This includes all spin-off companies on file with the U of T Innovations Group, and as added by faculty.

Figure A.12a
Total Academic Staff by Academic Area
2001–2002 to 2009–2010

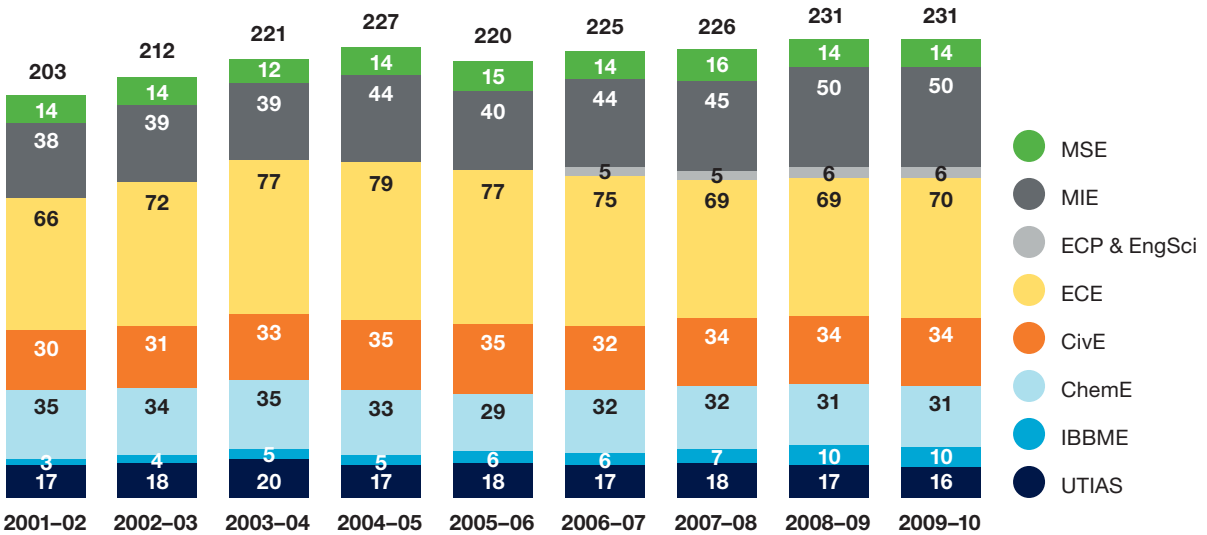
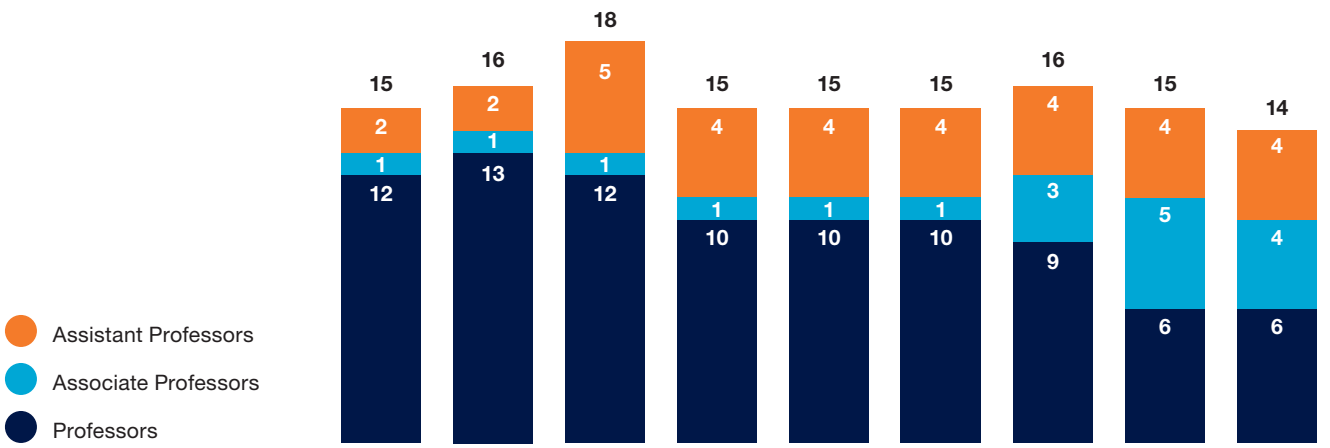


Figure A.12b
Total Academic Staff by Academic Area and Position
2001–2002 to 2009–2010

		2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
UTIAS	Assistant Profs	2	2	5	4	4	4	4	4	4
	Associate Profs	1	1	1	1	1	1	3	5	4
	Professors	12	13	12	10	10	10	9	6	6
	Lecturers	2	2	2	2	3	2	2	2	2
IBBME	Assistant Profs	3	4	5	4	3	3	3	6	5
	Associate Profs	0	0	0	1	3	3	3	3	1
	Professors	0	0	0	0	0	0	1	1	4
	Lecturers	0	0	0	0	0	0	0	0	0
ChemE	Assistant Profs	4	2	1	1	2	4	5	5	6
	Associate Profs	5	5	6	6	2	3	3	3	2
	Professors	22	23	24	22	22	22	20	17	17
	Lecturers	4	4	4	4	3	3	4	6	6
CivE	Assistant Profs	9	9	9	8	7	11	8	6	6
	Associate Profs	6	5	7	9	9	6	10	12	12
	Professors	15	17	17	18	19	15	15	15	15
	Lecturers	0	0	0	0	0	0	1	1	1
ECE	Assistant Profs	23	27	30	35	28	25	18	10	8
	Associate Profs	5	4	9	9	14	15	22	25	26
	Professors	35	37	35	32	30	30	25	30	32
	Lecturers	3	4	3	3	5	5	4	4	4
ECP & EngSci	Lecturers						5	5	6	6
MIE	Assistant Profs	5	5	6	10	10	13	14	13	11
	Associate Profs	6	7	7	7	5	6	7	8	12
	Professors	27	27	26	26	24	24	23	26	24
	Lecturers	0	0	0	1	1	1	1	3	3
MSE	Assistant Profs	0	0	0	1	1	1	2	2	1
	Associate Profs	3	3	3	3	4	4	4	2	3
	Professors	11	11	9	10	10	9	10	10	10
	Lecturers	0	0	0	0	0	0	0	0	0
Total		**203**	**212**	**221**	**227**	**220**	**225**	**226**	**231**	**231**

Note A.12a and A.12b: Referenced in Chapter 9, Diversity. Number of lecturers from Engineering Communications Program (ECP) and EngSci is unavailable prior to 2006–2007.

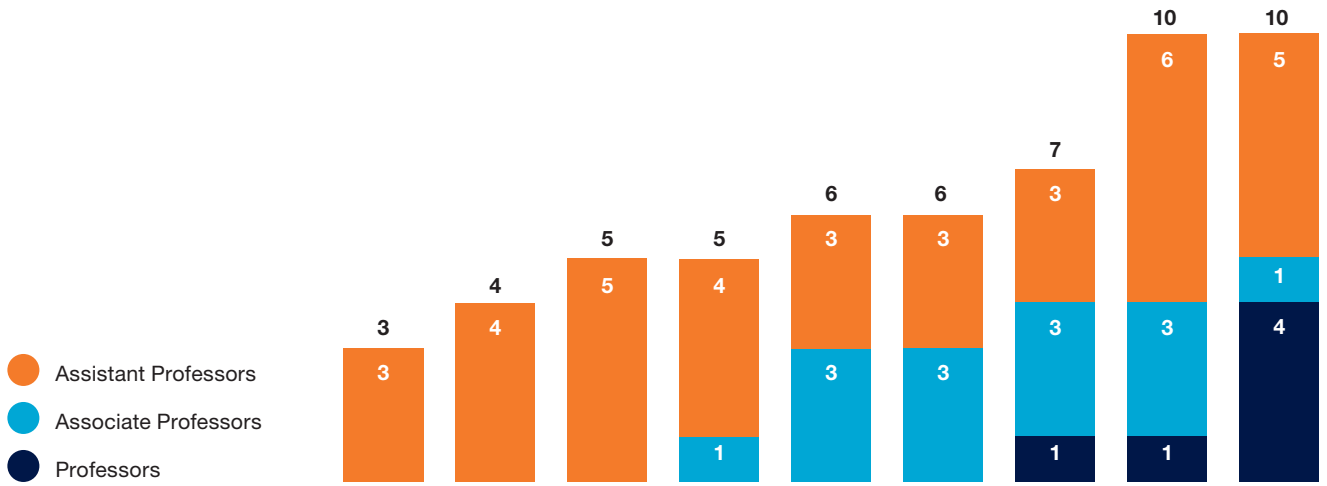
Figure A.13
University of Toronto Institute for Aerospace Studies: Academic Staff by Position with Percentage of Women 2001–2002 to 2009–2010



	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Assistant Professors	2	2	5	4	4	4	4	4	4
Female Assistant Professors	0	0	0	0	0	0	1	1	1
% Female Assistant Professors	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**25.0%**	**25.0%**	**25.0%**
Associate Professors	1	1	1	1	1	1	3	5	4
Female Associate Professors	0	0	0	0	0	0	0	0	0
% Female Associate Professors	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Professors	12	13	12	10	10	10	9	6	6
Female Professors	0	0	0	0	0	0	0	0	0
% Female Professors	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Lecturers/ Sr. Lecturers	2	2	2	2	3	2	2	2	2
Female Lecturers/ Sr. Lecturers	0	0	0	0	0	0	0	0	0
% Female Lecturers/ Sr. Lecturers	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Total Tenured and Tenure Stream	15	16	18	15	15	15	16	15	14
Female Tenured and Tenure Stream	0	0	0	0	0	0	1	1	1
% Female Tenured and Tenure Stream	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**6.3%**	**6.7%**	**7.1%**
Total Academic Staff	17	18	20	17	18	17	18	17	16
Female Academic Staff	0	0	0	0	0	0	1	1	1
% Female Academic Staff	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**5.6%**	**5.9%**	**6.3%**

Note A.13: Referenced in Chapter 9, Diversity.

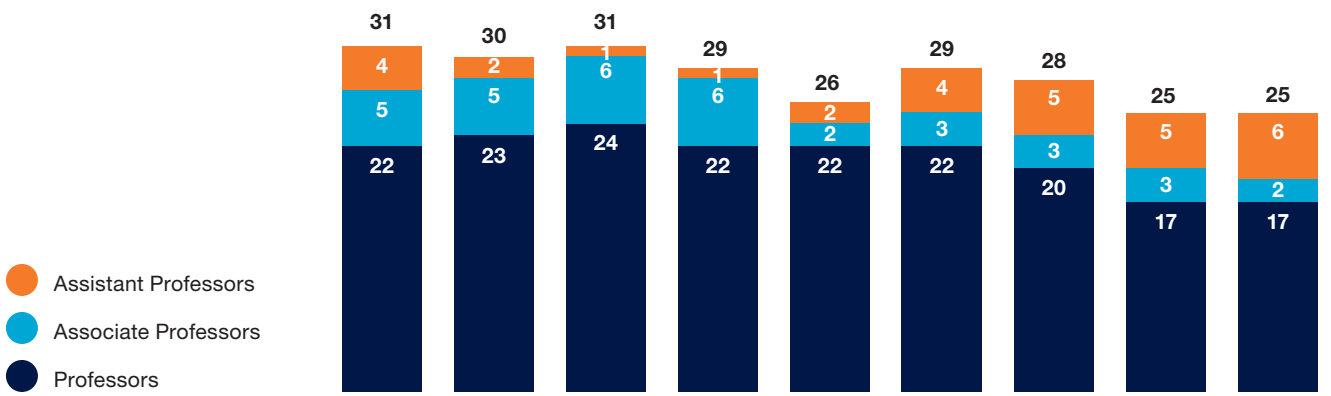
Figure A.14
Institute of Biomaterials & Biomedical Engineering: Academic Staff by Position with Percentage of Women 2001–2002 to 2009–2010



	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Assistant Professors	3	4	5	4	3	3	3	6	5
Female Assistant Professors	0	0	1	1	2	2	2	4	4
% Female Assistant Professors	**0.0%**	**0.0%**	**20.0%**	**25.0%**	**66.7%**	**66.7%**	**66.7%**	**66.7%**	**80.0%**
Associate Professors	0	0	0	1	3	3	3	3	1
Female Associate Professors	0	0	0	0	0	0	0	0	0
% Female Associate Professors	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Professors	0	0	0	0	0	0	1	1	4
Female Professors	0	0	0	0	0	0	0	0	0
% Female Professors	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Lecturers/ Sr. Lecturers	0	0	0	0	0	0	0	0	0
Female Lecturers/ Sr. Lecturers	0	0	0	0	0	0	0	0	0
% Female Lecturers/ Sr. Lecturers	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Total Tenured and Tenure Stream	3	4	5	5	6	6	7	10	10
Female Tenured and Tenure Stream	0	0	1	1	2	2	2	4	4
% Female Tenured and Tenure Stream	**0.0%**	**0.0%**	**20.0%**	**20.0%**	**33.3%**	**33.3%**	**28.6%**	**40.0%**	**40.0%**
Total Academic Staff	3	4	5	5	6	6	7	10	10
Female Academic Staff	0	0	1	1	2	2	2	4	4
% Female Academic Staff	**0.0%**	**0.0%**	**20.0%**	**20.0%**	**33.3%**	**33.3%**	**28.6%**	**40.0%**	**40.0%**

Note A.14: Referenced in Chapter 9, Diversity.

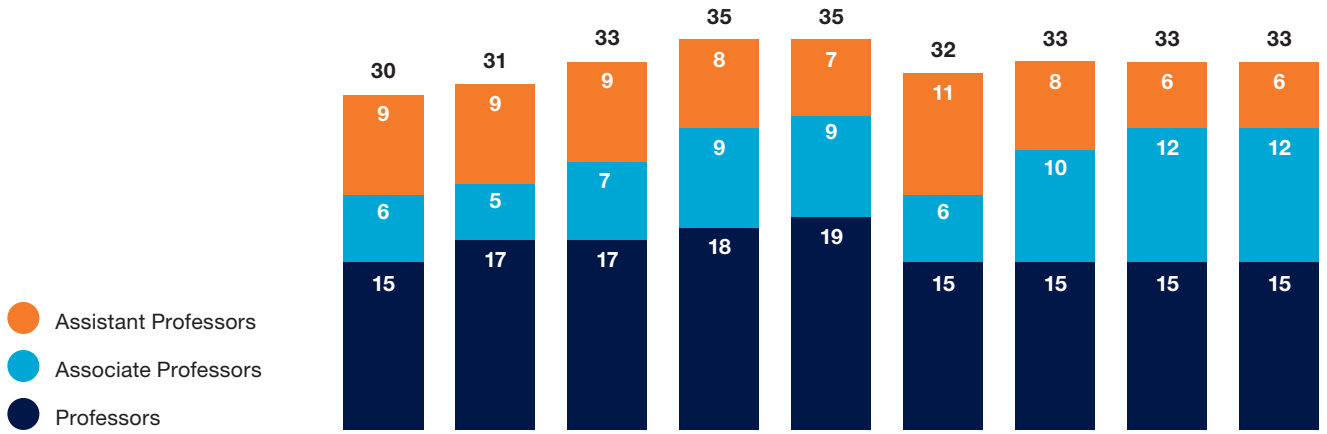
Figure A.15
Department of Chemical Engineering & Applied Chemistry: Academic Staff by Position with Percentage of Women 2001–2002 to 2009–2010



	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Assistant Professors	4	2	1	1	2	4	5	5	6
Female Assistant Professors	1	0	0	0	0	2	2	2	2
% Female Assistant Professors	**25.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**50.0%**	**40.0%**	**40.0%**	**33.3%**
Associate Professors	5	5	6	6	2	3	3	3	2
Female Associate Professors	2	3	3	3	1	1	0	0	0
% Female Associate Professors	**40.0%**	**60.0%**	**50.0%**	**50.0%**	**50.0%**	**33.3%**	**0.0%**	**0.0%**	**0.0%**
Professors	22	23	24	22	22	22	20	17	17
Female Professors	1	1	1	1	3	3	4	3	3
% Female Professors	**4.5%**	**4.3%**	**4.2%**	**4.5%**	**13.6%**	**13.6%**	**20.0%**	**17.6%**	**17.6%**
Lecturers/ Sr. Lecturers	4	4	4	4	3	3	4	6	6
Female Lecturers/ Sr. Lecturers	2	2	2	2	1	1	1	2	2
% Female Lecturers/ Sr. Lecturers	**50.0%**	**50.0%**	**50.0%**	**50.0%**	**33.3%**	**33.3%**	**25.0%**	**33.3%**	**33.3%**
Total Tenured and Tenure Stream	31	30	31	29	26	29	28	25	25
Female Tenured and Tenure Stream	4	4	4	4	4	6	6	5	5
% Female Tenured and Tenure Stream	**12.9%**	**13.3%**	**12.9%**	**13.8%**	**15.4%**	**20.7%**	**21.4%**	**20.0%**	**20.0%**
Total Academic Staff	35	34	35	33	29	32	32	31	31
Female Academic Staff	6	6	6	6	5	7	7	7	7
% Female Academic Staff	**17.1%**	**17.6%**	**17.1%**	**18.2%**	**17.2%**	**21.9%**	**21.9%**	**22.6%**	**22.6%**

Note A.15: Referenced in Chapter 9, Diversity.

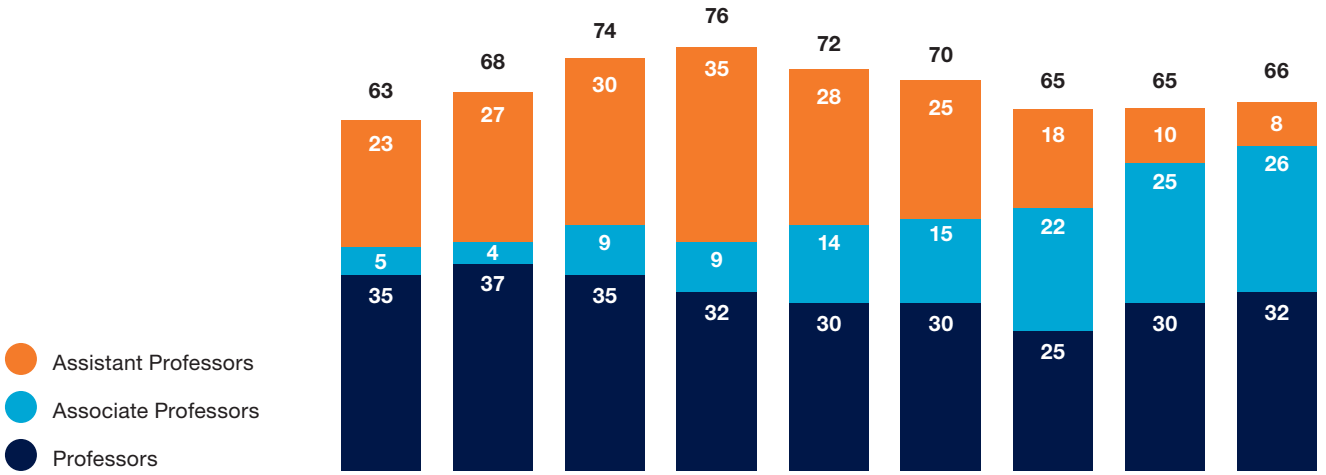
Figure A.16
Department of Civil Engineering:
Academic Staff by Position with Percentage of Women
2001–2002 to 2009–2010



	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Assistant Professors	9	9	9	8	7	11	8	6	6
Female Assistant Professors	4	4	3	3	3	4	3	2	2
% Female Assistant Professors	**44.4%**	**44.4%**	**33.3%**	**37.5%**	**42.9%**	**36.4%**	**37.5%**	**33.3%**	**33.3%**
Associate Professors	6	5	7	9	9	6	10	12	12
Female Associate Professors	0	0	1	1	1	1	2	3	3
% Female Associate Professors	**0.0%**	**0.0%**	**14.3%**	**11.1%**	**11.1%**	**16.7%**	**20.0%**	**25.0%**	**25.0%**
Professors	15	17	17	18	19	15	15	15	15
Female Professors	0	0	0	0	0	0	0	0	0
% Female Professors	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Lecturers/ Sr. Lecturers	0	0	0	0	0	0	1	1	1
Female Lecturers/ Sr. Lecturers	0	0	0	0	0	0	0	0	0
% Female Lecturers/ Sr. Lecturers	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Total Tenured and Tenure Stream	30	31	33	35	35	32	33	33	33
Female Tenured and Tenure Stream	4	4	4	4	4	5	5	5	5
% Female Tenured and Tenure Stream	**13.3%**	**12.9%**	**12.1%**	**11.4%**	**11.4%**	**15.6%**	**15.2%**	**15.2%**	**15.2%**
Total Academic Staff	30	31	33	35	35	32	34	34	34
Female Academic Staff	4	4	4	4	4	5	5	5	5
% Female Academic Staff	**13.3%**	**12.9%**	**12.1%**	**11.4%**	**11.4%**	**15.6%**	**14.7%**	**14.7%**	**14.7%**

Note A.16: Referenced in Chapter 9, Diversity.

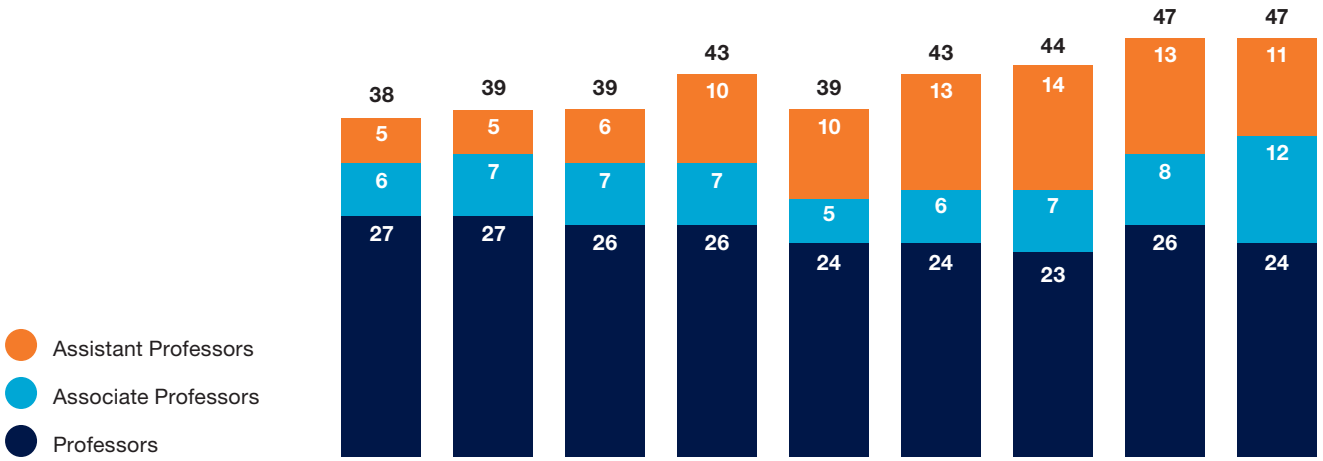
Figure A.17
The Edward S. Rogers Sr. Department of Electrical & Computer Engineering: Academic Staff by Position with Percentage of Women
2001–2002 to 2009–2010



	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Assistant Professors	23	27	30	35	28	25	18	9	8
Female Assistant Professors	1	2	3	4	4	5	3	2	2
% Female Assistant Professors	**4.3%**	**7.4%**	**10.0%**	**11.4%**	**14.3%**	**20.0%**	**16.7%**	**22.2%**	**25.0%**
Associate Professors	5	4	9	9	14	15	22	26	26
Female Associate Professors	1	1	1	1	1	0	1	3	4
% Female Associate Professors	**20.0%**	**25.0%**	**11.1%**	**11.1%**	**7.1%**	**0.0%**	**4.5%**	**11.5%**	**15.4%**
Professors	35	37	35	32	30	30	25	30	32
Female Professors	0	0	0	0	0	0	0	0	0
% Female Professors	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Lecturers/ Sr. Lecturers	3	4	3	3	5	5	4	4	4
Female Lecturers/ Sr. Lecturers	2	2	1	1	1	1	1	1	1
% Female Lecturers/ Sr. Lecturers	**66.7%**	**50.0%**	**33.3%**	**33.3%**	**20.0%**	**20.0%**	**25.0%**	**25.0%**	**25.0%**
Total Tenured and Tenure Stream	63	68	74	76	72	70	65	65	66
Female Tenured and Tenure Stream	2	3	4	5	5	5	4	5	6
% Female Tenured and Tenure Stream	**3.2%**	**4.4%**	**5.4%**	**6.6%**	**6.9%**	**7.1%**	**6.2%**	**7.7%**	**9.1%**
Total Academic Staff	66	72	77	79	77	75	69	69	70
Female Academic Staff	4	5	5	6	6	6	5	6	7
% Female Academic Staff	**6.1%**	**6.9%**	**6.5%**	**7.6%**	**7.8%**	**8.0%**	**7.2%**	**8.7%**	**10.0%**

Note A.17: Referenced in Chapter 9, Diversity.

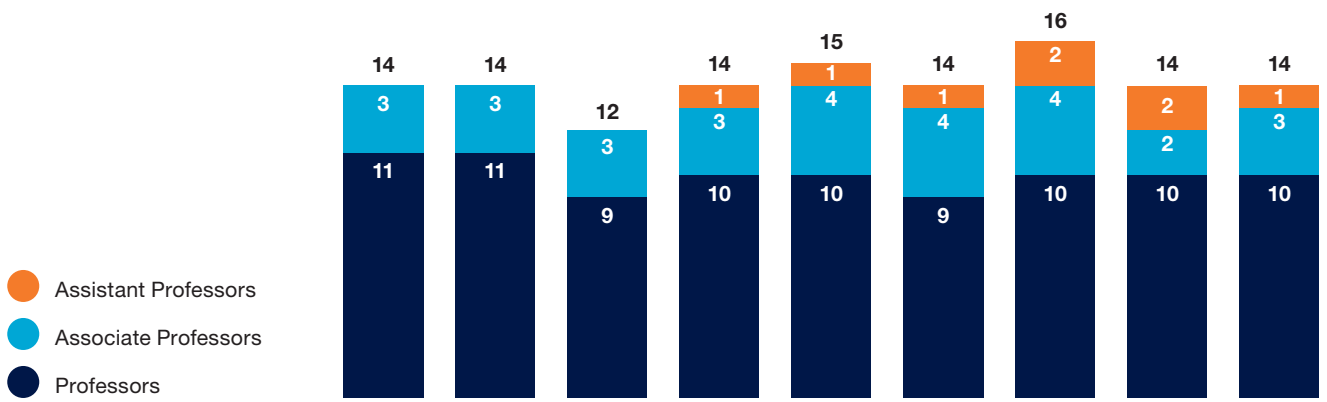
Figure A.18
Department of Mechanical & Industrial Engineering: Academic Staff by Position with Percentage of Women 2001–2002 to 2009–2010



	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Assistant Professors	5	5	6	10	10	13	14	13	11
Female Assistant Professors	1	0	0	0	0	0	1	5	6
% Female Assistant Professors	**20.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**7.1%**	**38.5%**	**54.5%**
Associate Professors	6	7	7	7	5	6	7	8	12
Female Associate Professors	2	3	3	3	2	2	2	2	2
% Female Associate Professors	**33.3%**	**42.9%**	**42.9%**	**42.9%**	**40.0%**	**33.3%**	**28.6%**	**25.0%**	**16.7%**
Professors	27	27	26	26	24	24	23	26	24
Female Professors	0	0	0	0	1	2	2	2	2
% Female Professors	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**4.2%**	**8.3%**	**8.7%**	**7.7%**	**8.3%**
Lecturers/ Sr. Lecturers	0	0	0	1	1	1	1	3	3
Female Lecturers/ Sr. Lecturers	0	0	0	0	0	0	0	1	1
% Female Lecturers/ Sr. Lecturers	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**33.3%**	**33.3%**
Total Tenured and Tenure Stream	38	39	39	43	39	43	44	47	47
Female Tenured and Tenure Stream	3	3	3	3	3	4	5	9	10
% Female Tenured and Tenure Stream	**7.9%**	**7.7%**	**7.7%**	**7.0%**	**7.7%**	**9.3%**	**11.4%**	**19.1%**	**21.3%**
Total Academic Staff	38	39	39	44	40	44	45	50	50
Female Academic Staff	3	3	3	3	3	4	5	10	11
% Female Academic Staff	**7.9%**	**7.7%**	**7.7%**	**6.8%**	**7.5%**	**9.1%**	**11.1%**	**20.0%**	**22.0%**

Note A.18: Referenced in Chapter 9, Diversity.

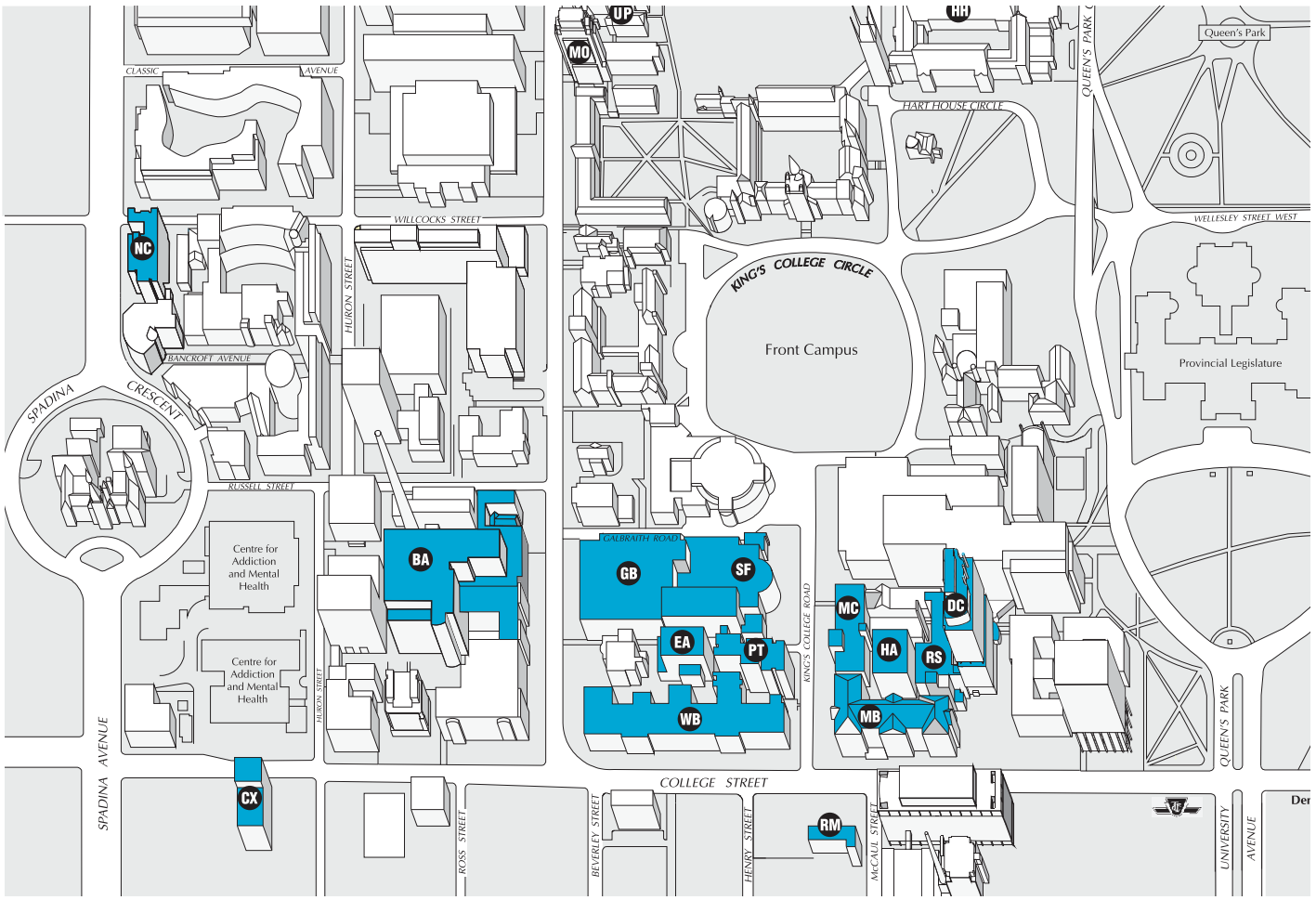
Figure A.19
Department of Materials Science & Engineering:
Academic Staff by Position with Percentage of Women
2001–2002 to 2009–2010



	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Assistant Professors	0	0	0	1	1	1	2	2	1
Female Assistant Professors	0	0	0	0	0	0	0	0	0
% Female Assistant Professors	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Associate Professors	3	3	3	3	4	4	4	2	3
Female Associate Professors	0	0	0	0	1	1	1	1	1
% Female Associate Professors	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**25.0%**	**25.0%**	**25.0%**	**50.0%**	**33.3%**
Professors	11	11	9	10	10	9	10	10	10
Female Professors	0	0	0	0	0	0	0	0	0
% Female Professors	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Lecturers/ Sr. Lecturers	0	0	0	0	0	0	0	0	0
Female Lecturers/ Sr. Lecturers	0	0	0	0	0	0	0	0	0
% Female Lecturers/ Sr. Lecturers	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Total Tenured and Tenure Stream	14	14	12	14	15	14	16	14	14
Female Tenured and Tenure Stream	0	0	0	0	1	1	1	1	1
% Female Tenured and Tenure Stream	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**6.7%**	**7.1%**	**6.3%**	**7.1%**	**7.1%**
Total Academic Staff	14	14	12	14	15	14	16	14	14
Female Academic Staff	0	0	0	0	1	1	1	1	1
% Female Academic Staff	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**6.7%**	**7.1%**	**6.3%**	**7.1%**	**7.1%**

Note A.19: Referenced in Chapter 9, Diversity.

Figure A.20
Engineering Precinct of the U of T St. George Campus



BA	Bahen Centre for Information Technology
GB	Galbraith Building
WB	Wallberg Building
EA	Engineering Annex / Electro-Metallurgy Lab Building (South Side)
PT	D.L. Pratt Building
SF	Sandford Fleming Building
HA	Haultain Building
DC	Donnelly Centre for Cellular and Biomolecular Research (CCBR)
RS	Rosebrugh Building
MB	Lassonde Mining Building
MC	Mechanical Engineering Building
NC	New College
CX	245 College Street
RM	256 McCaul Street
–	UTIAS (Downsview)*

Note A.20: Referenced in Chapter 10, Financial and Physical Resources. The majority of the Engineering Precinct resides on the southern-most part of the U of T St. George Campus. (*) Along with UTIAS in Downsview (located at 4925 Dufferin Street in Toronto, not pictured above), these 16 buildings house our student, faculty, staff, research and teaching spaces.

Data Sources

This section indicates the sources for data presented throughout the annual report of performance indicators. Sources are organized in order of appearance by page number, figure number and title.

Page	Figure	Data Source
4		**Faculty Leadership, 2009–2010** Information provided by Office of the Dean, Faculty of Applied Science & Engineering. An organizational chart is also available online at www.engineering.utoronto.ca/Assets/AppSci+Digital+Assets/pdf/FacultyOrgChart2010.pdf
5		**Comparison of U of T Engineering with Ontario and Canada, 2009–2010** Enrolment, degrees granted and faculty data comes from Engineers Canada for the National Council of Deans of Engineering and Applied Science (NCDEAS) 2009 Resources Report, based on the 2009 calendar year. Undergraduate enrolment figures exclude non-degree students and those doing a Professional Experience Year (PEY). Full-time equivalent (FTE) enrolment statistics represent averages that take into account all three terms of the year (winter, summer and fall. Undergraduate FTE shows the three-term total divided by two; Graduate FTE shows the three-term total divided by three. Research funding data comes from the Natural Sciences and Engineering Research Council (NSERC) search engine (www.outil.ost.uqam.ca/CRSNG/Outil.aspx) and includes grants only for the 2009–2010 NSERC fiscal year (April to March). Major awards data comes from the Director, Awards and Honours, Faculty of Applied Science & Engineering, based on press releases and websites of individual awards for the 2009–2010 grant year (April to March). The awards included in this calculation appear in Figure 2.2a.
6		**Comparison of U of T Engineering with St. George Campus and University of Toronto, 2009–2010** All student enrolment statistics are based on headcount for fall 2009 from the Undergraduate or Graduate U of T Reporting Cube (St. George and U of T statistics do not include Toronto School of Theology). All degrees awarded statistics come from ROSI and reflect September 2009 to June 2010 dates (St. George and U of T statistics do not include Toronto School of Theology). All sponsored-research funding statistics come from the U of T Research Reporting Cube (based on 2010 grant year and excludes partner hospitals; includes all program types; data current as of November 1, 2010). Engineering academic staff statistics provided by Assistant Dean, Academic HR & Diversity, Faculty of Applied Science & Engineering (based on HRIS and published lists of faculty members). Engineering administrative and technical staff statistic from 2009 Resources Survey prepared by Engineers Canada for NCDEAS (based on calendar year). U of T academic and administrative staff statistics come from U of T Human Resources & Equity Annual Report 2009: www.hrandequity.utoronto.ca/Assets/reports/hre/2009.pdf?method=1. Engineering total revenue provided by Chief Administrative Officer, Faculty of Applied Science & Engineering. U of T total revenue provided by the Office of the Vice-Provost, Planning & Budget. Engineering space statistic from U of T 2009–2010 budget documents (February 2009), NASMs for University-wide cost allocation. U of T and St. George space statistics from U of T Facts and Figures 2010, which is currently in development and was not available online at the time of this report's release.

Chapter 1: Comparisons and Rankings

8	1.1a	**Times Higher Education-QS World University Rankings and U.S. News & World Report World's Best Colleges and Universities, Top 50 Universities for Engineering and Information Technology, 2009–2010** Times Higher Education-QS 2009 and U.S. News & World Report, 2010. For more information, please visit: www.topuniversities.com/university-rankings/world-university-rankings/2009/subject-rankings/technology and www.usnews.com/sections/education/worlds-best-colleges/index.html
8	1.1b	**Canadian G13 in Top 100 from Times Higher Education-QS and U.S. News & World Report for Engineering and Information Technology, 2009–2010** Times Higher Education-QS 2009 and U.S. News & World Report, 2010. For more information, please visit: www.topuniversities.com/university-rankings/world-university-rankings/2009/subject-rankings/technology and www.usnews.com/sections/education/worlds-best-colleges/index.html
9	1.2a	**Shanghai Jiao Tong Academic Ranking of World Universities Top 50 Universities for Engineering/Technology and Computer Sciences, 2009** Engineering/Technology and Computer Sciences, Shanghai Jiao Tong Academic Ranking of World Universities, 2009. For more information, please visit: www.arwu.org/FieldENG2009.jsp
9	1.2b	**Canadian G13 in Top 100 from Shanghai Jiao Tong Academic Ranking for Engineering/Technology and Computer Sciences** Engineering/Technology and Computer Sciences, Shanghai Jiao Tong Academic Ranking of World Universities, 2009. For more information, please visit: www.arwu.org/FieldENG2009.jsp
10	1.2c	**Scoring Analysis of Canadian G13 in Top 100 from Shanghai Jiao Tong Academic Ranking for Engineering/Technology and Computer Sciences, 2009** Engineering/Technology and Computer Sciences, Shanghai Jiao Tong Academic Ranking of World Universities, 2009. For more information, please visit: www.arwu.org/FieldENG2009.jsp
10	1.3	**Higher Education Evaluation & Accreditation Council of Taiwan (HEEACT) Performance Ranking of Engineering Papers for World Universities, 2009** Higher Education Evaluation & Accreditation Council of Taiwan 2009 Performance Ranking of Engineering Papers for World Universities. Data compiled from Thomson Reuters' science citation indexes. For more information, please visit: ranking.heeact.edu.tw/en-us/2010/Page/Methodology
11	1.4a	**Number of Engineering Publications Indexed by Thomson Reuters Association of American Universities (AAU) Public and Canadian Institutions, 2005 to 2009** Thomson Reuters U.S. and Canadian University Indicators 2009. Analysis limited to 2005 to 2009 and to public institutions only.
11	1.4b	**Summary of G13 Bibliometrics for Publications** Analysis limited to 2005–2009 and to public institutions only. Faculty counts for analysis of G13 publications per faculty member are from the Engineers Canada 2009 Resources Report.
12	1.5a	**Number of Engineering Citations Indexed by Thomson Reuters Association of American Universities (AAU) Public and Canadian Peer Institutions, 2005 to 2009** Thomson Reuters U.S. and Canadian University Indicators 2009. Analysis limited to 2005 to 2009 and to public institutions only.

12	1.5b	**Summary of G13 Bibliometrics for Citations** Analysis limited to 2005 to 2009 and to public institutions only. Faculty counts for analysis of G13 citations per faculty member are from the Engineers Canada 2009 Resources Report.
13	1.6a	**Summary of U of T Engineering Performance in World Rankings, 2007 to 2009** Summary compiled from websites noted above for the various international university rankings.
13	1.6b	**Summary of University of Toronto Performance in World Rankings, 2007 to 2009** Summary compiled from websites noted above for the various international university rankings.

Chapter 2: Awards and Honours

15	Text	**Selected Awards Received by Faculty Members, May 2009 to June 2010** Information provided by Director, Awards and Honours, Faculty of Applied Science & Engineering.
16	2.1	**Summary of Major International, National and Provincial Awards and Honours, 2001 to 2010** Information provided by Director, Awards and Honours, Faculty of Applied Science & Engineering.
17	2.2a	**Number of Major Awards Received by U of T Engineering Compared to other Canadian Engineering Faculties, 2009–2010** Information provided by Director, Awards and Honours, Faculty of Applied Science & Engineering.
17	2.2b	**Percentage of Engineering Faculty and Total Major Awards Received in Canadian Engineering Faculties** Information provided by Director, Awards and Honours, Faculty of Applied Science & Engineering.
18	2.3	**Number of Awards Received by U of T Engineering Faculty Compared to other Canadian Engineering Faculties, 2005–2006 to 2009–2010** Information provided by Director, Awards and Honours, Faculty of Applied Science & Engineering.
18	Text	**University of Toronto Awards Received by Engineering, May 2009 to June 2010** Information provided by Director, Awards and Honours, Faculty of Applied Science & Engineering.
19	Text	**University of Toronto Engineering Faculty Awards, 2001 to 2010** Information provided by Director, Awards and Honours, Faculty of Applied Science & Engineering.
19	Text	**University of Toronto Engineering Staff Awards, 2001 to 2010** Information provided by Director, Awards and Honours, Faculty of Applied Science & Engineering.

Chapter 3: Undergraduate Studies

22	3.1	**Applications, Offers, Registrations, Selectivity and Yield of First Year Undergraduates, 2001 to 2009** All years data for applications and offers are based on annual Admissions Committee reports to Faculty Council (November), counting new admissions only, FT and PT, all years of study. Excludes students with special status. Registrations only are from U of T Undergraduate Enrolment Reporting Cube: Faculty = APSC, New Students Only (based on candidacy session). Cube Parameters: All Fall Terms for 2001–2009, Year 1 (SESLEV), First Time Registered (LEVSTAT), Measure = Headcount.
22	3.2	**First Year Undergraduate Headcount with Percentage of Women and International Students, 2001 to 2009** Headcount from U of T Undergraduate Enrolment Cube. Excludes students with special status. Cube Parameters: All Fall Terms for 2001–2009, First Time Registered (LEVSTAT), Measure = Headcount, [Gender] and [DOM_INTL] parameters used to calculate percentages of women and international students, respectively.
23	3.3	**Ontario Secondary School Averages of Incoming First Year Undergraduates and Retention Rates Between First and Second Year with Minimum Cut-Off, 2001 to 2009** Averages of incoming First Year students and minimum cut-offs calculated using data from Ontario Universities' Application Centre. Headcount retention rates based on Undergraduate Enrolment Projections documents, published by the U of T Planning and Budget Office, October 2009 and January 2010. Cohort retention rate calculated using registration data from ROSI.
24	3.4	**First Year Domestic and International Undergraduate Headcount, 2005 to 2009** Headcount from University of Toronto Enrolment Master Files, the source of U of T Reporting Cube. Includes new and returning students. Excludes students with special status. Cube Parameters: Year 1 (SESLEV), Fall Terms for 2005–2009, Degree Type = Undergraduate, Excludes students with special status.
24	3.5	**Incoming First Year and Total Undergraduate Headcount by Academic Area, Fall 2009** Headcount from U of T Undergraduate Enrolment Reporting Cube. Includes full-time students, part-time students and students on PEY Internship. Excludes students with special status. Cube Parameters: Years 1–4, Fall 2009, by Department, Degree Type = Undergraduate.
25	3.6a	**Full-Time Equivalent Undergraduates by Year of Study, Fall 2009** FTE numbers from U of T Undergraduate Enrolment Reporting Cube. Includes students on PEY Internship. Excludes students with special status. Cube Parameters: Years 1–4 (SESLEV), Fall 2009, Measure = Total FTE (Factbook).
25	3.6b	**Full-Time Equivalent Undergraduates, Fall 2001 to Fall 2009** FTE numbers from U of T Undergraduate Enrolment Reporting Cube. Includes students on PEY Internship. Excludes students with special status. Cube Parameters: All Fall Terms for 2001–2009, Years 1–4 (SESLEV), Measure = Total FTE (Factbook), Degree Type = Undergraduate.
26	3.7	**Undergraduate Headcount by Academic Area, 2001 to 2009** Headcount for Fall of each year from U of T Undergraduate Enrolment Reporting Cube. Includes full-time students, part-time students and students on PEY Internship. Excludes students with special status. Cube Parameters: All Fall Terms for 2001–2009, Years 1–4 (SESLEV), Degree Type = Undergraduate, Measure = Headcount, Departments based on [Programs] field.

27	3.8a	**Undergraduate Degrees Awarded by Academic Area, 2001–2002 to 2009–2010** Data for years up to 2008–2009 acquired from U of T Degrees Awarded Reporting Cube. Data for 2009–10 (September to August) derived from ROSI. Cube Parameters: Undergraduate, Academic Years 2000–2010. ROSI Download: 5EA (Graduated Students), Faculty = APSC.
27	3.8b	**U of T Engineering Degrees Awarded by Academic Area Compared with Canadian and North American Degree Totals, 2009** U of T and Canadian statistics are from 2009 Engineers Canada Report of Enrolment & Degrees Granted (Canadian Engineers for Tomorrow, 2005–2009): www.engineerscanada.ca/files/w_report_enrolment_eng.pdf. American statistics used to calculate North American percentages are from the 2009 American Society of Engineering Educators (ASEE) Report: www.asee.org/papers-and-publications/publications/college-profiles
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