



EMPLOYED AND ENGAGED

AN OVERVIEW OF THE 10,000 PhDs PROJECT

WHAT IS THE 10,000 PhDs PROJECT AT THE UNIVERSITY OF TORONTO?

The 10,000 PhDs Project, an initiative of the School of Graduate Studies at the University of Toronto, used Internet searches of open-access data sources such as official university and company websites to determine the current and/or first (2016) employment status of the 10,886 PhDs who graduated from U of T between 2000 and 2015 in all disciplines. The study successfully located 88% of PhD graduates.



METHODOLOGY

A team of undergraduate researchers obtained lists of PhD graduates from existing student registry data held by the School of Graduate Studies. Once the data had been verified and entered into the survey tool, the team filled in other sections that included PhD Field of Study (as per Statistics Canada Classification of Instructional Programs 2011 Designations), further education pursued by the graduate, research activity, employment sector, and skills pertaining to their current employment. Such information was only recorded if it was found in two or more reliable Internet sources. No individuals were contacted during the course of this project.ⁱ

PROFILE: WHO ARE THE U OF T PhDs FROM 2000 TO 2015?

A total of 10,886 individuals graduated from U of T with a PhD from 2000 to 2015.ⁱⁱ

U of T graduated an approximately equal number of women (49%) and men (51%) with PhDs from 2000 to 2015, although this percentage varied by graduate division: Social Sciences (65% women); Humanities (55% women); Life Sciences (55% women); and Physical Sciences (24% women).

U of T attracts a diverse set of graduate students from Canada, the USA and around the world. At the time of graduation, 67% of PhD graduates were Canadian citizens, and 33% of graduates were permanent residents and international students.

The largest percentage of PhD graduates obtained their degrees in Life Sciences (34%), followed by Physical Sciences (27%), Social Sciences (24%), and Humanities (15%).

ⁱThe research protocol for the 10,000 PhDs Project was reviewed by the Research Oversight and Compliance Office at the University of Toronto.

ⁱⁱOf the 10,886 PhDs who graduated between 2000 and 2015, 9,583—approximately 88%—were located via public Internet searches.



Fig 1: Percentage of Total PhD graduates by Division (2000-2015)ⁱⁱⁱ

■ Life Sciences ■ Physical Sciences ■ Social Sciences ■ Humanities

ⁱⁱⁱGender identification for all PhDs in this study was determined by 2000-2015 data reported in University of Toronto Student Web Services (ROSI) records. Figures are represented by a hybrid male/female icon in cases where a half percentage of total PhD graduates exists within a division.

AN INCREASING NUMBER OF PhDs: THE STORY OF GRADUATE EXPANSION

In 2005, the Government of Ontario's Reaching Higher plan increased funding to universities with the goal of increasing graduate enrolment. Enrolment expansion was driven by certain imperatives: the double cohort of undergraduates (in 2003, Ontario eliminated Grade 13); baby-boom faculty retirements (projected to cause a faculty shortage); and the perceived need for highly qualified personnel to drive economic innovation. This enrolment expansion accounts, in part, for the increase in PhD graduation rates some five to seven years later. Changing expectations in the labour market and an increased desire to pursue advanced studies may also be contributing factors.

At U of T, the number of PhD graduates increased 1.8-fold from 494 in 2000 to 901 in 2015 (Fig. 2). The largest increase was in Physical Sciences (2.6-fold), followed by Life Sciences (2.2-fold) and Social Sciences (1.4-fold). The number of Humanities PhD graduates has remained constant at about 100 per year between 2000 and 2015.

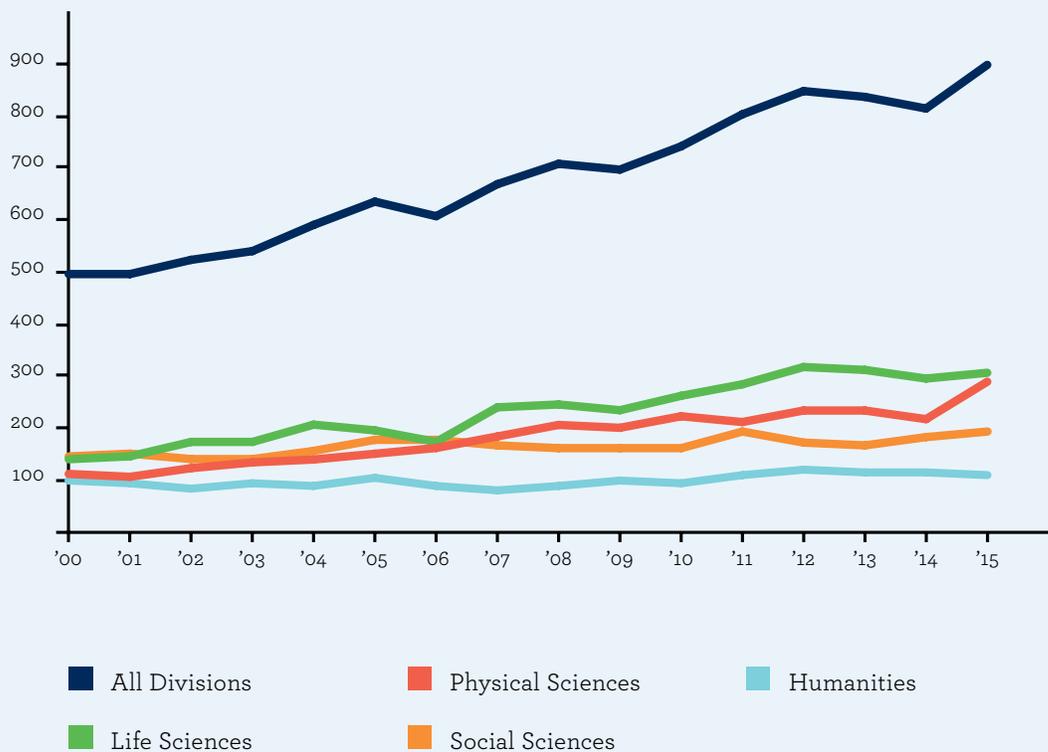


Fig 2: Total PhDs by Division and Cohort (2000-2015)

GENERAL FINDINGS OF THE 10,000 PhDs PROJECT

Our PhDs are Highly Employable

The overarching story told by the 10,000 PhDs Project is a heartening one: our PhDs are highly successful at finding employment, and they are doing so in diverse ways. Our society benefits from PhDs contributing to all its sectors, enlarging the intellectual conversation, proposing new ideas, finding innovative solutions, and proving the resourcefulness of people adept at critical and creative thinking.

The variety of our graduates' job titles is remarkable—from Professor to CEO, from Assistant Deputy Minister to Creative Director—suggesting that the specialized knowledge and skills obtained from advanced degrees can be successfully transferred to a broad range of professional contexts even within a challenging job market.

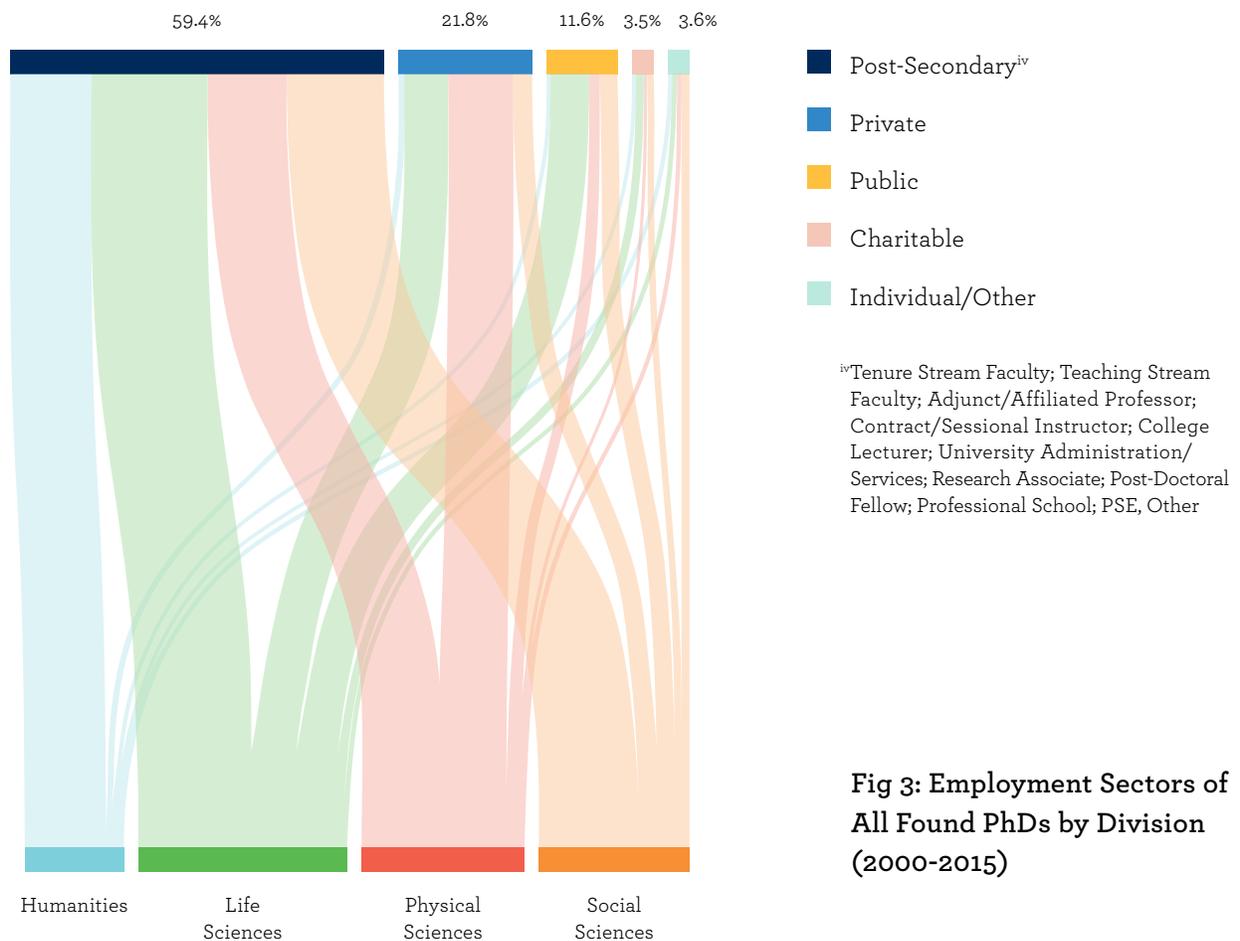


Fig 3: Employment Sectors of All Found PhDs by Division (2000-2015)

Our PhDs are Finding Jobs in All Sectors of the Economy

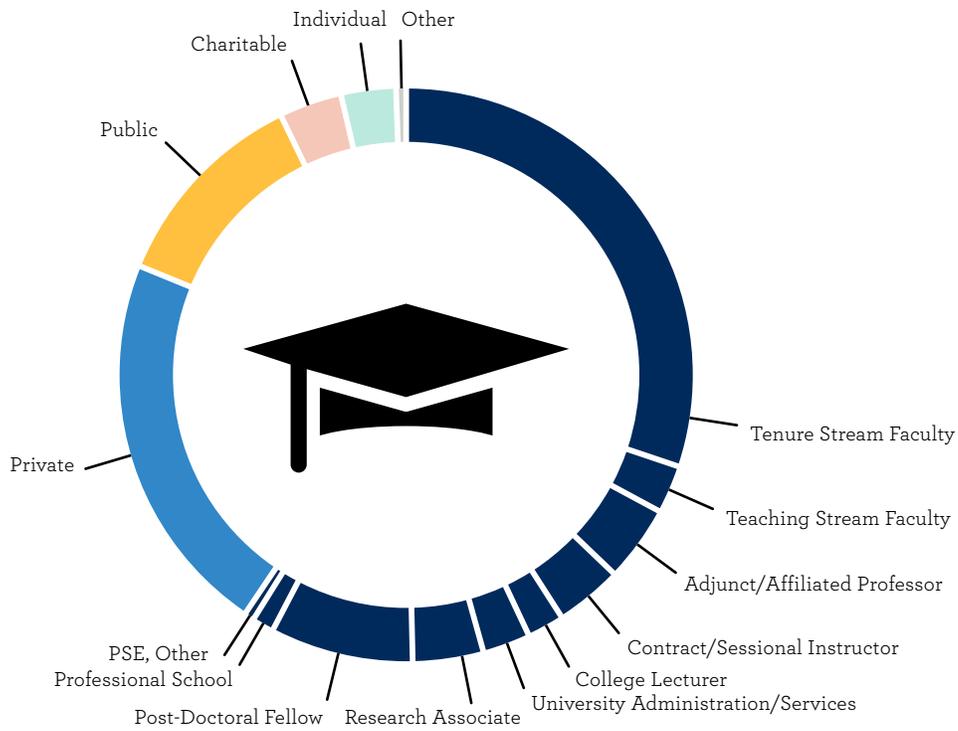
Not only are our PhDs employed, but they are finding careers in all sectors of the economy, here in Canada and abroad.

PhD graduates from the Humanities, Social Sciences, Life Sciences, and Physical Sciences are working across the private and public sectors, in both academic and non-academic settings. In 2016, 59% of all found 2000-2015 PhD graduates were employed in the post-secondary education sector (PSE), 22% were employed in the private sector, 12% in the public sector, 4% in the charitable sector and 3% in the individual sector.

Our PhDs are Launching Careers in Higher Education

From the University of Toronto to Columbia University, UBC to the National University of Singapore, post-secondary institutions around the world are employing our PhDs. Almost a third of all found PhDs hold tenure stream positions, where they provide leadership to the next generation of scientists and scholars at national and international institutions. When we compare across the divisions, we see that a higher percentage of U of T PhDs who graduated from the Humanities and Social Sciences end up in tenure stream positions (42% and 41%, respectively), as compared with those graduating from the Physical Sciences (26%) or Life Sciences (21%). Fourteen percent of those who found employment in the post-secondary sector were post-doctoral fellows. As a portion of these post-doctoral fellows are recent graduates and have not fully launched their careers, a follow-up study would be needed to determine how many of them ultimately obtain tenure stream positions or other kinds of employment.

PhDs from all divisions are also finding a spectrum of opportunities in teaching, research, and administrative positions in universities, professional schools, and colleges. While many of these positions are permanent or long-term, a small percentage—including a portion of individuals identifying as College Lecturers (1.8%) and those working as Contract/Sessional Instructors (3.9%)—are temporary and part-time. These data may speak to challenges inherent in today's job market. They may also reflect the fact that the 10,000 PhDs Project captures a *snapshot* of graduates at various stages in their career journeys, and that individuals may change their position titles—and indeed their career path—many times in their working lives.



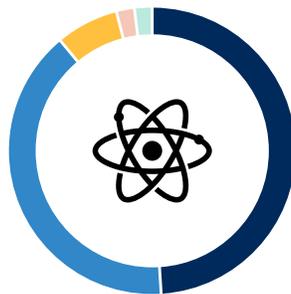
Humanities



Social Sciences



Life Sciences



Physical Sciences

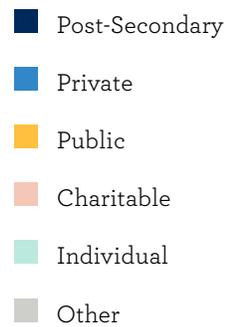


Fig 4: Employment Sector Breakdown of All Found PhDs and All Found PhDs by Division (2000-2015)



Fig 5: Current Employment Location by Canadian City of All Found PhDs (2000-2015)

Our PhDs are Contributing to the Broader Innovation Economy

U of T PhD graduates add to the pool of highly qualified personnel in Canada as the majority of graduates find employment in Canada. In addition, a combined total of 46% of permanent residents and international students are employed in Canada, resulting in a significant “brain gain.”

A PhD education provides subject expertise and skills in problem-solving, creativity, innovation, critical thinking and communications that are critical for the workforce in an increasingly knowledge-based and innovation-driven economy. According to the 2017 Fundamental Science Review Panel’s report, *Investing in Canada’s Future – Strengthening the Foundations of Canadian Research*, “research is essential to the health, prosperity and security of Canadians, and to our efforts to foster a creative, inclusive and vibrant society. Our universities, colleges and research institutions are responsible for providing the right environment and tools not only to perform this research at the highest levels of excellence, but also to inspire, teach and shape each new generation of students through research-led education.”

Comparing the cohorts of 2000 and 2015, nearly twice as many PhDs were employed in the private sector (13% and 23% respectively). Overall, the percentage of PhD graduates employed in the



Fig 6: Current Employment Location by Country of All Found PhDs (2000-2015; excluding Canada)

private sector was highest in the Physical (40%) and Life Sciences (21%). Recognized leaders in innovation, including Google, RBC, BMO, Scotiabank, Janssen, and IBM are among the top private sector employers of our PhDs (Fig. 7).

U of T PhD Graduates are Employed Globally

U of T PhDs are employed in 97 different countries. In sharing the specialized knowledge and skills honed through their advanced degrees, they are fuelling a global innovation ecosystem, finding solutions to key challenges posed in communities around the world.



Fig 7: Private Sector Employers of All Found PhDs (2000-2015)

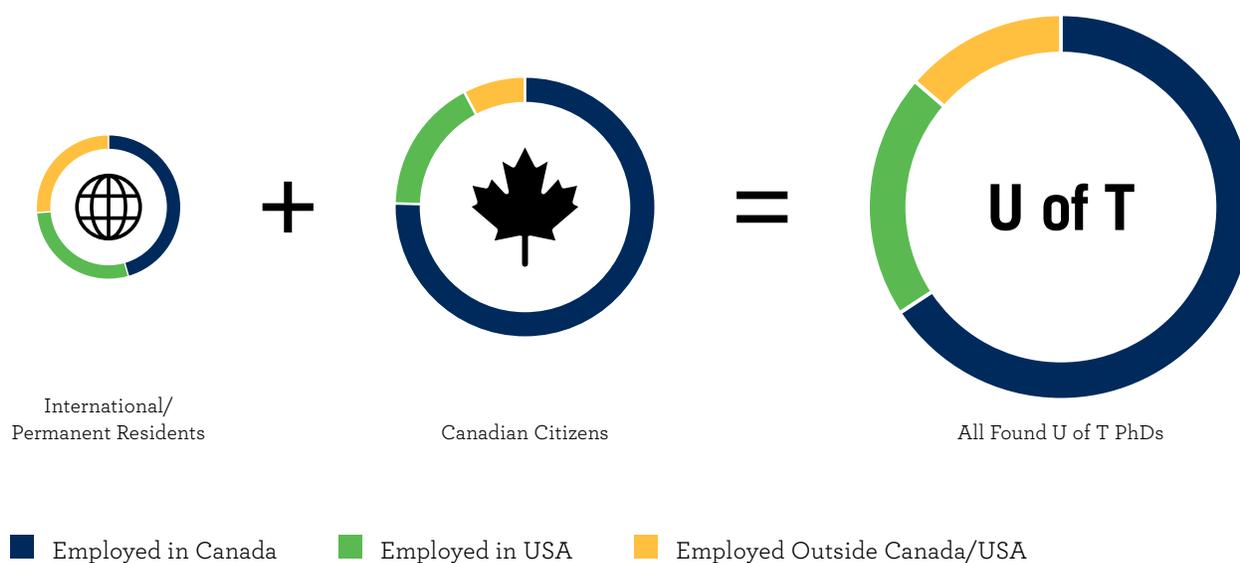


Fig 8: Current Employment Status by Country of All Found PhDs (2000-2015)

- 17% of Canadian PhDs, 25% of permanent resident PhDs, and 34% of international PhDs are employed in the USA.
- 7% of Canadian PhDs, 19% of permanent resident PhDs, and 40% of international PhDs are employed outside North America.

THE DATA IN CONTEXT

Significant shifts in the Canadian and international labour markets—and, by extension, in how employment is defined, conducted, and evaluated—have taken place since 2000. With this study of 10,886 PhDs who graduated between 2000 and 2015, the University of Toronto joins universities across the globe who are looking closely at how well PhDs have been meeting the demands of 21st-century realities. These efforts are supported by the Association of American Universities (AAU), whose September 2017 statement calls upon all PhD-granting institutions to “include data on matters such as student demographics, time to degree, financial support, and career paths and outcomes within and outside of academia” and to “commit to developing the infrastructure and institutional policies required to uniformly capture and make public such data” (**Association of American Universities (AAU) Statement – September 2017**).

The findings of the 10,000 PhDs Project are consistent with those of our peer institutions, contributing to a larger discussion about the value of the PhD to both the individual and society.

This *snapshot* of employment outcomes confirms that:

- regardless of their discipline, U of T PhDs are successful in a wide spectrum of career pathways, from academia to industry, the public sector and beyond;
- communicating these options will help prospective and current students make informed choices about their careers, and gain greater knowledge of the diversity of employment outcomes available to them in all sectors of the economy; and
- sharing real employment outcomes within the University community encourages graduate administrators and faculty to assess how well academic programs and professional development programs are preparing students for their futures.

The 10,000 PhDs Project at U of T is one step among many in helping undergraduate and graduate students conceptualize what an advanced degree can mean—both to their own intellectual development and to their career prospects.

The University of Toronto is ranked first in North America and fifth in the world among public universities for the employability of its graduates.^v Data on PhD outcomes underscore this success while highlighting the need for universities to be responsive to the changing landscape of work in the decades ahead.

^vTimes Higher Education 2017 Global University Employability Ranking

Other key studies of PhD outcomes:

Ontario's PhD Graduates from 2009: Where are they now? (Higher Education Quality Council of Ontario, HEQCO)

Inside and Outside the Academy: Valuing and Preparing PhDs for Careers (Conference Board of Canada, 2015)

The Stanford PhD Alumni Employment Project (Institutional Research & Decision Report, 2013)

All Departments: PhD career Outcomes Statistics (Duke Graduate School, ongoing)

UBC PhD Career Outcomes: Graduates from 2005-2013 UBC Vancouver Campus (UBC, 2017)

TRaCE Humanities Project (Institute for the Public Life of Arts and Ideas (IPLAI) at McGill University, 2015 and ongoing)

Summary of Prior Work in Humanities PhD Professional Development and Promising Practices in Humanities PhD Professional Development: Lessons Learned from the 2016-2017 Next Generation Humanities PhD Consortium (both September 2017)

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