



THE UNIVERSITY OF ALBERTA'S PhD ALUMNI

# Researchers, Innovators, and Leaders

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UNIVERSITY OF ALBERTA  
FACULTY OF GRADUATE  
STUDIES & RESEARCH



...the history of the ... study  
... to develop and expand the  
... the people of other countries.

# How are PhD alumni from the University of Alberta contributing to Alberta's and Canada's economic and social sectors?

To answer this question, the U of A's Faculty of Graduate Studies and Research (FGSR) embarked on the Career Preparation and Outcomes Study. We systematically collected publicly available career information to get a picture of employment outcomes for PhDs who graduated between 2005 and 2017. The study successfully and reliably secured career outcomes for 85 per cent of this population, a total of 4,365 U of A PhD graduates.

And the research didn't end there. We conducted a followup survey of this diverse talent pool (32-per-cent response rate) to capture information on:

- graduates' career satisfaction rates
- top skills and competencies they regularly use

Our PhDs are contributing in academic, industry, government, and not-for-profit sectors.

The result? A significant "brain gain" for both the province and the nation.

## Context

When it comes to the number of PhDs per 100,000 people, in the past Canada lagged behind its Organization for Economic Co-Operation and Development (OECD) counterparts.

According to the 2012 State of the Nation Report from the Science, Technology and Innovation Council, Canada's doctoral graduate production in 2010 totalled 15.9 persons for every 100,000 people. This put Canada 21st among OECD countries with comparable data.<sup>1</sup>

That trend appears to be improving.

A top-five Canadian university and one of the top 150 universities in the world, the U of A has seen a significant increase in doctoral admissions to our 300-plus research areas over the past 12 years. Annual U of A PhD graduate convocations increased by 50 per cent between 2005 and 2017, which supports the national strategy of improving Canada's OECD ranking.

The importance of this increase cannot be overstated. Research shows the number of PhDs per 100,000 population is a powerful indicator of a country's ability to innovate.

<sup>1</sup> Science, Technology and Innovation Council, *State of the Nation 2012: Aspiring to Global Leadership*, 2013, p. 85.

# Employment trends

## Our PhDs are in Demand

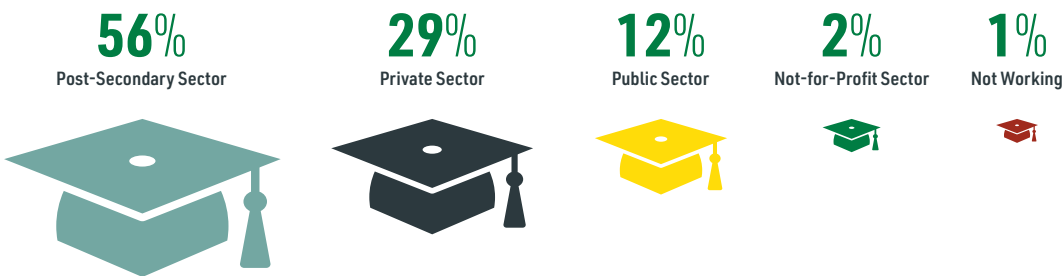
Most of our study results validate and quantify the value of a PhD in today's complex global job market. Our PhDs are contributing their talents in diverse ways in Alberta, Canada, and beyond.

In fact, survey results<sup>2</sup> tell us that four in five U of A PhDs secured employment before graduating. Less than 30 per cent of graduates found the transition from degree to employment difficult. This suggests the resiliency of the PhD credential, especially when taking into consideration the 2008 recession and recent economic trends.

Graduate employment rates by sector are influenced by area of study. Business, physical education, and nursing PhD alumni are most likely to work in the post-secondary environment. By comparison, engineering graduates are most likely to be found in private industry.

## Our PhDs are Contributing to All Sectors

**WHERE ARE OUR 4,365 FOUND PhD ALUMNI WORKING?<sup>3</sup>**

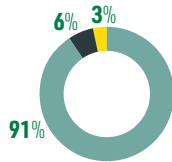


<sup>2</sup> The survey passed a review by the Research Ethics Board at the University of Alberta, and it was distributed to 4,838 PhD alumni through email. It garnered 1,532 responses (32-per-cent response rate). The online tracking process of career outcomes from public sources received approval from the university's Information and Privacy Office.

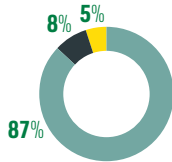
<sup>3</sup> The one per cent of found PhD alumni who are not working includes 20 retirees, 17 current students, and 29 graduates who were found to be unemployed. The 66 individuals not working are excluded from the data analysis of industry sector employment and job categories.

**DISTRIBUTION OF PhD ALUMNI ACROSS SECTORS (BY FACULTY OF STUDY):**

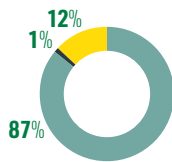
■ Post-Secondary   ■ Private   ■ Public / Not-for-Profit



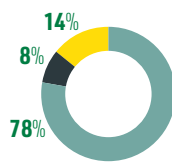
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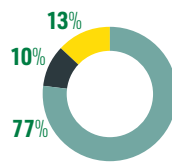
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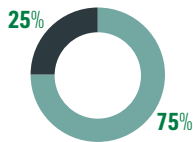
Nursing



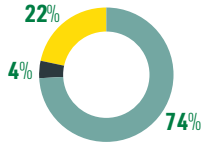
Arts



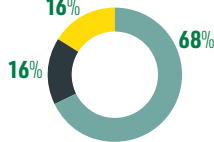
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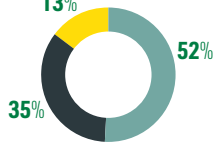
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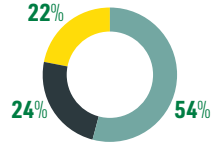
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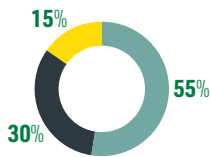
Medicine & Dentistry



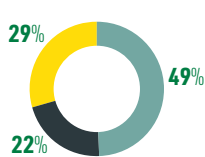
Science



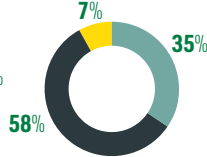
Education



Pharmacy and Pharmaceutical Sciences



Agriculture, Life & Environmental Sciences



Engineering

## A closer look

Our PhDs are obtaining positions that reinforce the value of their degrees.

Together, tenure track faculty, professionals, and researchers/scientists account for nearly two-thirds of all found PhD graduates' employment outcomes.

At 26 per cent, tenure track faculty<sup>4</sup> comprises the largest job category of PhD graduates.

This is followed closely by professionals<sup>5</sup> working outside of the post-secondary sector (**24 per cent**), a group refined by 14 sub-categories.

Fourteen per cent of our PhD graduates are researchers and scientists working outside of the post-secondary sector.

The **diversity** of job titles held by our PhD alumni in the public, private, and not-for-profit sectors is impressive. Here's just a handful:

- arctic ecologist
- CEO and founder
- director of business development
- principal geotechnical engineer
- chief scientist
- personal patient navigator
- research officer (aerospace)
- digital humanities specialist
- instructional designer
- project manager
- policy analyst
- vice-president, research

<sup>4</sup> A nine-page codebook was developed for the public sourcing of current job titles and corresponding definitions were developed to safeguard consistent application. "Tenure track faculty" is defined as professors, associate professors, and assistant professors (and lecturers in the United Kingdom and Australia) who are employed in full-time and permanent positions in universities that employ tenure track faculty.

<sup>5</sup> For the purposes of the job groups, professionals included 14 sub-categories: Engineering Professionals, Senior Managing Professionals, Medical Professionals, ICT Professionals, Community and Government Services Professionals, Education Professionals, Business Professionals, Arts & Culture Professionals, Other Professionals, Other Research-Based Occupations, Semi-Professionals, Middle-Managers/Supervisors, Independents and Other Occupations.

Our PhD alumni are bringing their advanced skills and talents to a large number of industry sub-sectors.

The largest percentages of these fall within research and development (R&D) and other research, energy, health-care services, and social and government services.

### Earning potential

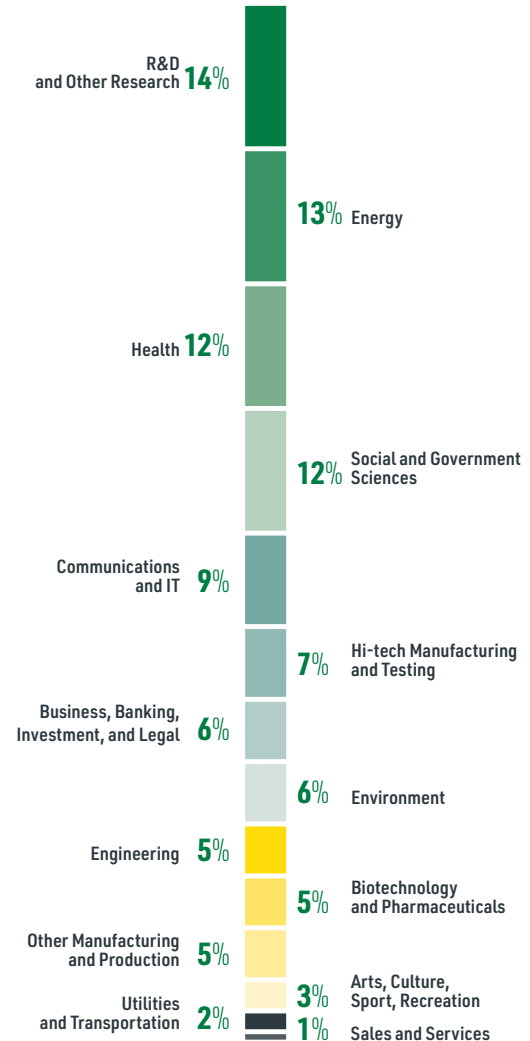
From survey results, we know that the largest group of our alumni (41 per cent) report annual gross earnings of over \$100,000.

When career history is factored in, this percentage increases to 64 among those PhD alumni who have accumulated at least 10 years of work experience since graduation.



### PHD ALUMNI IN PUBLIC\*, PRIVATE, AND NOT-FOR-PROFIT SUB-SECTORS:

\* Public sector does not include positions within the post-secondary sector.



# Where are they now?

71%

Canada

## The Nation Enjoys a Net Brain Gain

U of A's PhD programs and top researchers attract talent from around the globe. Ultimately, the admission of international PhD students has resulted in a net brain gain for Canada.

Between 2005 and 2017, the U of A was the destination of choice for more than 2,000 international students. Post-convocation, 1,220 of these PhD graduates remained in Canada. This has resulted in a net gain of 831 PhDs (equivalent to a 38-per-cent net population gain)<sup>6</sup>.

In terms of total numbers, of all found graduates, 71 per cent are employed in Canada.



## Our PhDs Strengthen the Local and Provincial Workforces

Alberta's economic and social sectors in particular are benefiting from this talented workforce, with 46 per cent remaining here in the province.

To narrow the focus further, 34 per cent are working in Edmonton and 16 per cent are right here at the U of A.



46%  
Alberta



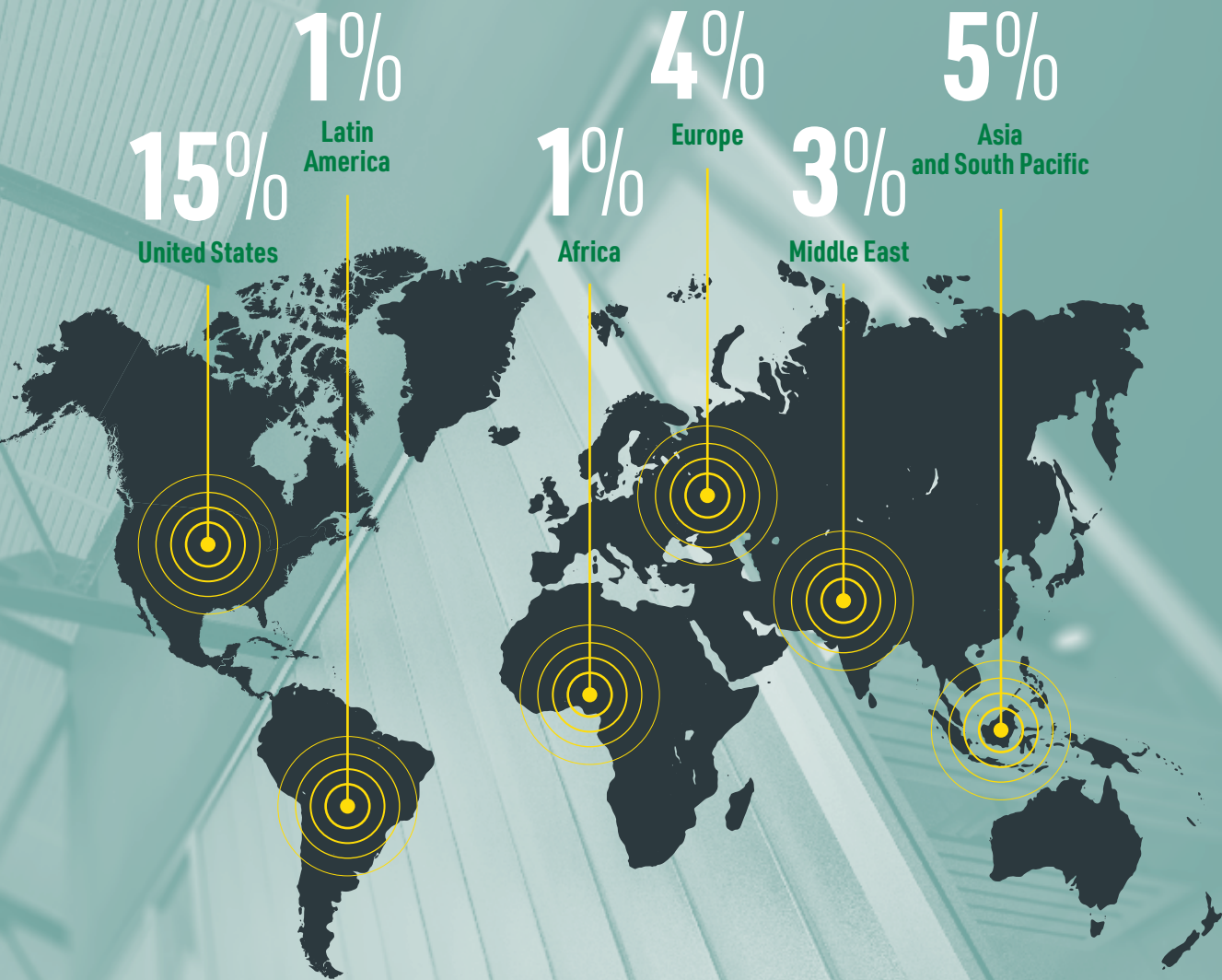
34%  
Edmonton



16%  
University  
of Alberta

<sup>6</sup> This net gain of 831 takes into consideration the number of domestic students (nearly 400) who pursued work opportunities outside of Canada. In addition, this net brain gain may in fact be higher, given that international graduates were slightly underrepresented in the public sourcing of career outcomes. Citizenship is captured at time of convocation, and some international students transition to Canadian status during the course of their studies.





Our graduates are contributing to the global political, social, and economic spheres. Of our found PhD graduates, almost one-third are working outside Canada.

# Benefits of a PhD

## PhDs Deliver Career Fulfilment

Results from our online survey suggest that most of the U of A's PhD alumni feel good about their careers. When asked about satisfaction levels with "overall career progression since graduating," fully 73 per cent of the survey sample indicated that they were "satisfied" or "very satisfied."

The majority of found PhDs—59 per cent—were also working in positions that formally required a PhD.

Those who were in positions without that formal requirement were more likely to consider themselves overqualified.

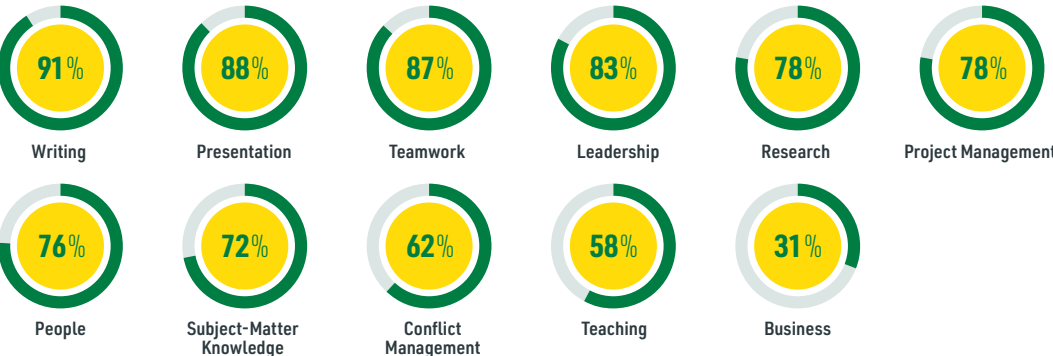
Despite at times feeling overqualified, nearly four in five survey respondents (79 per cent) indicated their job fulfils their career ambitions to a moderate or great extent.

## PhDs Leveraging Teamwork and Leadership Skills

The importance of soft skills has been broadly accepted by employers in all sectors. According to a LinkedIn survey of 2,000 employers in 2018, the soft skills they value the most are leadership, communication, and collaboration. The Conference Board of Canada Centre for Skills and Post-Secondary Education identified that Alberta employers are prioritizing "creative problem-solving and critical thinking skills, international collaboration and social/human skills," just to name a few<sup>7</sup>.

Survey results tell us that our PhDs are using a wide range of hard and soft skills in all work environments, which suggests they are meeting the demands of an evolving workplace.

### IN-DEMAND SKILLS (per cent using skill to a moderate / great extent):



7 Building Skills Connections Series: Alberta in a Nutshell

U of A PhDs are contributing their talents and skills in many ways. They're full-time professors, they manage not-for-profits. They're governmental department directors and CEOs of startups.

These alumni are finding their way through a complex period that many have identified as the "age of disruption."<sup>8</sup>

FGSR sees an opportunity for more sectors to leverage the talents of this highly knowledgeable and skilled workforce, and sees the value in further connecting our PhD students with alumni, government, profit, and not-for-profit organizations. The faculty anticipates further analysis of data results to better support current and future students who are motivated and driven to pursue a doctoral degree.



<sup>8</sup> *Humans Wanted*, a cross-country research report released by RBC in 2018.

## Acknowledgements

The U of A is grateful for the funding it received from the Government of Alberta to support current and future graduate students through the grant "A Vision for Innovation in Alberta: Excellence and Transformative Talent." Funds from this grant accelerated the progress of the PhD Career Preparation and Outcomes Study.

Special thanks are extended to Marianne Sorensen (PhD), research director of Tandem Social Research Consulting. Marianne led the two phases of the U of A PhD Career Preparation and Outcomes Study, and her commitment and dedication to this research project were unrelenting.

Marianne's efforts were supported by members of the governing body of the FGSR. The FGSR Council includes representatives from the faculties of Arts, Engineering, Medicine & Dentistry, Science, Pharmacy and Pharmaceutical Sciences; the Graduate Students Association; Alumni Relations; and the university's Strategic Analysis and Data Warehousing.

Representation from FGSR included Vice-Dean Bryan Hogeveen (also principal investigator) and Andrea Graham, director of PhDiversification, Innovation and Partnerships.

Appreciation is also extended to the dedicated team of research assistants who spent over six months collecting job information for thousands of PhD graduates. Especially instrumental to this endeavour were Jaqueline Romero, Ben Murray, and Lorne MacDonald.

The study would not have been possible without the willing participation of the many U of A PhD graduates who took the time to complete our survey. The U of A is greatly indebted to these survey respondents.

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