



# Memorandum

**Secretariat**

845 Sherbrooke Street West, Room 313  
Montreal, Quebec, H3A 0G4  
Tel: 514-398-3948 | Fax: 514-398-4758

**TO:** Senate

**FROM:** Ms. Edyta Rogowska, Secretary-General

**SUBJECT:** Open Discussion on Preparing PhD Students for Careers Inside and Outside Academia

**DATE:** November 23, 2016

**DOCUMENT #:** D16-19

**ACTION REQUIRED:**  INFORMATION     APPROVAL/DECISION

**ISSUE:** Background documents in support of the open discussion on “Preparing PhD Students for Careers Inside and Outside Academia”

**BACKGROUND & RATIONALE:** Following a review of topics suggested by Senators, the Senate Steering Committee selected “Preparing PhD Students for Careers Inside and Outside Academia” as the topic for the November 23, 2016 Senate meeting.

A Working Group was struck to frame the open discussion and develop background documentation. Based on the discussions of the Working Group, the following question is proposed to guide the open discussion:

- 1) What can McGill do to prepare its PhD students for jobs both inside and outside academia:
  - a. In its academic programs?
  - b. In its professional development skills services?
  - c. In its career planning services?

**PRIOR CONSULTATION:** Senate Steering Committee  
A Working Group was struck to develop background documentation.

**SUSTAINABILITY CONSIDERATIONS:** N/A

**IMPACT OF DECISION AND NEXT STEPS:** Follow-up action may result from the Open Discussion.

**MOTION OR RESOLUTION FOR APPROVAL:** N/A

**APPENDICES:** Appendix A: Questions and Background Information  
Appendix B: McGill Programming and Initiatives





## NOVEMBER 2016 OPEN DISCUSSION:

### PREPARING PHD STUDENTS FOR CAREERS INSIDE AND OUTSIDE ACADEMIA

#### Background Information

In 2015, the Conference Board of Canada published a report entitled, *Inside and Outside the Academy: Valuing and Preparing PhDs for Careers*. The report showed that only one out of five PhD graduates in Canada are employed as full-time university professors. The majority of PhD graduates hold jobs outside academia in a variety of fields including industry, government and not-for-profit organizations.

PhD graduates struggle to transition to careers outside the academy. Underdeveloped professional skills and networks, poor articulation of the value of a PhD and limited employer awareness and appreciation of the potential value of PhD hires may account for difficult transitions to the non-academic job market. There have been efforts made by Canadian universities to establish support structures to help PhD graduates obtain jobs outside the academy. These include the implementation of professional skills workshops, generation of online resources and personalized feedback and coaching.

Professionals holding a PhD have significant impact on innovation and productivity performance and contribute to research, social services, public policy and culture but the extent to which this positive impact is attributable to having a PhD remains to be determined.

Canada has experienced growth in the total number of PhD graduates. In 2011, there were 208,480 individuals with PhDs, which was 14% higher than numbers reported for 2006 and 48% higher than those reported for 2001.

Similarly, there have been increases in the number of PhD degrees granted annually. In 2011, Canadian universities granted 6,219 PhD degrees, which represents an increase of 68% to degrees granted in 2002 (3,723). During the same period, the number of students enrolled in PhD programs in Canadian universities grew from 27,576 in 2001-02 to 47,628 in 2010-11, which represents an increase of approximately 73%.

How the increased number of PhDs in Canada can positively impact the economy will depend on the extent to which employers are effective in leveraging the full value, skills and knowledge of PhDs.

There is variation among universities in the way they collect and use data related to PhD outcomes and even greater variation in the way they design PhD programs. More work needs to be done to better understand PhD career pathways, as well as to optimize and design graduate programs that prepare PhD graduates for employment both inside and outside the academy.

Question:

The following question is proposed to guide Senate's Open Discussion:

- 1) What can McGill do to prepare its PhD students for jobs both inside and outside academia:
  - a. In its academic programs?
  - b. In its professional development skills services?
  - c. In its career planning services?

References:

Edge, Jessica and Daniel Munro. *Inside and Outside the Academy: Valuing and Preparing PhDs for Careers*. Ottawa: The Conference Board of Canada, 2015.

Allum, J.R., Kent, J.D and McCarthy, M.T. *Understanding PhD Career Pathways for Program Improvement: A CGS Report*. Washington, Dc: Council of Graduate Schools 2014.



**McGill**

Graduate and  
Postdoctoral Studies

## **Preparing Doctoral Students for Careers: McGill Programming and Initiatives**

**Senate Open Discussion**

**November 23, 2016**

Prepared by:

Alison Crump, PhD - Academic Projects Manager, Graduate and Postdoctoral Studies

Sabine Dhir, PhD - Interdisciplinary Programs Officer, Graduate and Postdoctoral Studies

Josephine Nalbantoglu, PhD - Dean Graduate and Postdoctoral Studies



## Table of Contents

- The Question** ..... 4
- Background** ..... 4
  - Goal of Doctoral Education ..... 5
  - Training for Careers ..... 6
- PhD Career Pathways and Outcomes (Canada and the United States)** ..... 8
- McGill Doctoral Enrolment and Graduation Outcomes** ..... 10
  - McGill Doctoral Enrolment ..... 10
  - McGill PhD Outcomes Survey ..... 11
- McGill’s Graduate Education Initiatives** ..... 18
  - Skills training, professional development, and career planning ..... 18
    - 1. SKILLSETS ..... 18
    - 2. Individual Development Plan (IDP) ..... 19
    - 3. McGill Career Planning Service (CaPS) ..... 20
    - 4. Graphos ..... 21
    - 5. Co-curricular record (CCR) ..... 22
  - Academic programming ..... 22
    - 1. Graduate Program Design ..... 22
    - 2. Graduate Student Mobility ..... 23
    - 3. Supervision ..... 23
    - 4. Progress Tracking ..... 24
    - 5. Graduate Milestones ..... 24
- Conclusion** ..... 25
- References** ..... 26



**List of Figures**

Figure 1: Full-time Master’s and doctoral enrolments, Canada, 1992-2013 (Looker, 2016) .....4

Figure 2: Full-time doctoral enrolments, by province, 1992-2013 (Looker, 2016) .....5

Figure 3: Diverse skills required by academic researchers.....7

Figure 4. Employment rates ..... 13

Figure 5. Postdoctoral Studies..... 14

Figure 6. Type of Employer..... 15

Figure 7. Feeling overqualified ..... 16

Figure 8. Feeling successful ..... 17

Figure 9: IDP Planning in 3 areas ..... 20

Figure 10: IDP vs Progress Tracking ..... 20

**List of Tables**

Table 1: Primary reason for enrolling in doctoral program.....6

Table 2: Employment Outcomes, by Level of Education (Canada) .....9

Table 3: Current situations for doctoral graduates. .... 12



## The Question

The following question was proposed to guide Senate’s Open Discussion:

What can McGill do to prepare its PhD students for jobs both inside and outside academia:

- In its academic programs?
- In its professional development skills services?
- In its career planning services?

In order to answer this question, we must first acknowledge the shifting broader landscape of higher education in Canada. This report begins with an overview of doctoral education in Canada. Then, it provides a summary of key findings from recent reports and studies in Canada and the United States on career pathways and outcomes for doctoral students. These two sections provide the broader higher education context for the rest of the report, which focuses on McGill’s doctoral enrolment and career outcomes, and well as McGill’s graduate education programming and initiatives.

## Background

Doctoral education in Canada and worldwide has evolved in the past decade in response to a rapidly transitioning society and an increasingly knowledge-based economy that values highly skilled researchers (Canadian Association for Graduate Studies [CAGS], 2016). Historically, there have always been more doctoral degrees produced than the number of tenure-track positions available; however, this disparity has increased significantly in the past decade (e.g., Sinche, 2014). Figures 1 and 2 below show Statistics Canada data on full-time doctoral enrolments in Canada and Quebec, respectively between 1992 and 2013.

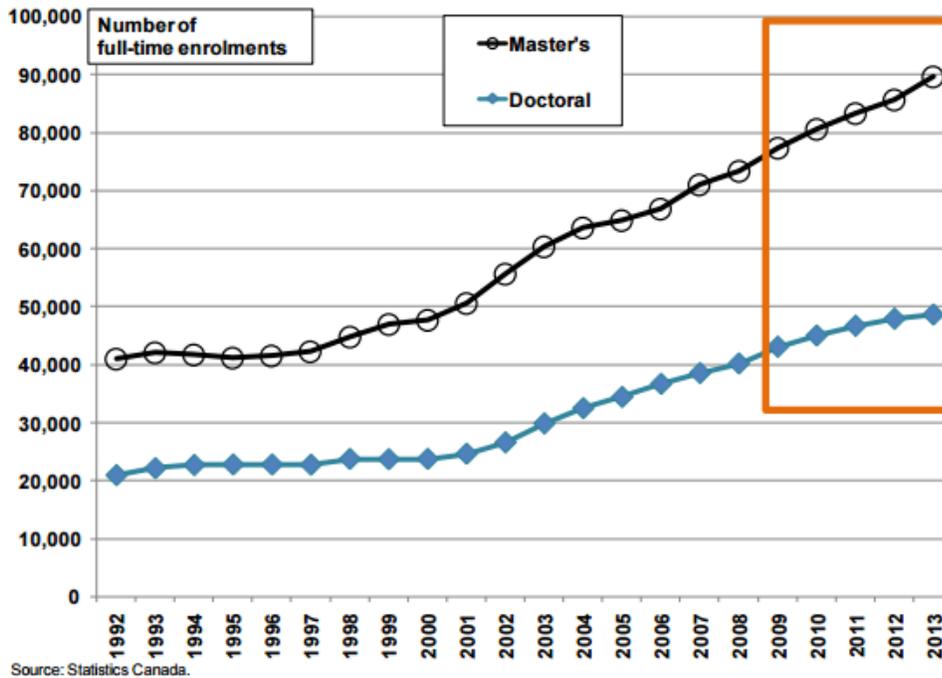


Figure 1: Full-time Master’s and doctoral enrolments, Canada, 1992-2013 (Looker, 2016)

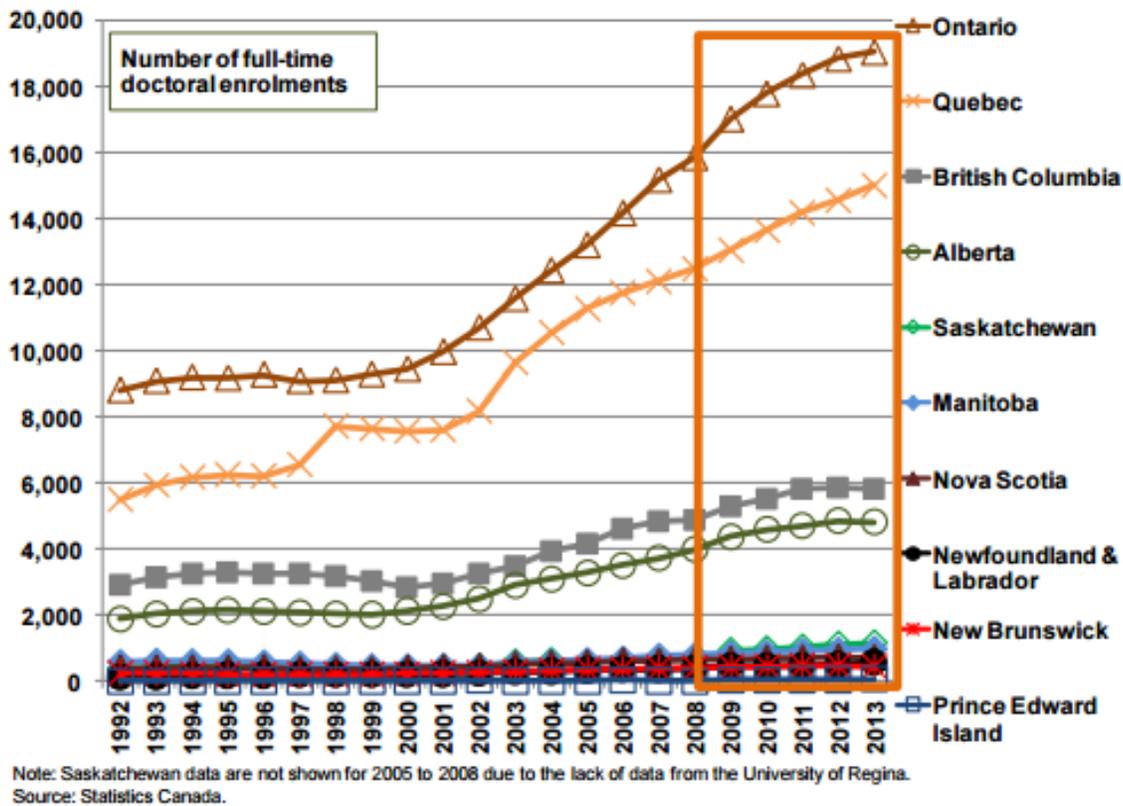


Figure 2: Full-time doctoral enrolments, by province, 1992-2013 (Looker, 2016)

Quebec and Ontario show the largest change over time. In Quebec, between 2009 and 2013, the number of full-time doctoral enrolments increased from 13,071 to 15,033.

While the education of doctoral students has multiple objectives and doctoral graduates have diverse career trajectories and opportunities, the dominant employment narrative has focused on academic employment as the metric of success of a professor and academic program.

### Goal of Doctoral Education

Recognizing that the landscape of doctoral education is changing, we need to move from the traditional apprenticeship model (where graduate students are supervised to follow their supervisors’ footsteps towards the professoriate) to training independent researchers with professional and transferable skills who can thrive in diverse careers (see below for McGill’s programming and initiatives). As Frédéric Bouchard, Deputy Vice-Rector for Research, Discovery, Creation and Innovation, and Philosophy Professor at Université de Montréal has argued, “**The PhD is intended to train researchers. Some of them go on to become academics. Not the other way around**” (Conference Board of Canada [CBC], 2014, p. 16).

In addition to this institutional-level recognition of the shift with respect to the goal of doctoral education, it is also important to highlight that doctoral students themselves report varied reasons for enrolling in their



programs. The 2016 Canadian Graduate and Professional Student Survey (CGPSS)<sup>1</sup> data on current McGill doctoral students’ primary reason for enrolling in their program show that less than half of the McGill doctoral student respondents (44%) enrolled in their program with the primary goal of advancing a career in academia. Furthermore, approximately one-third (30.5%) enrolled to satisfy their interest in the field, regardless of career prospects (see Table 1 below).

Response	Frequency	Count
1. To equip me to start a career, or advance an existing career in academia	44.0%	288
2. To equip me to start a career, or advance a career outside of academia	20.0%	131
3. To satisfy my interest in the field, regardless of career prospects	30.5%	200
4. Other	5.5%	36

Table 1: Primary reason for enrolling in doctoral program (CGPSS, 2016)

When comparing McGill University students’ responses with doctoral students across Canada, similar reasons for enrolling in PhD programs emerge, indicating that this diversity of goals for enrolling in a doctoral program is not unique to McGill, but is consistent with findings in peer institutions (CGPSS, 2016).

### Training for Careers

A recent article in *Nature Magazine* (see Figure 3 below) by Maher and Sureda Anfres (2016) highlighted that the skills and expertise often associated with non-academic jobs are equally as important for academic jobs. The survey run by *Nature* on time spent on research and related activities found that academic researchers of all ages spend only 40% of their time on actual research. This means, that professors at all stages of their careers spend a significant portion of their time on duties and tasks not directly related to their research, but are nevertheless essential to their academic position.

<sup>1</sup> The CGPSS provides quantitative data on various aspects of the graduate student experience in Canadian universities (for reports on McGill data from the 2007, 2010, 2013, and 2016 iterations of the survey, see <https://www.mcgill.ca/pia/surveys/survey-results/cgpss>).

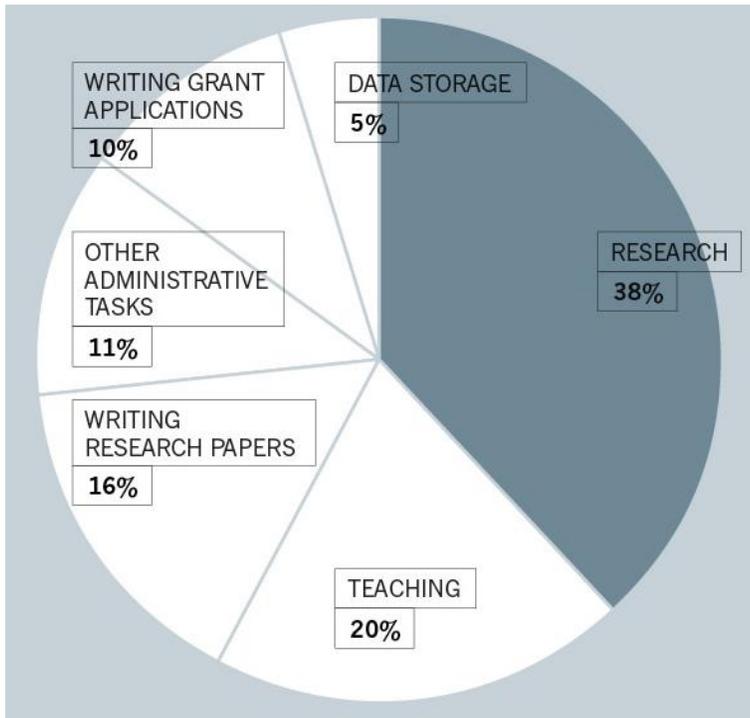


Figure 3: Diverse skills required by academic researchers (source: *Nature Magazine* October 26, 2016)

The findings of this survey highlight that tenure track positions require a diverse set of skills, such as teaching, communication to broad audiences, problem solving, time and project management, and critical analysis (to name a few). From this perspective, when we consider the breadth of research and professional skills required for *any* post-PhD career, the academic/non-academic binary becomes hard to maintain. In the context of graduate education, this has direct implications on academic programming and training initiatives (see below for details regarding McGill University initiatives).

Harvey Weingarten (2016), CEO and President of HEQCO (Higher Education Quality Council of Ontario), commented on a recently released HEQCO study (see Prism Economics and Analysis, 2016, for the full report) that examined the relationship between the supply of graduate students and labour demands. The conclusions in the study are clear: there is no “direct pipeline between specific fields of study/programs/degrees and specific jobs.” Instead, students go into a wide range of jobs. Weingarten argues that we need to be asking contemporary questions about the alignment between higher education and jobs, and those questions focus on skills.

In the past few years, there has been increasing attention among higher education leaders on the importance of better understanding doctoral career pathways and outcomes, as this is essential to informing program design and skill training opportunities. Canadian and American initiatives are summarized in the next section.



## PhD Career Pathways and Outcomes (Canada and the United States)

An important outcome of the shifting landscape of doctoral education has been the recognition of a need to better understand career pathways of doctoral graduates and how well doctoral programs are preparing their graduates for the labour markets they are entering (Allum, Kent, & McCarthy, 2014; Else, 2015; Maldonado, Wiggers, & Arnold, 2013; Sekuler et al., 2013). CGS (American Council of Graduate Schools) President Suzanne T. Ortega explained that “universities need a better understanding of the long-term career outcomes of their PhD graduates. This information is critical for helping graduate educators to develop curricula and professional development programs that better prepare students for the *full range of careers* they are likely to follow” (CGS, 2015; italics added).

In recent years, there have been several initiatives that have focused on doctoral career outcomes. This section highlights key findings and recommendations from these. Much of the impetus for this work was the 2013 “White Paper on the future of the PhD in the humanities,” published by McGill’s Institute for the Public Life of Arts and Ideas (iPLAI), which initiated discussions among graduate education leaders and organizations across North America with respect to goals and outcomes of doctoral education. The White Paper recommended not cutting PhD students or programs, but instead “reform[ing] doctoral training so that it leads to a multiplicity of career paths instead of only one” (p. 1). The following reports and studies from 2014 onwards examine the PhD degree, the process, and graduate outcomes within Canada and the United States.

**Council of Graduate Studies (CGS): “Understanding PhD Career Pathways for Program Improvement” (Allum, Kent, & McArthur, 2014)**

This was a survey to graduate studies Deans in the United States and Canada to determine what kinds of PhD outcomes data should be collected, who should collect it, how it should be collected, and how it would be used.

### Key Finding

- While the overall recommendation from the project was that there needs to be more data collection efforts on PhD pathways, the significance of this report is that it drew national attention to the need to better track where PhD graduates are going after they complete their degrees. These data are invaluable for informing degree program design, co-curricular professional development training opportunities, and graduate career advising support.

**Conference Board of Canada: “Inside and Outside the Academy: Valuing and Preparing PhDs for Careers” (Edge & Munro, 2015)**

This report draws on quantitative (Statistics Canada) and qualitative data (interviews with graduate education leaders and consultations with stakeholders).

### Key Findings

- 60% of PhD students start their studies aiming for a tenure-track job. This is likely due to the dominant narrative within academia and the tenure-track job as a metric of success of the supervisor and program.



- Only 18.6% of PhD graduates successfully obtain tenure-track jobs, thus careers outside the academy are the norm, not the exception.
- As shown in Table 2 below, PhD degree holders (in all careers) have the lowest unemployment rate across Canada.

Highest level of education obtained	Participation rate	Employment rate	Unemployment rate
All education levels	80.3	75.3	6.2
High school diploma or equivalent	76.7	71.4	6.9
College, CEGEP, or other non-university certificate or diploma	84.9	80.6	5.2
Bachelor’s degree	86.3	82.4	4.5
Master’s degree	86.3	81.9	5.0
PhD degree	89.3	85.6	4.1

Source: Statistics Canada, National Household Survey, 2011.

Table 2: Employment Outcomes, by Level of Education (Canada) (source: Conference Board of Canada, 2014)

- Doctoral graduates have rewarding careers in various sectors (industry, government, and non-profit organizations) and report high levels of career satisfaction. They also have higher earnings, though not always immediately after graduation.
- Doctoral students graduate with subject matter expertise, but also advanced analytical and problem-solving skills, the capacity for sustained intellectual effort, advanced written and verbal communication skills, information management skills, and project management skills that are highly valuable for diverse careers and for making important contributions to society.
- Major recommendations of this report include 1) Doctoral students need skills training and more explicit awareness of the broad range of academic, research, and professional skills they are developing during their degrees; 2) Employers need to be made more aware of the value of hiring doctoral graduates.

**Higher Education Quality Consortium of Ontario (HEQCO): “Ontario’s PhD Graduates from 2009: Where are they now?”(Jonker, 2016)**

This report draws on a novel methodology for tracking doctoral graduate outcomes. Rather than conducting a survey, the researchers conducted an online search of all Ontario PhD graduates from 2009, based on convocation lists. This resulted in an 85% “response rate” (i.e., 15% did not have an online profile with career details).



## Key Findings:

- 50% of 2009 doctoral graduates are working in universities, with 29% in TT positions and 21% employed inside academia as lecturers, administrators, etc.
- 35% are working in other sectors: health care, government, and industry

## **TRaCE: Track, Report, Connect, Engage (2015)**

TRaCE 1.0 (2015) was a collaborative national pilot project, led by McGill University's Paul Yachnin (iPLAI) to track humanities PhD graduates in at least two departments/programs, report on where they are and what they have achieved, connect them to each other, and foster exchanges across sectors. Twenty-one universities from across Canada are participating in the project. Other partners include: Adoc Talent Management (the first European recruitment consultancy firm specializing in PhDs), CAGS, the Federation for the Humanities and Social Sciences, the Higher Education Quality Council of Ontario [HEQCO], and the Jackman Institute for the Humanities.

TRaCE 2.0, is a 5-year project that will be launched in January 2017 and will expand to include social science Masters and PhDs in Fine Arts as well as humanities PhD graduates. Following on the heels of TRaCE, in November 2016, the Council of Graduate School (CGS) announced a multi-university project to collect data on career pathways of humanities PhDs in the United States.

## McGill Doctoral Enrolment and Graduation Outcomes

The above two sections provide an overview of the broader higher education context in North America. The report now turns to focusing on McGill, beginning with doctoral enrolment and career outcomes.

### McGill Doctoral Enrolment

There are 3,751 students registered in a PhD program at McGill University (McGill Census Fall 2016). These students are subdivided by Faculty as follows: 237 students in Agricultural and Environmental Science, 610 students in Arts, 42 students in Dentistry, 278 students in Education, 615 students in Engineering, 286 students in Interfaculty Studies, 82 students in Law, 743 students in Medicine, 62 students in the Desautels Faculty of Management, 125 students in the Schulich School of Music and 684 students in Science.

While there is considerable variety at the individual level with respect to time to completion, the average time to completion across all PhD programs at McGill is 5.6 years. For those whose programs exceed this average and pass beyond the time limit for doctoral degrees (6 or 7 years after initial registration, depending on level of previous degree), there are increasing supports in place to ensure timely degree completion (see below).



## McGill PhD Outcomes Survey

Graduate and Postdoctoral Studies (GPS) collaborated in 2012 and 2013 with the Office of Planning and Institutional Analysis (PIA) to survey recent graduates from McGill's PhD programs with respect to their graduation outcomes. This initiative preceded the 2014 CGS recommendation for more data on graduate outcomes.

[The McGill's PhD Outcomes: Report on 2013 and 2014 Survey Results](#) draws from the 2013 and 2014 iterations of *McGill's Tracking Survey of PhD Graduation Outcomes*, which each reached out to two sets of PhD graduates (2 years and 5 years after graduation). The survey was administered again in 2015 and 2016. These more recent data have been recently compiled (November 2016), and a preliminary analysis is presented and described below.

As of 2013, the survey has been distributed to 3,279 PhD graduates from seven different cohorts (2008 to 2014) with 915 respondents, for a response rate of 28% and a margin of error of 2.8% 19 times out of 20. Respondents are from departments across McGill, with 658 (72%) from the STEM fields (science, technology, engineering, mathematics) and 255 (28%) from the SSH fields (social sciences and humanities, and graduates from the Faculty of Management). The survey has multiple-choice questions, 1 biographical data question, and 1 open-ended item. Topics covered include: types of employment; postdoctoral studies; skills and knowledge; community involvement and networking; and success and satisfaction with your employment.

### Highlights of findings:

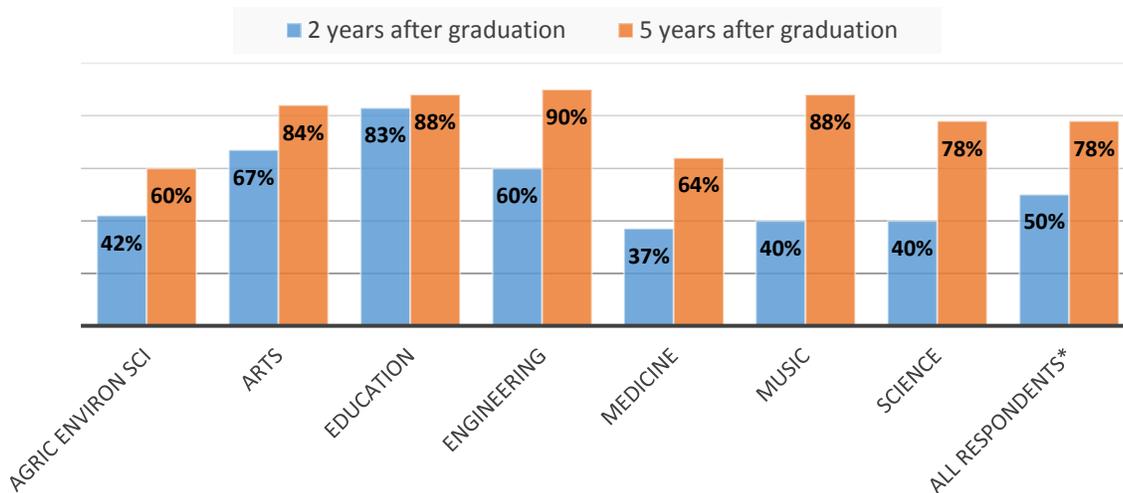
**Current situation for doctoral graduates.** As depicted in Table 3, over 80% of McGill University doctoral graduates are either employed or engaged in postdoctoral studies 2 years after graduation. In the majority of cases, these employment numbers increase 5 years after graduation where 90% of all respondents are gainfully employed or in a postdoc. Graduates who are neither employed or pursuing a postdoc have indicated "Other" in their survey responses and list their current situation as "pursuing further studies," "working as a volunteer or unpaid intern," "temporarily on a leave of absence," "caring for family," or "looking for a job."

Faculty	2 Years After Graduation					5 Years After Graduation				
	Employed/ Postdoc (count)	Other (count)	Total (count)	Employed/ Postdoc (%)	Other (%)	Employed/ Postdoc (count)	Other (count)	Total (count)	Employed/ Postdoc (%)	Other (%)
Agric Environ Sci	33	3	36	91.7	8.3	15	5	20	75	25
Arts	48	10	58	82.8	17.2	53	8	61	86.9	13.1
Education	27	2	29	93.1	6.9	22	3	25	88	12
Engineering	72	6	78	92.3	7.7	40	2	42	95.2	4.8
Medicine	114	23	137	83.2	16.8	86	4	90	95.6	4.4
Music	12	3	15	80	20	15	1	16	93.8	6.3
Science	91	9	100	91	9	82	10	92	89.1	10.9
All respondents*	419	57	476	88.0	12.0	331	35	366	90.4	9.6

**Table 3: Current situations for doctoral graduates.** \*The category “All respondents” reflects all survey respondents, including those from the faculties of Dentistry, Law and Management where only a small number of graduates responded (< 15 for each faculty).

Figures 4 and 5 below examine in detail the employment and postdoctoral rates for graduates 2 and 5 years after graduation by Faculty. Employment in this instance includes freelancing work and self-employment experiences. While there is considerable variability in the percentage of employed graduates 2 years after leaving McGill (i.e., 83% employed in Education vs. 37% employed in Medicine), it is important to note that across disciplines employment levels increase for all doctoral students 5 years after graduation (Figure 4). Indeed, at least 80% of McGill graduates in the Arts, Education, Engineering and Music are employed within 5 years.

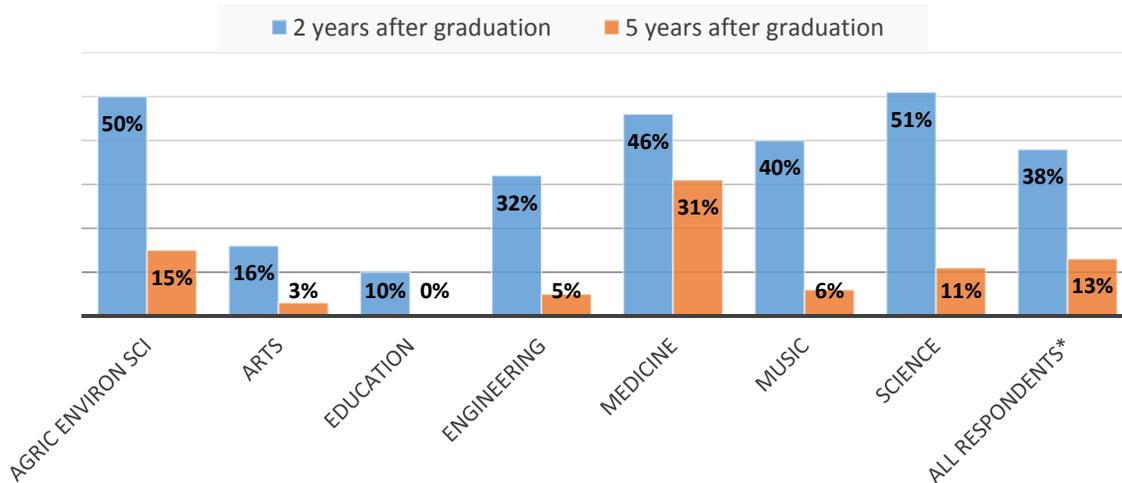
### Employment Rates



**Figure 4. Employment rates:** 2 and 5 years after graduation from McGill, doctoral students are gainfully employed. Values indicated for Agri Envriion Sci, Education and Music represent survey data from 2015 and 2016, while Arts, Engineering, Medicine, Science and All respondents are data from 2013, 2104, 2015 and 2016. \*The category “All respondents” reflects all survey respondents, including those from the Faculties of Dentistry, Law and Management where only a small number of graduates responded (< 15 for each faculty).

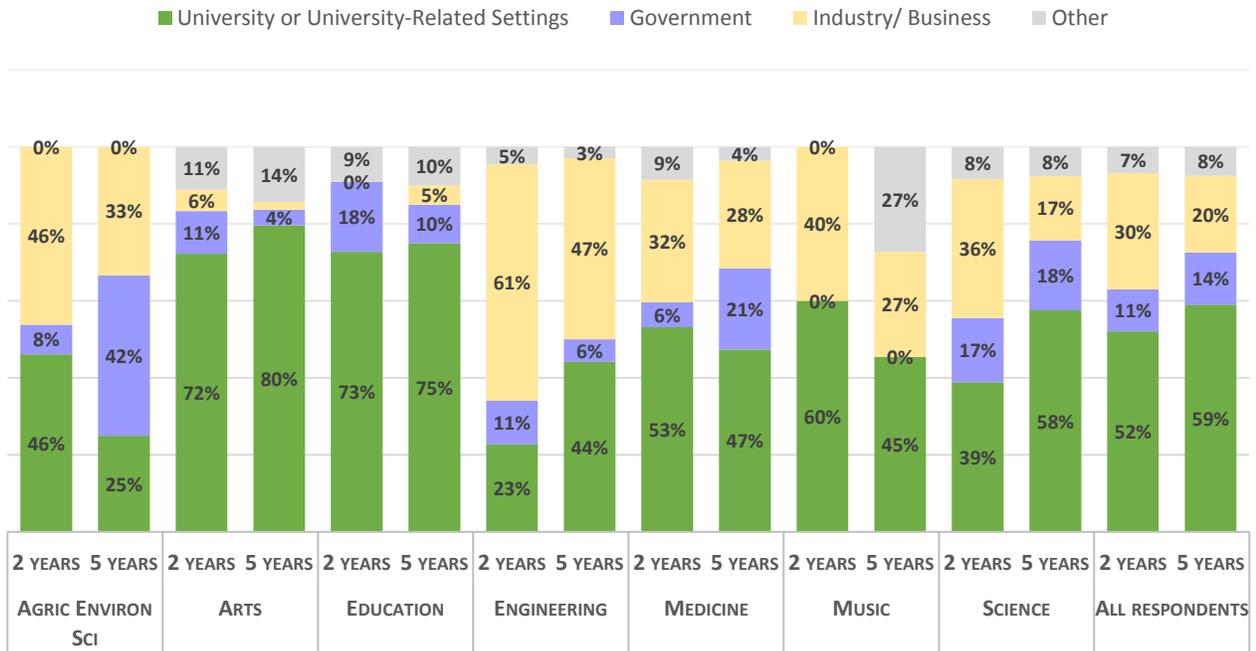
The employment figures presented in Figure 4 are in contrast to those presented in Figure 5 depicting the percentage of graduates pursuing postdoctoral studies. Over time, the number of individuals engaged in a postdoctoral experience markedly decreases from 2 to 5 years, and this is true across all disciplines (Figure 5). Graduates from the Faculties of Agricultural and Environmental Sciences, Medicine, Music and Science are especially interested in postdoctoral studies and this may, in part, explain the lower levels of employment seen in Figure 5.

### Pursuing Postdoctoral Studies



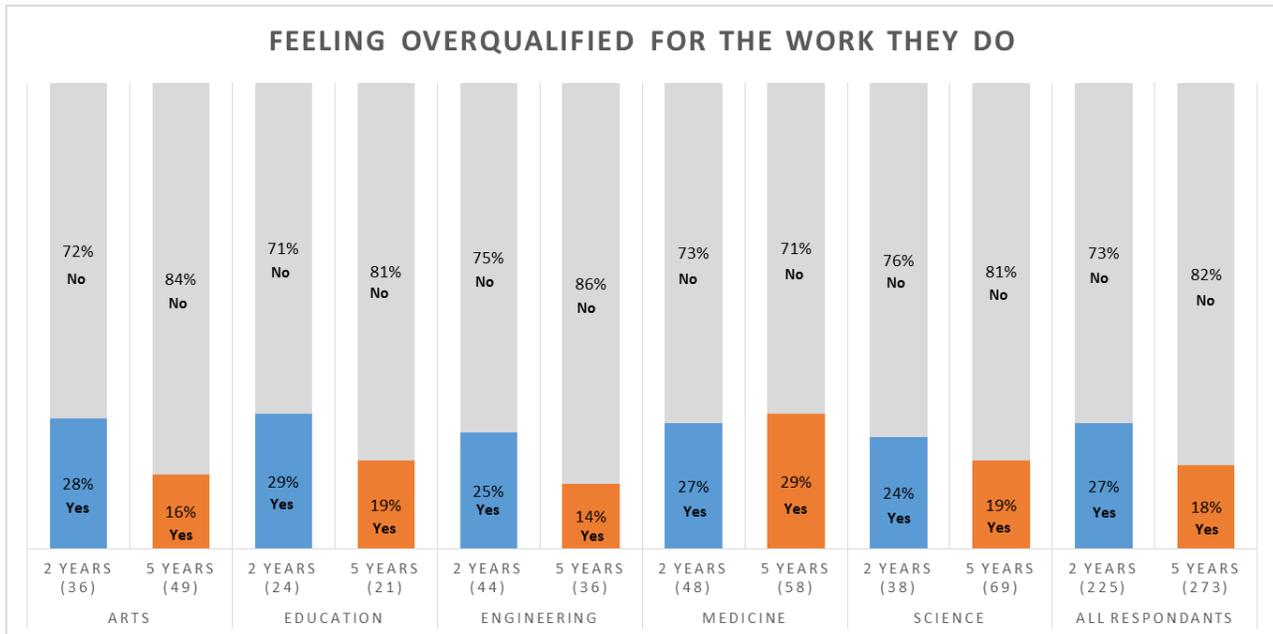
**Figure 5. Postdoctoral Studies:** Studies engage in postdoctoral studies in a discipline specific manner that changes over time. Values indicated for Agri Environ Sci, Education and Music represent survey data from 2015 and 2016, while Arts, Engineering, Medicine, Science and All respondents are data from 2013, 2104, 2015 and 2016. \*The category “All respondents” reflects all survey respondents, including those from the faculties of Dentistry, Law and Management where only a small number of graduates responded (< 15 for each faculty).

**Type of Employer.** The percentage of graduates who work in university or university-related settings increased from 52% to 59% for all respondents from 2 to 5 years after graduation (Figure 6). Jobs in industry and government represent the other most common types of employers. There is considerable difference between types of employer for graduates in different disciplines (e.g., Arts vs. Engineering). Somewhat unsurprisingly, the largest percentage of students working in government are graduates from Agricultural and Environmental Sciences (42% 5 years after graduation), while doctoral students from Engineering are most likely to be employed in industry and business 2 years after graduation from McGill (61%).

**TYPE OF EMPLOYER**


**Figure 6. Type of Employer:** McGill doctoral graduates across disciplines work for a variety of types of employers, including in the university and government setting, in industry and business and other employers. The only exception are graduates from Music who are not employed in government either 2 or 5 years after graduation. Just over half of all graduates with a doctoral degree regardless of discipline work in a university or university related setting. Values indicated for Agri Environ Sci, Education and Music represent survey data from 2015 and 2016, while Arts, Engineering, Medicine, Science and All respondents are data from 2013, 2014, 2015 and 2016. \*The category “All respondents” reflects all survey respondents, including those from the faculties of Dentistry, Law and Management where only a small number of graduates responded (< 15 for each faculty).

**Feeling Overqualified.** Over time, doctoral graduates feel less overqualified for the work they are doing (Figure 7). When asked “Considering your experience, education and training, do you consider yourself to be overqualified for the work that you do (excluding self-employment)?” the majority of respondents regardless of their area of study answered “no.” Over time, the number of graduates who did answer “yes” to feeling overqualified actually decreased across Faculties (with the exception of Medicine) at the 5-year time point. This can potentially be interpreted as meaning that graduates increasingly draw on the skills and expertise they developed during their doctoral degree.



**Figure 7. Feeling overqualified:** Total number of respondents for each category is indicated in the X axis legend. Values indicated for Education represent survey data from 2015 and 2016, while Arts, Engineering, Medicine, Science and All respondents are data from 2013, 2104, 2015 and 2016. \*The category “All respondents” reflects all survey respondents, including those from the Faculties of Agric Envrion Sci, Dentistry, Law, Management and Music where only a small number of graduates responded (< 15 for each faculty).

**Area of study related to work.** When asked “is your work related to your field of study?”, 2 years after graduation, 91% of all respondents reported that “yes, I feel my work is related to my field of study” (data not shown). This remains true 5 years after graduation where 92% of all respondents indicate their work is related to their field of study. Given the range of careers and the diversity of the doctoral areas of research, this is quite striking.

**Feeling successful.** The majority of respondents (> 90%) feel successful in the work they do (Figure 8). When surveyed, doctoral graduates report feeling either “very successful” or “somewhat successful” regarding their work across disciplines and over time as well. Once again, considering the variety of careers doctoral graduates are engaged in, the diversity in their areas of expertise and employment landscape is quite a salient finding.



**Figure 8. Feeling successful:** Graduates were asked if they felt “very successful,” “somewhat successful,” “unsuccessful” or “no opinion” in their work 2 and 5 years after graduation. The percentage of respondents who felt either “very successful” or “somewhat successful” is depicted in this graph, with the total percentage of these two responses shown in the bubble icon above each bar graph. Values indicated for Education represent survey data from 2015 and 2016, while Arts, Engineering, Medicine, Science and All respondents are data from 2013, 2104, 2015 and 2016. \*The category “All respondents” reflects all survey respondents, including those from the faculties of Agric Envrion Sci, Dentistry, Law, Management and Music where only a small number of graduates responded (< 15 for each faculty).

**Open-ended comments.** 15% of the survey respondents included a comment at the end of the survey. These comments fall into four themes: 1) feedback on the survey; 2) elaboration on survey responses; 3) comments on higher education in general; and 4) alignment of PhD programs with job market realities and employment outcomes. The latter theme received the most comments, and the dominant message was that doctoral graduates felt their programs could have better prepared them for the realities of the job market, rather than a singular academic path (see [Outcomes Report 2015](#) for all comments):

I feel that there is a lot more that McGill’s departments could do to prepare PhD students for non-academic jobs. My graduate training was completely geared towards gaining employment in academia. After my postdoc, I was fortunate to land a great non-academic job, but it was really tough to know what was out there and what working outside academia would actually be like. Although my academic training helps me in my current job, there were plenty of skills that I had to learn on the fly that could have been covered or touched upon in a PhD program.  
(Faculty of Science graduate)

The English department definitely needs to acknowledge that few of its PhD graduates will become TT professors and to suggest alternate possibilities in its proseminar course. Also, given that my first full time job after graduation was as an LTA with a 3/3 course load, there needs to be much more pedagogical training in the PhD program – ie. Seminars on how to build a syllabus, how to create a teaching portfolio, how to prepare for full-time teaching (without



burning out), etc. The department prepares PhD students for TT jobs at major research institutions that simply don't exist anymore. (Faculty of Arts graduate)

The quantitative data drawn from the survey show a promising picture of employment for this group of McGill PhD graduates, who are for the most part employed, doing work that relates to their field of study, and feeling successful. On the other hand, the responses to the open-ended question add nuance and depth to understandings of PhD outcomes and PhD graduate experiences, in particular with respect to how well students felt that their PhD programs prepared them for the realities of the job market post-graduation and how many graduates are not pursuing professorships at an academic institution. This has direct implications for McGill graduate education programs and initiatives.

## McGill's Graduate Education Initiatives

McGill has responded to and continues to respond to the shifting landscape of doctoral education in numerous ways in order to support graduate student success. These initiatives are aligned with a goal for doctoral education that looks beyond the professoriate, and fall into two overarching, but interrelated categories: skills training, professional development, and career planning; and academic programming.

### Skills training, professional development, and career planning

Graduate and Postdoctoral Studies collaborates with Faculties and service units across the University to provide skills and professional development training to complement graduate students' academic training. The better graduate students can articulate their integrated skills sets, the better prepared they are for career planning.

#### 1. SKILLSETS

SKILLSETS ([www.mcgill.ca/skillsets](http://www.mcgill.ca/skillsets)), hosted by Graduate and Postdoctoral Studies (GPS) and Teaching and Learning Services (TLS), offers a suite of over 200 professional development workshops, information sessions, and events for free to graduate students each year. SKILLSETS activities are organized into nine themes of professional development, in alignment with the CAGS (2008) best practices document on professional skills development for graduate students. The nine themes are as follows:

- i. Academic integrity
  - E.g., Academic Integrity day is a half-day workshop on authorship and plagiarism.
- ii. Career development
  - E.g., Basic Business Skills is a 10-week series of lectures and workshops for graduate students who are interested in exploring a career in business.
- iii. Communication skills
  - E.g., The 3-Minute Thesis/ Ma thèse en 180 secondes (3MT/ MT180) competition supports graduate students to develop the skills to present their research to a non-specialist audience in just three minutes.
- iv. Fellowships and funding
  - E.g., Would You Fund It? gives graduate students the opportunity to get feedback on the structure, language, and clarity of their funding application from an experienced professor.



- v. Life skills
  - E.g., Financial Skills is a series of workshops that help graduate students develop financial literacy, plan a budget, and understanding taxes and investment options.
- vi. Research management
  - E.g., In collaboration with McGill Libraries, the myResearch graduate seminar series covers essential topics such as: how to use EndNote, how to do effective library database searches, and strategies for sharing research.
- vii. Social responsibility
  - E.g., In partnership with SEDE (Social Equity and Diversity Education), the Safer Spaces workshop series helps graduate students broaden their understanding of the roles that culture, race, religion, and sexual orientation play in academic and research settings.
- viii. Supervision
  - E.g., The Managing your Supervisor session introduces graduate students to strategies for handling misunderstandings and challenges with their supervisors.
- ix. Teaching competence
  - E.g., Learning to Teach Day is a one-day conference for graduate students on effective teaching and grading strategies.

SKILLSETS offerings are designed to complement graduate students' academic training.

## 2. Individual Development Plan (IDP)

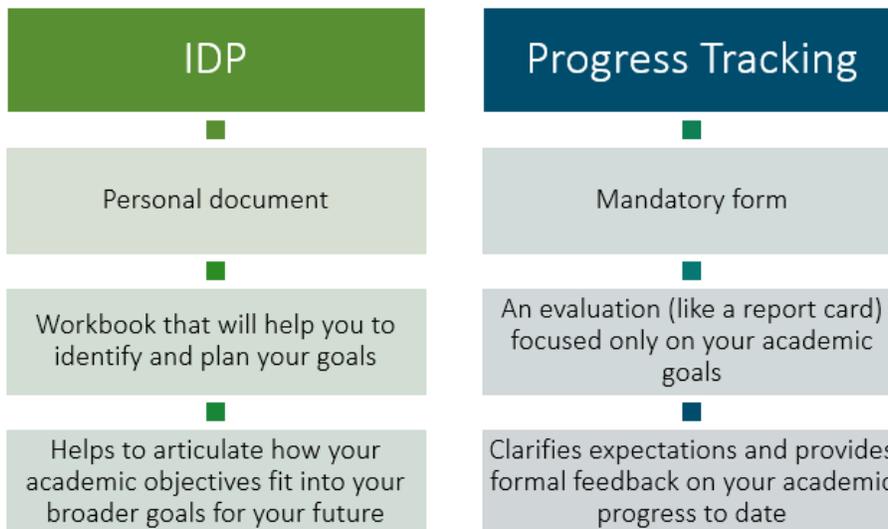
Grounded in an understanding that a graduate degree is part of a larger trajectory that extends well beyond graduation and follows diverse career pathways, Graduate and Postdoctoral Studies (GPS) is collaborating with CaPS (Career Planning Service) and TLS (Teaching and Learning Services) to develop an IDP (Individual Development Plan) for graduate students. This project will support graduate students in managing their academic, skill-building, and career goals (<http://www.mcgill.ca/gps/students/idp>).

- The IDP is an effective way to support graduate students to think about and plan for their futures and to better understand the variety of career pathways that are available to them.
- The IDP is increasingly widespread across higher education and research institutions across North America.
- The IDP project launched in Fall 2016 in response to the [Principal's Commitment](#) to enhance professional skills development opportunities for graduate students.
- **What is an IDP?** An IDP is a tool for students to self-assess their skillset, reflect on their values and progress towards their goals, and highlight their achievements. It involves planning in three areas, as shown in Figure 8 below.



**Figure 9: IDP Planning in 3 areas**

It is worth clarifying how the IDP differs from the Annual Research Progress Tracking form that is mandatory for all PhD students at McGill (see Figure 10 below).



**Figure 10: IDP vs Progress Tracking**

### 3. McGill Career Planning Service (CaPS)

McGill's Career Planning Service (CaPS) provides individual counselling, workshops, programs, events and resources specifically for graduate students and postdocs to help them identify goals, expand their awareness of



future options, find professional development opportunities that will complement their academic accomplishments, and learn how to communicate their skills to potential employers.

- **Educational programming:** CaPS runs events and workshops specifically for graduate students and postdocs, most of which are part of the Academic Career Series or Graduate Career Series (e.g., Academic CV and Cover Letter Writing; Academic Interviewing and the Job Talk; Effective CVs for a Career Outside Academia; Non-Profit Panel).
- **Counselling:** CaPS offers counselling appointments for graduate students to talk about their career goals or job search. In 2014-2015, 32% of the appointments were with graduate students and postdocs, which is significant considering graduate students and postdocs make up 26% of the overall McGill student and postdoc population.
- **Employment:** CaPS manages the McGill myFuture portal, an online career management system used by the various career centres and internship offices across campus. MyFuture provides a single portal for employers to post positions or engage in on campus recruitment activities (information sessions, career fairs, interviewing etc.). Students and postdocs can use it to find and apply for opportunities, view employer profiles and career resources, discover and sign up for events, workshops, and career fairs.
- **Resources:** The CaPS Resource Centre contains over 2500 items in its library of books and DVDs, online subscriptions to databases and magazines or journals. The CaPS website ([www.mcgill.ca/caps](http://www.mcgill.ca/caps)) contains over 120 pages of information and career planning resources in 9 major sections, including: career exploration, industry information, job search resources and advice, information on services and programs, further education planning and resources, and customized resources for specific student groups.

#### 4. Graphos

Writing and scholarly communication are essential skills for graduate students to master. Graphos ([www.mcgill.ca/graphos](http://www.mcgill.ca/graphos)) is McGill's graduate writing program, housed in the McGill Writing Centre, that teaches graduate students and postdoctoral fellows how to become accomplished scholarly communicators. Graphos offerings are:

- 1-credit courses: these focus on written and oral communication
- 2-hour workshops: cover a range of topics related to writing strategies, conventions, topics or genres (e.g., funding applications; job talks)
- Peer-writing groups: groups that meet regularly throughout the academic year to provide feedback on one another's writing
- Tutorial service: one-on-one sessions with a writing tutor
- Writing commons: a space where graduate students can write in the company of others (e.g., during retreats and writing events)



## 5. Co-curricular record (CCR)

The Co-Curricular Record (CCR) is an official document that recognizes student involvement in eligible student activities. The CCR highlights students' learning outside the classroom and research context and is a useful addition to their CV that showcases a broad range of skills and achievements.

- Students can login to [myInvolvement](#) and build their record of involvement in activities and workshops.
- The four components of the CCR are personal and professional development (e.g., workshops, lectures); campus and community engagement (e.g., mentorship, tutoring); student-led initiatives (e.g., student government positions); and activity-based awards and fellowships (i.e., those not listed on the academic transcript).

## Academic programming

Graduate academic programs are the foundation of graduate student training. Program design not only ensures that graduate students will be graduating with a breadth and depth of research skills and content area expertise, but thoughtful program design also sets up graduate students for timely degree completion.

### 1. Graduate Program Design

The GPS Programs team has expanded in the past two years to include an Interdisciplinary Programs Officer, an Academic Project Manager, and Academic Affairs Officer, who work closely with a GPS Associate Dean on advising and consulting with academic units on their graduate program design and the approval pathway. This work is informed by:

- Better understandings of PhD career pathways
- A framework for designing graduate programs: "[Targeted Competencies in Graduate Programs](#)" developed by L'Association des doyens des études supérieures au Québec (ADESAQ) (2015)
- Active and ongoing participation in national and North American graduate studies associations (i.e., Canadian Association of Graduate Studies (CAGS); Northeastern Association of Graduate Schools (NAGS); and the Council of Graduate Schools (CGS)), which contributes to current perspectives on trends and best practices in doctoral education
- Clarifying assessment expectations, timelines, and methods (e.g., comprehensive exams) in doctoral programs
- An emphasis on interdisciplinary programs

Major initiatives from the GPS Programs Team in 2016 have included:

- An interdisciplinary, interfaculty program structure
- A streamlined approval pathway for new programs
- Working with academic units to develop dossiers for the Ministry for their existing Ad Hoc programs
- Increasing integration of skills development in doctoral seminars (e.g., presentation skills; knowledge translation skills)
- A Memorandum of Understanding (MOU) for cotutelles with universities around the world



## 2. Graduate Student Mobility

The Graduate Mobility Award encourages graduate students to study and conduct research abroad as part of their McGill degree program. The award is funded by the Government of Quebec and is available to all full-time thesis students in a graduate degree program. Students are nominated by their academic unit to Graduate and Postdoctoral Studies (GPS).

- **The goal:** give students diverse experiences, the opportunity to develop their own broad networks, and the chance to form global partnerships related to their research and professional interests.
- In 2016-2017, \$600,000 was granted for the Graduate Mobility Award. Going forward, there will be a steady allotment of \$500,000 per year.

## 3. Supervision

Graduate supervision is the backbone of graduate student training and success. The supervisory relationship plays a significant role in determining and shaping graduate student success in their program. At McGill, graduate supervision falls under faculty members' teaching portfolio; this is squarely aligned with the scholarship on supervision pedagogy, which treats supervision as a form of teaching. GPS and Teaching and Learning Services (TLS) have developed a range of initiatives to support both supervisors and supervisees in their roles.

### For supervisors

- Supervision Workshop Suite: The suite covers the four core aspects of supervision pedagogy:
  - i. Creating a supervisory alliance (the foundation of the relationship)
  - ii. Clarifying expectations (creating a letter of understanding)
  - iii. Bumps in the road (conflict resolution strategies)
  - iv. Helping students at risk (understanding the support network at McGill)
- Supervision Workshops in Faculties: In 2016, GPs and TLS started to offer the supervision workshops tailored for specific Faculties in order to increase the reach of the suite across the University.
- Mandatory Supervision Orientation for New Hires: In 2016, GPS and TLS launched the mandatory supervision orientation for new faculty hires. This responds to 2014 Senate-approved revisions to the Regulations on Graduate Student Supervision that mandates supervision orientation for new hires. The orientation introduces new faculty hires to the resources and framework for graduate supervision at McGill. The orientation session has been offered twice (May and October 2016) and will continue to be offered three times a year.

### For supervisees

- GradLife Orientation - Supervision video: In 2014, Senate approved revisions to the Regulations on Graduate Student Supervision that mandate supervision orientation for incoming graduate students. In response a series of seven graduate student [orientation videos](#) were developed and launched on MyCourses in Summer 2016.
- Supervision Basics: A workshop offered 4 times by the Dean of GPS during Discover McGill Academic Expectations week for incoming graduate students as part of graduate orientation



- Managing your Supervisor - A Closed Door Discussion: This session for graduate students begins with a panel of current graduate students and academic leaders from GPS who share strategies for handling common misunderstandings with supervisors. This is followed by time for questions and discussion.

#### For both

- Graduate Supervision Website: The graduate supervision website ([www.mcgill.ca/gradsupervision](http://www.mcgill.ca/gradsupervision)) was launched in 2013 and completely updated in 2016 with current research and recommendations regarding supervision. This evidence-based website offers information, tips, and resources for both supervisors and supervisees.
- Supervision Letter of Understanding: GPS recognizes the importance of clarifying expectations between supervisors and supervisees, and strongly recommends that all parties engaged in supervisory roles sign a letter of understanding with each supervisee (see [Regulations on Graduate Student Supervision](#)). Some examples of McGill professors' letters of understanding are listed on the Graduate Supervision website (<https://www.mcgill.ca/gradsupervision/supervisors/roles-and-responsibilities/expectations>).

#### 4. Progress Tracking

Annual progress tracking meetings are mandatory for all PhD students at McGill. Having written agreed-upon expectations and clearly defined objectives is essential for supporting graduate students towards timely and successful degree completion. Annual progress tracking meetings are a key part of the assessment of graduate students' progress on their research.

- Addition of Graduate Program Director sign-off of Progress Tracking forms: In 2016, Senate approved revisions to the Regulations on Graduate Research Progress Tracking to specify that Graduate Program Directors must review and sign all Progress Tracking.
- Addition of Conflict of Interest: The GPS Progress Tracking form (see <http://www.mcgill.ca/gps/students/research-tracking>) was modified to include a column for reporting potential conflicts of interest. Previously, there was no consistent way of informing the graduate program director or GPS of a conflict of interest – this issue was raised at the December 2, 2015 meeting of the Senate. GPS responded by adding a column on the Graduate Research Progress Tracking form where the graduate student, supervisor, and advisory committee members can inform GPS of any new conflicts that may have arisen since the last meeting.

#### 5. Graduate Milestones

Tracking and monitoring of progress towards degree completion is generally ad-hoc and often poorly communicated with students. The Graduate Milestones tool will enable management and tracking of graduate student progress towards major program milestones (e.g., courses; comprehensive exams; annual progress tracking; etc.) and degree completion.

- The tool will support the management of progress towards degree completion for all thesis-based graduate students
- Automatic notifications of upcoming milestones will be sent and the tool will track the history of completed milestones



- Tracking and monitoring will improve the student experience by providing an intuitive tool to transparently communicate and track course and non-course based milestones between students, supervisors, co-supervisors, and supervisory committees
- In 2016, the Graduate Milestone project made substantial progress with the decision to implement Ellucian's Degree Works solution. McGill ITS will also develop application extensions to provide our graduate community with a comprehensive solution for managing, and reporting students' progress to degree.
- An August 2017 go-live is planned for a pilot group of programs.

## Conclusion

We conclude this report by returning to the question that was posed to Senate:

What can McGill do to prepare its PhD students for jobs both inside and outside academia:

- In its academic programs?
- In its professional development skills services?
- In its career planning services?

As is clear, it is important to have a broad understanding of doctoral education beyond McGill as this informs local programming and initiatives. McGill University, led by Graduate and Postdoctoral Studies, is leading many initiatives to support doctoral students to develop a broad portfolio of skills during their PhD degrees alongside the rigour and depth of their academic research skills. These respond to changes in doctoral education across Canada and shift the focus to preparing doctoral students for diverse careers in which they can contribute meaningfully to an increasingly knowledge-based economy and society.



## References

- Allum, J. R., Kent, J. D., & McCarthy, M. T. (2014). *Understanding PhD Career Pathways for Program Improvement: A CGS Report*. Washington, DC: Council of Graduate Schools.
- Canadian Association for Graduate Studies [CAGS] (2008). *Professional skills development for graduate students*. Ottawa: CAGS.
- Canadian Association for Graduate Studies [CAGS] (2016). *Canadian Association for Graduate Studies: Strategic Plan 2016-2021*. Ottawa, ON: CAGS.
- Canadian Graduate and Professional Student Survey [CGPSS] (2016). *Summary Report (Doctoral)*. Toronto: Mosaic Research Solutions.
- Council of Graduate Schools [CGS] (2015). *CGS builds on efforts to understand career pathways*. Retrieved from [http://cgsnet.org/cgs-builds-efforts-understand-phd-career-pathways?utm\\_source=CGS+News+Network&utm\\_campaign=b9ab64f1ca-CGS+News+Network+11+2+2016&utm\\_medium=email&utm\\_term=0\\_5fa324a391-b9ab64f1ca-88929549](http://cgsnet.org/cgs-builds-efforts-understand-phd-career-pathways?utm_source=CGS+News+Network&utm_campaign=b9ab64f1ca-CGS+News+Network+11+2+2016&utm_medium=email&utm_term=0_5fa324a391-b9ab64f1ca-88929549)
- Edge, J., & Munro, D. (2015). *Inside and Outside the Academy: Valuing and Preparing PhDs for Careers*. Ottawa: The Conference Board of Canada.
- Else, H. (2015, January 3). PhD employment data 'need to be richer.' *Times Higher Education*. Retrieved from <http://www.timeshighereducation.co.uk/news/phd-employment-data-need-to-be-richer/2017754.article>
- Institute for the Public Life of Arts and Ideas [iPLAI] (2013). *White paper on the future of the PhD in the humanities*. Montreal, QC: McGill University.
- Jonker, L. (2016). *Ontario's PhD Graduates from 2009: Where are they now?* Toronto: Higher Education Quality Council of Ontario.
- Looker, D. (2016). *Canadian Association for Graduate Studies 42<sup>nd</sup> Statistical Report, 2016*. Ottawa, ON: Canadian Association for Graduate Studies.
- Maher, B., & Sureda Anfres, M. (2016, Oct. 26). Young scientists under pressure: What the data show. *Nature*. Retrieved from <http://www.nature.com/news/young-scientists-under-pressure-what-the-data-show-1.20871>
- Maldonado, V., Wiggers, R., & Arnold, C. (2013). *So you want to earn a PhD? The attraction, realities, and outcomes of pursuing a doctorate. Issue paper No. 15*. Toronto: Higher Education Quality Control of Ontario.
- Prism Economics and Analysis (2016). *Labour market trends and outlooks for regulated progressions in Ontario*. Toronto: Higher Education Quality Council of Ontario [HEQCO].
- Sekuler, A. B., Crow, B., Annan, R. B., Mitacs Inc., & Academic Research Group Inc. (2013). *Beyond Labs and Libraries: Career Pathways for Graduate Students*. Toronto: Higher Education Quality Council of Ontario. Available at [http://www.mitacs.ca/sites/default/files/policy/Beyond-Labs-and-Libraries\\_FINAL\\_2013.pdf](http://www.mitacs.ca/sites/default/files/policy/Beyond-Labs-and-Libraries_FINAL_2013.pdf)
- Sinche, M. (2014, October 27). Tracking Ph.D. career paths. *Inside Higher Ed*. Retrieved from <https://www.insidehighered.com/advice/2014/10/27/essay-importance-tracking-phd-career-paths>
- Weingarten, H. (2016, Nov. 10). Postsecondary education and jobs: It's a question of skills. *HEQCO*. Retrieved from [http://blog-en.heqco.ca/2016/11/harvey-p-weingarten-postsecondary-education-and-jobs-its-a-question-of-skills/?utm\\_source=Academica+Top+Ten&utm\\_campaign=3fee84b19b-EMAIL+CAMPAIGN+2016+11+11&utm\\_medium=email&utm\\_term=0\\_b4928536cf-3fee84b19b-51889869](http://blog-en.heqco.ca/2016/11/harvey-p-weingarten-postsecondary-education-and-jobs-its-a-question-of-skills/?utm_source=Academica+Top+Ten&utm_campaign=3fee84b19b-EMAIL+CAMPAIGN+2016+11+11&utm_medium=email&utm_term=0_b4928536cf-3fee84b19b-51889869)