Postdoctoral Fellows at the University of Alberta:
An overview of the current status and career outcomes of former fellows from 2000-2018

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October 2018
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Executive Summary

The career path of postdoctoral fellows has traditionally followed a trajectory to tenure-track positions in postsecondary institutions, however, for more than a decade there has been a significant decline in the availability of these roles. Consequently, questions have been raised about the value of a PhD and how to prepare doctoral holders for employment beyond the academic scope.

From the onset of this project, uncovering the career outcomes of postdoctoral fellowships has been a rewarding task. University of Alberta postdocs are largely employed in leadership roles in institutions and businesses around the world; and are influencing attitudes, policies, and activities of our communities, governments, and employers.

Postdocs contribute to the research productivity of Canada at local, provincial and federal levels as 46% are found at postsecondary research intensive institutions, 20% move into industry, and 6% fill government positions where their predominant research roles enable them to introduce innovative knowledge into the greater community. Former postdoctoral fellows contribute to 458 positions on campus, nearly 1,000 positions in Alberta, and 2,187 have remained in Canada. Postdoctoral fellows represent a largely untapped resource for the greater economy, and further dialogue needs to transpire between postsecondary institutions and the various employment sectors.

The administrative oversight of postdoctoral fellows within a postsecondary institution may present different focal opportunities for postdocs. Within the University of Alberta, administration of postdoctoral fellows occurs within the Office of VP Research, and ideally, there would be opportunities for postdocs to benefit from leadership focused on research promotion and development. At institutions where oversight of postdocs takes place within faculties of graduate studies, there may be more alignment with professional development and supervisory support.

Ninety two percent of postdocs have a positive and productive experience at the University of Alberta due to the talented supervisors, innovative equipment, occasions to teach and supervisor students, interesting research questions, opportunities for additional training, and a supportive community.

The postdoc population is slow to move to gender equality (38% female) and postdocs appear to be delaying having families. Postdocs requesting family benefits have declined to 27% (2015-2018) from 47% (2000-2004). Men are far more likely to obtain academic (77%) and industry (73%) positions, which suggests more work is needed to provide equity in the workplace.

Postdoctoral fellows come from all over the world, and currently 58% are on work permits. While the USA may be our closest international border, China has been the greatest source of postdocs for the past 20 years. The proportion of Canadian, permanent resident, and postdocs on work permits has remained relatively consistent since 2000 unlike the national trend that suggest international recruitment is down. There has been a slow increase in the number of postdocs staying in Canada as fewer postdocs with permanent residence and work permits are returning to their countries of origin. Postdocs with work permits are also choosing to stay in Alberta.
Career outcomes for postdoctoral fellows varies among disciplines with social sciences and humanities, as well as professional disciplines such as business, education, and nursing noting high success in obtaining tenure track positions. Disciplines in the agriculture, engineering, and science disciplines show high success in the industry sector, and the not-for-profit sector has little uptake for any discipline.

Postdocs who receive tri-council fellowship support are more likely to obtain tenure track positions and for those receiving NSERC scholarships, they are also more likely to find employment in the industry and government sectors. CIHR recipients were more likely to stay in the areas of medical research.

More than 1,300 sources of funding have been used to support fellowships for postdocs with tri-council with Alberta Innovates (AHFRM), Killam, and MITACs making substantial contributions. The importance of research funding to support postdoctoral fellows and research efforts in Canada are of high priority to all research-intensive postsecondary institutions.

The duration of fellowships is decreasing with the current average being just over one year. Fellowships durations vary among disciplines with Medicine and Dentistry averaging the longest and Education averaging the shortest fellowships.

Many service providers at the University of Alberta provide professional development opportunities for postdoctoral fellows, although their messaging often overlooks this group. Depending on the direction of various units on campus, there are many options moving forward on how to best serve postdocs and capitalize on their strengths as current researchers and future employees. A university wide employee survey under the leadership of the Office of the President included postdoctoral fellows, and recommendations from the Objective 15 report will likely be available by January 2019.

This overview of current and former University of Alberta postdoctoral fellows demonstrates the high value postdocs bring to the University of Alberta, the province, and to Canada. The University of Alberta is in a unique place to move forward on further developing postdoctoral fellows.
An overview of the current status and career outcomes of former fellows from 2000-2018

Introduction

Obtaining an overview of the status of current and former postdocs at the University of Alberta was a first step to the implementation of a professional development program for postdoctoral fellows at the University of Alberta. A universal question, “What is the value of a PhD degree?” was addressed in Canada by the Conference Board of Canada report Inside and Outside the Academy: Valuing and Preparing PhD’s for Careers, and further explored by the University of British Columbia PhD Career Outcomes survey and University of Toronto 10,000 PhD report. This report from the University of Alberta is the first to target postdoctoral fellows specifically within Canada. The traditional path of doctoral degree holders moving into tenure track academic positions has been changing over the last several decades, and this reality is reflected more recently in professional development programming at Universities. In 2007, there were 6000 post-doctoral fellows in Canada and only about 2600 new faculty positions. Having a clearer picture of the postdoctoral population can only help direct how universities can better position themselves to provide and receive the best outcome of this valuable workforce.

The 2017 Fundamental Science Review Panel report ‘Investing in Canada’s Future – Strengthening the Foundations of Canada’s Research’ speaks to necessity of research to provide for our future health, wealth, and security. Where do our postdocs go? What is the postdoctoral contribution to this national goal? Do the benefits of postdoctoral training extend beyond the postsecondary sector? This highly trained group has tenacity, an ability to think creatively and critically, and a deep desire to develop an understanding of the world around us – all qualities needed to solve the complex issues that face all sectors of our economy.

How and should we be investing in further developing postdoctoral fellows were two questions that initially guided the development of this report. Can we show that postdocs bring value locally, provincially, federally, and globally? What resources are available and needed to create a productive experience for postdocs? What is the duration of a fellowship, and are there other barriers that could prohibit participation in professional development activities? Over the months of March-July 2018, career outcomes of former University of Alberta Postdoctoral Fellows were tracked from public sites. The PDF Office database included 599 current and 3,577 former postdoctoral fellows.

This snapshot of current and former postdocs provides guidance to establishing best practices around the training of postdocs and assisting postdoctoral fellows, supervisors, and the institution in achieving a goal of producing highly skilled people ready to tackle complex and demanding challenges. With respect to career planning and preparation, Mitac’s Dr. Annan commented, “[M]aking informed decisions about how to adapt, both at the individual and policy level – requires data.”

2 See A Postdoctoral Crisis in Canada: From the ‘Ivory Tower’ to the Academic ‘Parking Lot’. (2009) Canadian Association of Postdoctoral Scholars. More recent data was not found.
4 Appendix 1. Methodology provides additional details regarding data collection and analysis.
5 Kent, D. Survey asks: Who is the Canadian postdoctoral fellow? University Affairs. April 8, 2013 News
Administration

Postdoctoral fellows offices are a recent addition to the academy, most arriving on the scene after 2000. Within the 15 large universities in Canada, postdoctoral fellows (PDFs) typically fall under the oversight of faculties of Graduate Studies or less commonly within the Office of VP Research, and their national employment status is moving towards unionization (Table 1). The Universities of Toronto and British Columbia have large PDF populations, are co-administered by the faculties of Graduate Studies, and have an associate dean, manager, and administrative assistant who oversee postdoctoral affairs. Faculties of graduate studies have a focus on supervision and professional development, and postdocs by association with this group would benefit from efforts put forward in these areas. Postdoctoral fellows at the University of Calgary fall under the purview of the Office of VP Research, a model similar to the University of Alberta that has a program director, program administrator, and a special initiatives assistant. Postdoctoral fellows by association would benefit from research efforts by this office.

Table 1. Administrative unit responsible for Postdoctoral Fellows

<table>
<thead>
<tr>
<th>Institution</th>
<th>Postdoc Office Housed</th>
<th>Unionized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dalhousie University</td>
<td>Graduate Studies</td>
<td>2014 - Internal PDFs</td>
</tr>
<tr>
<td>McMaster University</td>
<td>School of Graduate Studies*</td>
<td>2007, 2016 all PDFs</td>
</tr>
<tr>
<td>University of Alberta</td>
<td>Office of VP Research</td>
<td>entering collective bargaining</td>
</tr>
<tr>
<td>U of British Columbia</td>
<td>Graduate and Postdoctoral Studies</td>
<td>no</td>
</tr>
<tr>
<td>University of Calgary</td>
<td>Office of VP Research</td>
<td>entering collective bargaining</td>
</tr>
<tr>
<td>University of Laval</td>
<td>Graduate and Postdoctoral Studies</td>
<td>2015 - Internal PDFs</td>
</tr>
<tr>
<td>University of Manitoba</td>
<td>Office of VP Research</td>
<td>no</td>
</tr>
<tr>
<td>University of McGill</td>
<td>Graduate and Postdoctoral Studies</td>
<td>2015 - Internal PDFs</td>
</tr>
<tr>
<td>University of Montreal</td>
<td>Graduate and Postdoctoral Studies</td>
<td>2015 - Internal PDFs</td>
</tr>
<tr>
<td>University of Ottawa</td>
<td>Graduate and Postdoctoral Studies</td>
<td>no</td>
</tr>
<tr>
<td>University of Queens</td>
<td>School of Graduate Studies**</td>
<td>2011 - Internal PDFs</td>
</tr>
<tr>
<td>U of Saskatchewan</td>
<td>College of Graduate and Postdoctoral Studies</td>
<td>entering collective bargaining</td>
</tr>
<tr>
<td>University of Toronto</td>
<td>School of Graduate Studies</td>
<td>2009 - Internal PDFs</td>
</tr>
<tr>
<td>University of Waterloo</td>
<td>Graduate Studies and Postdoctoral Affairs</td>
<td>yes - all PDFs</td>
</tr>
<tr>
<td>Western University</td>
<td>Graduate and Postdoctoral Studies</td>
<td>2008 - Internal PDFs &amp; RAs</td>
</tr>
</tbody>
</table>

*Postdoctoral Affairs and Research Training **Office of Post-Doctoral Training

Recruitment and the Postdoctoral Experience

The UofA Postdoctoral Fellows Exit survey provides an insight into postdoctoral recruitment and their experiences on campus. Ninety two percent of postdocs were highly satisfied/satisfied with their postdoctoral experience and fewer than 2% were very dissatisfied. Postdoctoral fellows find out about

6 Office of VP Research hosts the Falling Walls competition and provides coaching for successful participants.
7 The UofA Postdoc Exit survey was the source used to infer comments for this section unless otherwise noted. The survey captures responses from a full spectrum of departments, spanning a time when participating postdocs may have experienced the Postdoctoral Fellows (PDF) professional development program and after it collapsed. There were 263 participants from 34 departments/units on campus who gave responses from February 24, 2016 until February 20, 2018. The duration of their PDF experience was not capture. Survey responses are in the appendix 11.
their positions through a variety of sources, however more than 30% were recruited from websites particularly from individual faculty members and another 22% were given contact information from their graduate advisor/mentor. This suggests having informative websites would be one way to attract top talent. Advertisements, colleagues, and conferences were the next most common sources used to secure positions. A best practice of interviewing candidates before accepting a position was exercised 80% of the time, with 49% taking place in person, 44% by phone, and video conferencing taking place 8% of the time. One likely explanation is that phone service is more reliable than internet providers for international candidates, and faculty members suggest they would try to bring candidates to Edmonton when possible. Although only 11% of postdocs indicated their supervisors did not have any postdocs during their fellowship time, less than half of the candidates were given contact information for current or former postdocs from their supervisors at the time of recruitment. Neither interviewing nor providing contact information show a direct link to the outcome in satisfaction in the PDF experience for the postdocs however, anecdotally interviewing candidates has been highly useful for supervisors.

Another common practice for PDFs and supervisors (PIs) is to meet and write out a plan to outline project expectations (77%). While an Individual Development Plan is not currently in place at the U of Alberta, a similar document often is required for scholarship/research funding support. More than 70% of PDF’s meet at least weekly with their PIs, and less than 1% have little to no contact with their supervisors. There is a correlation between a dissatisfactory postdoc experience and meeting infrequently. While verbal feedback on performance is relatively common (63%), formal performance evaluations were rare with only 12% receiving any written documentation and 28% receiving no feedback at all.

The majority of postdocs are in environments where there are a variety of other postdocs, technicians, graduate students and undergraduates moving through the supervisor’s research group during their stay. Twenty-six percent of postdocs have between 6-9 people in their research groups, 32% have between 10-14 people, and 20.9% have between 15-35 people, while 3% of postdocs are in a situation where they are the only person besides the PI in the group. Postdocs in the larger research groups also commented on feeling isolated, suggesting dynamics within research groups and departments can contribute positively and negatively to the PDF experience.

Overall, postdocs are found to be productive during their fellowship with an average of 11 artifacts generated. Postdocs attended on average two conferences, gave three presentations, wrote three papers and submitted three abstracts. Not clear is how many publications were a result of the postdoctoral experience and how many were from prior doctoral work. Sixteen percent of respondents had no papers written and 24% did not attend any conferences. What is not clear is whether a postdoc’s fellowship was too short to generate an artifact during this time, or if it will be published after the fellowships was completed. All individuals who were highly dissatisfied with their experience had few academic artifacts (3 or less).

Seven themes emerged from the survey that can influence a postdoctoral fellow’s academic success, research performance, and general well-being at the University of Alberta:

8 An interview sheet was created to benefit academics and incoming postdocs. A copy of the Interview Checklist for Postdoctoral Fellows and Supervisors is given in Appendix 2.
9 Informal interviews were held on campus with supervisors who have employed a large number of postdoctoral fellows.
An overview of the current status and career outcomes of former fellows from 2000-2018

1. **Supervisors.** Supervisors who served as talented people with whom PDFs could consult and brainstorm with regularly, who were supportive and provided various training opportunities.

2. **Mentoring/Supervision.** Having an opportunity to supervise, train, and mentor students, to be involved in influencing higher level decisions about student projects, and simply having close interactions with graduate students.

3. **Training.** Availability to access various training programs that range from pedagogy to safety to grant writing and career development; and experiencing opportunities to exercise these skills.

4. **Research.** Having access to strong researchers, attending good research seminars, building relationships with potential collaborators, having high academic standards, having freedom in how a research topic was approached and being part of multi-disciplinary teams all contributed to greater confidence, learning how to better approach research questions, and building a network with industry/government/community for greater research impact.

5. **Facilities.** Postdocs at the UofA have access to innovative and high quality equipment, have quality technical support, excellent library resources, and use shared research facilities.

6. **Community.** Friendly and helpful people, a multicultural campus, the availability of social events, beautiful river valley, and access to sports are a few of the things that lend themselves to a positive attitude toward a work/life balance and a welcoming community.

7. **Funding.** The UofA offers 5 years of opportunity for applying for PDFs after completing a PhD and provides opportunities for writing grant proposals and applying for funding.

**Demographic Summary**

**Gender and Family Status**

From the 2016 Canadian National Postdoctoral Survey (CNPS), the average age of current postdocs is 34, with a continued decline of postdocs under the age of 30 and increase in those over 35. From the 2015 CAPA Institutional Survey Report, the predominant age of faculty members has continued to shift later and later, changing from 30-34 years in 1970-1971 to 45-49 years in 1990-1991 and to 50-54 years in 2010-2011. Just as faculty members are staying longer in their positions, postdocs are trying to stay academically competitive and keeping their postdoctoral fellow status active.

From the CNPS, the national gender balance is 51% male to 48% female, and there has been a trend of moving toward this at the U of Alberta with a change from 34.1% in 2000-2004 to 38.1% from 2015-2018 (Figure 1). Family is important to postdocs, and nationally 65% have partners and 31% have dependents. Neither date of birth nor relationship status were captured at the UofA, however family status can be inferred from the family benefits package. There were 220 postdocs who had a family benefits package (37%), 370 (62%) had single coverage and an additional nine (less than 1%) waived their coverage. The national survey suggests there is a trend that postdocs are postponing their families, and they noted a significant increase in the need for paid parental leave between 2013 to 2016. At the University of Alberta (Figure 2), we also see a reduction in the number of postdocs with families from 47% in 2000-2004 to 27% in 20015-2018, perhaps a sign of postponing having a family or the incompatibility of a family and fellowship. A comment from the UBC PhD survey brings in ineligibility

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10 Postdocs are innovation engines, but where are they going? http://www.scwist.ca/blog/postdocs-are-innovation-engines-but-where-are-they-going/

11 The UofA Postdoc Exit survey also reported 37% of PDFs have families, and 9.5% leave their fellowships due family considerations.

issues as another reason to postpone having a family. “After spending a few years at home with my children I was disappointed to find that it made me no longer eligible to receive postdoctoral funding in Canada due to the length of time since completing my PhD.” At the U of Alberta, leaves are one criteria factored into extending the time of eligibility.

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13 UBC PhD Survey page 25.
Economic Contribution of Postdocs

Citizenship

Similar to the 2016 Canadian National Postdoctoral Survey, postdocs at the University of Alberta originate from many areas around the globe\(^\text{14}\). In 2018, postdocs came from 60 countries, with the top five countries (not including Canada) being China, Iran, India, USA, and Germany and likely reflect the number of available postdoctoral fellows, agreements, and relationships being built with these countries (Figure 3a). Between 2000 and 2005 (Figure 3b), we see a drop of postdoctoral fellows from Russia and Australia, to be replaced with applicants from Iran and France. British postdocs begin to decrease and those from the USA start to increase (Figure 3c). By 2015 (Figure 3e) the top five international countries remain constant, however applicants from India have surpassed those from Iran and may reflect efforts by the University to recruit students from India. In the past few years, postdoctoral fellows from UK, Egypt, Bangladesh and Korea have dropped out of the top 10 and were replaced by postdocs from Mexico and Japan. Respondents to the CNP survey also were predominantly from countries of origin found at the U of Alberta.

\(^{14}\) Values are listed in Appendix 3. UAI 2017-2018 report showed undergraduate population at 15% and graduate population at 35% with applications from 148 countries.
An overview of the current status and career outcomes of former fellows from 2000-2018

Canadian Revenue Agency Work Category
As of April 2017, postdoctoral fellows have been categorized as employees by the Canadian Revenue Agency when any of their funding package is paid through the University of Alberta. Postdocs who are paid directly by their scholarships are considered trainees and those who are paid directly by their country of origin, are considered guests. The number of postdocs of Canadian citizenship fluctuates between 22-30%, and likely correlates to the number of available Canadian doctoral students pursuing postdoctoral positions for discipline specific positions. Doctoral students noted in the UBC Career Outcomes survey\textsuperscript{15} and University of Toronto 10,000 PhDs Project \textsuperscript{16} who had moved into postdoctoral positions were 15% (278 PhDs over 9 years) and 14% (1400 PhDs over 15 years) respectively.

<table>
<thead>
<tr>
<th>Work Category for 2018 Postdoctoral Fellows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees</td>
</tr>
<tr>
<td>Trainees</td>
</tr>
<tr>
<td>Guests</td>
</tr>
</tbody>
</table>

Based on registration from February 2018. Numbers fluctuate during the year.

\textsuperscript{15} UBC PhD Career Outcome Survey 2016. From the 1866 survey respondents, 278 were postdocs. http://outcomes.grad.ubc.ca

\textsuperscript{16} University of Toronto 10,000 PhDs Project http://www.sgs.utoronto.ca/about/Pages/10,000-PhDs-Project.aspx
An overview of the current status and career outcomes of former fellows from 2000-2018

Figure 5. Work Status of Postdoctoral Fellows at the UofA

Figure 6. Postdoctoral Fellows Employment Location after Completion of Fellowship

* PR = Permanent Resident, WP = Work Permit, CDN = Canadian
The Canadian National Postdoc survey reported there is a trend towards fewer international postdocs working in Canada, however this is not observed for postdoctoral fellows who held fellowships at the U of Alberta (Figure 5). Nationally, 13% of postdoctoral fellows were permanent residents and 29% held a work permit while in 2018 the U of Alberta recruited 20% postdocs with PR status and 58% requiring work permits. This suggests that the U of Alberta is pursuing successful research collaborations and is attracting high quality candidates. Employment outcomes of postdoctoral fellows from the U of Alberta (as of 2018) show a slow increase in the number of postdocs with work permits staying in Canada (Figure 6) and in Alberta (Figure 7). Until recently, more Canadians were working abroad as well as staying in Alberta. In contrast to the UBC study on doctoral students where more than 60% stayed in Canada, the significantly higher number reflects the larger number of Canadian residents that make up the doctoral student cohort. Of the 3,577 postdocs who have held a fellowship at the U of Alberta since 2000, at least 1,562 are employed in Canada while 623 could not be tracked, their employment could not be confirmed, or they were not seeking employment. Global and local political and economic events are likely influencing the movement of postdocs (Figure 8a and 8b).

Figure 7. Postdoctoral fellows employment in Alberta after completion of fellowship (%)

* PR = Permanent Resident, WP = Work Permit, CDN = Canadian

17 Values given in Appendix 4.
18 Values given in Appendix 4.
Figures 8a and 8b show that Canada has attracted highly talented and educated people from around the world, and that following their postdoctoral fellowship at the University of Alberta, many do not return to their home countries but stay in Canada. The UBC study on doctoral students shows a similar trend, with many international students try to stay in Canada and secondly in the United States. The geographic movement was captured for 2,954 postdocs whose citizenship was known at the time of their fellowship and when their current employment status was obtained.

Figure 8a. Citizenship of Postdoctoral Fellows at Commencement of Fellowship at the University of Alberta

Figure 8b. Country of Employment in 2018 for University of Alberta Postdoctoral Fellows
Former UofA postdoctoral fellows contribute to 458 positions at the U of Alberta: 122 tenure track, 225 research associates, 21 lecturers, 38 academic staff, 2 academic staff working in mixed sector, 34 returning postdocs and 16 non-academic staff positions. As there are approximately 3700 academic staff on campus and 15,000 support and trust staff, our postdoctoral population represents a large human resource potential for the University of Alberta. The School of Business represents the only faculty where postdocs did not continue to contribute to the campus workforce (Figure 9). While postdocs from all sectors remain in Alberta, nearly 1000 highly trained fellows from the disciplines of agriculture, engineering, medicine and science contribute to the Alberta economy (Table 2). As the primary expectation of postdoctoral training is to secure tenure-track faculty positions, academia is a global market and will require postdocs to secure positions globally. Of the 996 academic tenure positions obtained by U of Alberta postdocs, 63% positions were outside of Canada and only 13% of these were Canadian citizens. Compare this to the outcome at the U of Alberta where 82% of the former postdocs hired into tenure track positions were Canadian. This again illustrates the high quality of employable candidates produced at the U of Alberta.

With only 23% of tenure track academic positions and 27% of industry positions going to former female UofA postdocs, this suggests more needs to be done to ensure diversity and equal opportunity within the workforce. In this study, 1248 postdocs were female and 2327 were male with 49% and 41% respectively staying in Canada. UBC also reported women with PhD’s were less likely to leave Canada, to enter the private sector, and to have research-intensive faculty positions19.

Figure 9. Postdoctoral Fellows Contributing to Canadian Economy

19 UBC PhD Survey page 23 also supported by Conti A and Visentin F (2015) and Shen H (2013)
An overview of the current status and career outcomes of former fellows from 2000-2018

Table 2. Number of Postdoctoral Fellows contributing to the Alberta and Canadian economies

<table>
<thead>
<tr>
<th>Field</th>
<th>Stay in Canada</th>
<th>Stay in Canada beyond tenure track</th>
<th>Stay in Alberta</th>
<th>Stay at the UofA</th>
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<tr>
<td>ALES</td>
<td>153</td>
<td>130</td>
<td>104</td>
<td>42</td>
</tr>
<tr>
<td>Arts</td>
<td>88</td>
<td>37</td>
<td>42</td>
<td>25</td>
</tr>
<tr>
<td>Business</td>
<td>10</td>
<td>3</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Education</td>
<td>22</td>
<td>11</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Engineering</td>
<td>342</td>
<td>303</td>
<td>224</td>
<td>74</td>
</tr>
<tr>
<td>Kinesiology</td>
<td>25</td>
<td>15</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Medicine</td>
<td>401</td>
<td>298</td>
<td>280</td>
<td>168</td>
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<td>Nursing</td>
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<td>18</td>
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</tr>
<tr>
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<td>7</td>
</tr>
<tr>
<td>Public Health</td>
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<tr>
<td>Rehab Med</td>
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<td>14</td>
<td>13</td>
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<tr>
<td>Science</td>
<td>395</td>
<td>309</td>
<td>222</td>
<td>90</td>
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Career Outcomes of Postdocs

Postdoctoral fellows at the University of Alberta are finding employment in all career sectors in Alberta, Canada, and around the world. Similar to the results shown by UBC and U of Toronto, 46% of PDFs were employed in the post-secondary education sector, 7% in local to federal government agencies, 20% in industry, and less than 1% were working in not-for-profits\textsuperscript{20,21}. The U of Toronto had a further breakdown of individual sector (3%), and this represents 2% of postdocs at the U of Alberta who were self-employed or started their own businesses. Postdoctoral fellows who are physicians and pharmacists may be privately practicing clinicians or owners, therefore the number of postdocs who are acting as primary business owners/self-employed may be slightly higher. Less than 1% of postdocs held positions in two sectors, such as industry/academia or government/academia, and were tallied only under the industry or government sector.

Tenure track opportunities have continued to decline and the long-term freeze on hiring within government agencies is reflected in the decline of postdocs obtaining these positions (Figure 10). The overall constant proportion of postdocs staying in academia suggests postdoctoral fellows are finding other types of employment within the postsecondary sector (Figure 11). This would include administrative staff, support staff, lecturers or contract instructors, and research associates. As postdocs move out of eligibility for fellowships, their numbers decline in this category. Given the increase of postdocs in research associate roles, the number of these positions may also have increased dramatically over time, or people who were former postdocs now hold them. In the short term, many postdocs look to positions as research associates when tenure track positions are unavailable, and over

\textsuperscript{20} A 2010 Postdoctoral Training and Employment Outcomes survey of Australian postdocs shows 48.1% of PDFs have not moved from their fellowship institution or continued at their PhD degree granting university. https://www.voced.edu.au/content/ngv%3A58301

\textsuperscript{21} The UofA Postdoc Exit Survey indicated the majority of PDFs (79.5%) did not prolong postdoctoral appointments due to difficulties in finding employment, and while academia was the primary career choice of participants (70.7%), industry was another choice (17.9%) or even both (3.4%).
time move to other sectors. Faculties such as Agricultural, Life, and Environmental Sciences; Engineering; and Pharmacy and Pharmaceutical Sciences clearly have strong industry connections – and postdocs are finding employment within this sector.

Table 3. Definitions of employment sectors and their subcategories

<table>
<thead>
<tr>
<th>Sector</th>
<th>Category</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic</td>
<td>Tenure Track</td>
<td>Also called Research Intensive by UBC. Includes assistant, associate, and full professors; deans, chairs and similar senior administrative titles; and senior lecturers.</td>
</tr>
<tr>
<td>Academic</td>
<td>Lecturer</td>
<td>Includes readers, lecturers, sessionals, instructors, and contract instructors. Some positions may be equivalent to tenure track positions; however, without knowing the hiring process and job requirements, preference was to keep this group separate. Relates to the Term faculty or Teaching intensive faculty identified by UBC/UofToronto.</td>
</tr>
<tr>
<td>Academic</td>
<td>AASUA</td>
<td>Includes administrative personnel, directors, managers, specialists, and roles that are typically served under an association of academic staff. Similar to UBC category Other, Higher Education category, however does not include anyone working in a lab environment as a research manager who are typically supported by research grants.</td>
</tr>
<tr>
<td>Academic</td>
<td>NASA</td>
<td>Includes support staff such as research technicians, clerks and roles typically served under a non-academic staff association.</td>
</tr>
<tr>
<td>Academic</td>
<td>Research Associate</td>
<td>Includes positions such as lab manager, research associate, research coordinator, researcher, and senior scientist at a postsecondary institution.</td>
</tr>
<tr>
<td>Government</td>
<td>Government</td>
<td>Person employed within a civic, provincial or federal government agency in Canada or another country.</td>
</tr>
<tr>
<td>Industry</td>
<td>Industry</td>
<td>Person employed in a ‘for profit’ organization or business, and includes anyone who is self-employed, a consultant or founder.</td>
</tr>
<tr>
<td>Not For Profit</td>
<td>NFP</td>
<td>Organization that has indicated it has a not-for-profit status. Called “Charitable” by UBC/UofToronto.</td>
</tr>
<tr>
<td>Postdoc</td>
<td>PDF</td>
<td>Eligibility for postdoctoral fellow status varies widely across the globe and include anyone holding the titles of fellow, postdoc, postdoctoral scholar, MITACS elevate participant, research fellow, visiting fellow, postdoctoral scientist, resident, and postdoctoral research associate.</td>
</tr>
</tbody>
</table>
An overview of the current status and career outcomes of former fellows from 2000-2018

Figure 10a. Change in Career Sector Distribution from 2000-2018

Figure 10b. Change in Postsecondary Distribution from 2000-2018
An overview of the current status and career outcomes of former fellows from 2000-2018

Figure 11. Postdoctoral Fellows Found in the Postsecondary Sector

Figure 12. Career Outcomes for University of Alberta Postdoctoral Fellows
Career outcomes vary by discipline (Figure 12). Faculties such as Business, Education, Nursing, and Rehabilitation Medicine have few postdoctoral fellowships and many professional opportunities that do not require a doctoral degree. Doctoral degree holders who continue to pursue the added training of a postdoc will be in high demand for tenure track positions. Postdoctoral fellows in Engineering and to a lesser degree Science; Pharmacy and Pharmaceutical Sciences; and Agricultural, Life, and Environmental Sciences are able to translate their skillsets for the industry sector where most work in a research capacity (see Figure 13). Fellowships in the faculties of Arts and Kinesiology, Sport, and Recreation also have few postdocs, and again they have high success outcomes in academia, likely again to developing strong academic portfolios. Similar outcomes were noted by the University of Toronto 10,000 PhD project with graduates from the Humanities and Social Sciences having about a 42% chance of a tenure track position and the Physical and Life Sciences being much lower at 26% and 21% respectively. Postdoctoral fellows within the health disciplines, such as Medicine, Pharmacy and Pharmaceutical Sciences, Public Health, and Rehabilitation Medicine appear to be supporting a large number of postdocs who are Research Associates and are strongly reliant on research funding. Funding agencies such as Alberta Innovates to the smaller Alberta Cancer Foundation play a significant role in the career path of postdoctoral fellows. Regardless of their area of training, postdoctoral fellows do not appear to be turning to the Not-For-Profit sector for employment.

**Figure 13. Word Clouds Generated from Common Job Titles of Former University of Alberta Postdoctoral Fellows**

**13a. Common names in Government Job Titles**

**13b. Common names in Industry Job Titles**

**Tri-council Funding Sectors and Career Outcomes**

In addition to looking at career outcomes for postdoctoral fellows by their faculty or as one large group, another option is to look at the success of postdocs by tri-council funding (scholarships, scholarships and research grants) and by grouping departments that are commonly funded by tri-council agencies. The
An overview of the current status and career outcomes of former fellows from 2000-2018

third option is much more subjective however outcomes are similar, if not the same as values observed for PDFs funded by scholarships and research funding\textsuperscript{23}. While there has been an increase over time in the number of postdoctoral fellows funded by more than one agency, this group accounts for only 2.5% of the tri-council funded PDFs. As scholarships are targeted to highlight candidates strong in their academic performance, postdoctoral fellows receiving tri-council funding do considerably better than their counterparts in securing tenure track positions, and are more likely to stay in Canada (Figure 14).

<table>
<thead>
<tr>
<th>Career Outcomes for Scholarship Recipients</th>
<th>CIHR</th>
<th>SSHRC</th>
<th>NSERC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenure</td>
<td>30%</td>
<td>64%</td>
<td>36%</td>
</tr>
<tr>
<td>Industry</td>
<td>13%</td>
<td>3%</td>
<td>26%</td>
</tr>
<tr>
<td>Government</td>
<td>6%</td>
<td>6%</td>
<td>11%</td>
</tr>
</tbody>
</table>

All UofA Postdocs 28% 20% 6%

\textsuperscript{23} Distribution of faculties, departments and units is listed in Appendix 5, and values for their respective distribution is given in Appendix 6.
Postdocs funded by tri-council research grants and/or scholarships are not more likely to stay in Canada (Figure 16). NSERC funded postdocs have the highest number remaining in Canada and a key factor may be the large number of postdocs employed by industry in Canada (67%). For postdocs funded by CIHR, nearly half of those who are tenure track academics or are employed by industry work outside the country. SSHRC funded postdocs have been quite successful in securing postsecondary employment with nearly a third securing employment in this sector outside of Canada.
SSHRC Sector
There are six former Banting awardees, 30 SSHRC Fellowship awardees and 62 postdocs funded by SSHRC research grants (Figure 15a and 15b). Seventeen (57%) of the SSHRC Fellowship awardees and all former Banting awardees hold tenure track positions (all in their countries of origin). An additional four (15%) are in the academic world as lecturers, researcher associates or research managers, 6% held another fellowship position, and 10% could not be located. Five postdocs were supported by SSHRC and NSERC/CIHR research grants. When looking at the 280 postdocs from eight faculties/units as given below (further breakdown of faculties is provided in the appendix), 111 received some level of scholarship support.

CIHR Sector
There are four former Banting awardees, 43 CIHR Fellowship awardees and 597 postdocs funded by CIHR research grants (Figure 16a and 16b). Thirteen (30%) of the SSHRC Fellowship awardees and one of the Banting awardees hold tenure track positions (all in their countries of origin). An additional 15 (32%) are in the postsecondary sector as lecturers, researcher associates or research managers; 4% held
another fellowship; and 15% could not be located. A Banting awardee was one PDF to take on another fellowship position and two are working as research managers/adjuncts at the U of Alberta. Trying to assign faculties/departments that would commonly receive CIHR funding was based on faculties that have or could have research projects funded by this agency. There were 876 postdocs from five faculties assigned to this group, and 318 received some level of scholarship support. There was some overlap with departments also selected for NSERC and 40 postdocs were supported by NSERC and CIHR research grants.

**NSERC Sector**

There are two former Banting awardees, 45 NSERC Fellowship awardees and 1160 postdocs funded by NSERC research grants (Figures 17a and 17b). Fifteen (33%) of the NSERC Fellowship awardees and both Banting awardees hold tenure track positions (all in their countries of origin). An additional 14 (30%) are in the postsecondary sector as lecturers, researcher associates or research managers; 6% held another fellowship position, and 15% could not be located. From the 2813 postdocs in the five faculties who would commonly receive NSERC funding, 408 received some level of scholarship support.

**Funding of Postdocs**

**Funding Sources**

Many sources of funding are pulled together to create fellowships at the U of Alberta. Postdoctoral fellows were supported by 1,106 research grants and the majority of fellowships are funded by one source. There are 195 scholarship sources with the most common being Tri-Council, AIHS, AHFMR, Killam, AB Ingenuity, and MITACS. Figure 18 provides a distribution of the number of research grants that support individual postdocs during their fellowship. Funding sources were not listed for 42 fellowships and may reflect postdocs funded by their countries of origin or prior to this information being collected by the PDF office.
An overview of the current status and career outcomes of former fellows from 2000-2018

List of Common Funding Sources. The numbers indicate how often a research grant was listed in the funding package (frequencies less than 7 are not listed).

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>239 NSERC</td>
<td></td>
</tr>
<tr>
<td>135 Alberta Innovates</td>
<td></td>
</tr>
<tr>
<td>86 Operating Funds</td>
<td></td>
</tr>
<tr>
<td>76 CIHR</td>
<td></td>
</tr>
<tr>
<td>50 Industry</td>
<td></td>
</tr>
<tr>
<td>37 MITACS</td>
<td></td>
</tr>
<tr>
<td>34 Future Energy Systems</td>
<td></td>
</tr>
<tr>
<td>20 Agriculture &amp; Agri-Food Canada</td>
<td></td>
</tr>
<tr>
<td>20 Alberta Livestock &amp; Meat Agency</td>
<td></td>
</tr>
<tr>
<td>17 Alberta Health Services</td>
<td></td>
</tr>
<tr>
<td>17 Other Universities</td>
<td></td>
</tr>
<tr>
<td>17 Funding Consortiums</td>
<td></td>
</tr>
<tr>
<td>15 Canada Research Chair</td>
<td></td>
</tr>
<tr>
<td>14 Start Up Funds</td>
<td></td>
</tr>
<tr>
<td>12 Network of Excellence</td>
<td></td>
</tr>
<tr>
<td>11 Alberta Cancer Foundation</td>
<td></td>
</tr>
<tr>
<td>11 Genome Canada</td>
<td></td>
</tr>
<tr>
<td>17 Other Universities</td>
<td></td>
</tr>
<tr>
<td>17 Funding Consortiums</td>
<td></td>
</tr>
<tr>
<td>17 Other Universities</td>
<td></td>
</tr>
<tr>
<td>17 Funding Consortiums</td>
<td></td>
</tr>
<tr>
<td>15 Canada Research Chair</td>
<td></td>
</tr>
<tr>
<td>14 Start Up Funds</td>
<td></td>
</tr>
<tr>
<td>12 Network of Excellence</td>
<td></td>
</tr>
<tr>
<td>11 Alberta Cancer Foundation</td>
<td></td>
</tr>
<tr>
<td>11 Genome Canada</td>
<td></td>
</tr>
<tr>
<td>17 Other Universities</td>
<td></td>
</tr>
<tr>
<td>17 Funding Consortiums</td>
<td></td>
</tr>
<tr>
<td>15 Canada Research Chair</td>
<td></td>
</tr>
<tr>
<td>14 Start Up Funds</td>
<td></td>
</tr>
<tr>
<td>12 Network of Excellence</td>
<td></td>
</tr>
<tr>
<td>11 Alberta Cancer Foundation</td>
<td></td>
</tr>
<tr>
<td>11 Genome Canada</td>
<td></td>
</tr>
<tr>
<td>17 Other Universities</td>
<td></td>
</tr>
<tr>
<td>17 Funding Consortiums</td>
<td></td>
</tr>
</tbody>
</table>

Duration of Fellowships

Fellowships at the U of Alberta vary in length among disciplines (Tables 4 and 5) and have been getting shorter since 2000-2004. Postdoctoral fellows in the Faculty of Medicine and Dentistry hold the longest fellowships at 790 days while those in the Faculty of Education hold the shortest at 527 days. A reduction in funding and changes in hiring practices may factor into the length of the fellowships, where faculty members set up one year contracts with renewal options instead of offering more long term contracts outright. There appears to be an increasing number of postdocs who have multiple appointments. We are not able to determine if postdocs are also pursuing shorter and a greater number of fellowships over their career from our current source of information. The database includes postdocs who have stayed 4700 days (before policy existed to restrict eligibility) to postdocs who stay for only 1 week. Doctoral students who completed their degrees at the U of Alberta were nearly twice as likely to have fellowships for periods of about three months, suggesting supervisors were funding their former students until they made their next career step. Canadian doctoral students are not restricted in their employment by study visas and work permit limitations, and have more flexibility to participate in a short-term postdoc.
Table 4. Average Duration of Fellowships at the University of Alberta

<table>
<thead>
<tr>
<th>Year</th>
<th>No. PDFs</th>
<th>Days</th>
<th>Duration</th>
<th>PDFs with multiple appointments*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-2004</td>
<td>560</td>
<td>803</td>
<td>2 Years 2 Months 13 Days</td>
<td>15 renewed ongoing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>22 renewed with a break</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8 renewed at least twice</td>
</tr>
<tr>
<td>2005-2009</td>
<td>1185</td>
<td>708</td>
<td>1 Years 11 Months 13 Days</td>
<td>31 renewed ongoing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>64 renewed with a break</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>19 renewed at least twice</td>
</tr>
<tr>
<td>2010-2014</td>
<td>1355</td>
<td>643</td>
<td>1 Years 9 Months 8 Days</td>
<td>78 renewed ongoing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>62 renewed with a break</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>27 renewed at least twice</td>
</tr>
<tr>
<td>2015-2018</td>
<td>478</td>
<td>388</td>
<td>1 Years 0 Months 23 Days</td>
<td>14 renewed ongoing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17 renewed with a break</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 renewed at least twice</td>
</tr>
</tbody>
</table>

* Does not include postdocs with multiple contracts for the same time period, such as someone had a part-time position in two labs.

Looking at other trends related to gender, family status, citizenship and career pursuits, only postdocs who were clearly identified within their categories were included in their respective groups. Postdoctoral fellows who had family benefits stayed longer in their fellowships on average than postdocs who were single (778 days compared to 580 days). Likewise, men also stayed on average longer in their fellowships compared to women (711 days compared to 595 days). Work status also may play a part in how long postdoctoral fellows stay in a position, with Canadian citizens staying on average for 604 days, Permanent Residents staying on average for 654 days, and postdoctoral fellows on work permits staying 683 days. On average, postdocs staying in postsecondary careers also stayed slightly longer than those pursuing careers in government (641 versus 632 days), and postdocs going into industry have on average a slighter shorter duration at 600 days.

Table 5. Average Duration of Fellowships at the University of Alberta by Faculty from 2000-2018

<table>
<thead>
<tr>
<th>Faculty</th>
<th>No of Postdocs</th>
<th>Days</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALES</td>
<td>356</td>
<td>642</td>
<td>1 Years 9 Months 7 Days</td>
</tr>
<tr>
<td>Arts</td>
<td>166</td>
<td>606</td>
<td>1 Years 8 Months 1 Day</td>
</tr>
<tr>
<td>Business</td>
<td>18</td>
<td>594</td>
<td>1 Years 7 Months 19 Days</td>
</tr>
<tr>
<td>Education</td>
<td>41</td>
<td>527</td>
<td>1 Years 5 Months 12 Days</td>
</tr>
<tr>
<td>Engineering</td>
<td>823</td>
<td>566</td>
<td>1 Years 6 Months 21 Days</td>
</tr>
<tr>
<td>Kinesiology</td>
<td>26</td>
<td>567</td>
<td>1 Years 6 Months 22 Days</td>
</tr>
<tr>
<td>Medicine</td>
<td>899</td>
<td>790</td>
<td>2 Years 2 Months 0 Days</td>
</tr>
<tr>
<td>Nursing</td>
<td>51</td>
<td>538</td>
<td>1 Years 5 Months 23 Days</td>
</tr>
<tr>
<td>Pharmacy Sci</td>
<td>51</td>
<td>620</td>
<td>1 Years 8 Months 15 Days</td>
</tr>
<tr>
<td>Public Health</td>
<td>58</td>
<td>674</td>
<td>1 Years 10 Months 9 Days</td>
</tr>
<tr>
<td>Rehab Med</td>
<td>34</td>
<td>613</td>
<td>1 Years 8 Months 8 Days</td>
</tr>
<tr>
<td>Science</td>
<td>1041</td>
<td>641</td>
<td>1 Years 9 Months 6 Days</td>
</tr>
</tbody>
</table>
Extensions to postdoctoral fellowships at the University of Alberta are considered on an individual basis (Table 6). Since policy was established to define the period of eligibility for postdoctoral fellows, there have been no postdocs who have exceeded a 2-year extension. Relative to the population starting each year, there are few exceptions made, and some consideration is given to postdocs on leave or those receiving additional scholarship funding (Figure 19). For the years 1999-2012, citizenship of postdocs requiring extensions included 19 Canadians, 21 Permanent Residents, and 29 foreign nationals. Canadians have more freedom to explore employment within Canada resulting in fewer extensions and international postdocs may have funding that extends beyond the U of Alberta five-year limitation resulting in more extensions.

Table 6. Number of Extensions to Fellowships

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Postdocs starting in this year</th>
<th>1 Year Extension</th>
<th>2 Year Extension</th>
<th>&gt; 2 Year Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>12</td>
<td>6</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>17</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>61</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>100</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>202</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>178</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2005</td>
<td>239</td>
<td>2</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>2006*</td>
<td>249</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>265</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>264</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>272</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>308</td>
<td>6</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>321</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>331</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>318</td>
<td></td>
<td>3**</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>378</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>321</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>335</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>335</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>106***</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Policy created to restrict time a person is eligible for postdoctoral fellow status
** May increase as year 2018 in progress
***As of February 2018
An overview of the current status and career outcomes of former fellows from 2000-2018

Figure 19. Extensions Granted Compared to Postdoctoral Fellows Admitted

Professional Development

A Postdoctoral Fellows Professional Development Advisory group comprised of postdocs from across campus was brought together February 21, 2018. Their feedback was critical in setting the direction for future professional development activities and understanding the needs of postdoctoral fellows at the University of Alberta. The Advisory group identified seven key areas where action would benefit postdoctoral training, productivity, and well-being:

1. Creating a robust website that speaks to all aspects of professional training for postdocs, with particular attention to teaching, research, and career development. This additional website development could alleviate some of the issues postdocs face during their fellowships. The proposed website changes or additions are not limited to the suggestions below:
   a. Career education about the value of a PhD/PDF beyond academia
   b. Training provided by campus providers
   c. Provide links to teaching program (GTL), contractual limitations to teaching, and how postdocs may access teaching opportunities
   d. Employment opportunities and career development section
   e. Identify opportunities for mentoring/supervising
   f. Identify online resources available to postdocs
2. Develop an optional Individual Development Plan (IDP) specific to the needs of postdoctoral fellows that will accommodate the accelerated time postdocs have to orient themselves to a career. The IDP could lead to postdoctoral fellows acquiring feedback required for success in their fellowship. Response was unanimous that an IDP would be a useful career artifact. The current FGSR sessions on the IDP, while informative and beneficial, are not an ideal fit for postdocs as they are tailored to the needs and requirements of graduate students. Some academics use forms similar to an IDP as part of scholarship and grant application/updates.

3. Develop training specific to postdoctoral fellows to supplement what is already provided on campus. Postdocs are narrowly focused on improving their research, however they need to move beyond this and think more holistically about what they have to offer, regardless of their career direction.
   a) How to demonstrate their value in a personal way (Linked In, CV, IDP)
   b) Areas of interest to postdocs focused on writing, publishing, applying for grants/scholarships, how to write reviews, reference letters that could be offered in focused discussion groups and sessions
   c) Develop an integrated leadership/career program that can align with their career goals

4. Work with faculty and postdocs to create a guiding document on identifying training and research expectations of the fellowship that can also take into consideration the different needs that postdocs will have beyond that of a PhD student. Depending on the type of research, this could also include expectations within research facilities at the UofA (work alone, safety, training, ethics, etc.).

5. Co-create an orientation with the Postdoctoral Fellows Association (PDFA) that would familiarize postdocs with professional development opportunities, websites and other resources available from both offices. This would also provide an opportunity for postdocs to network/socialize. Orientations would be best served in the fall and early spring.

6. Communication with postdocs to participate in PD activities will require postdocs to see the value of the session for them. Postdocs are limited by time, support of their supervisors, and funding.

7. Some actions discussed by the board fall outside the Postdoctoral Fellows professional development purview and may best be served by the PDFA. These include providing an avenue for postdocs to advocate for what they need, increasing the diversity of activities for social networking, and providing PDFs with information on how they can best cope with a new life in Edmonton. Demands for professional funds to attend conferences and having reduced or fees waived for courses are places the PDFA may be able to act on behalf of the larger PDF population. The issue of whether international postdocs can take courses for credit would require a revisit of legislation around visa limitations, and in the meantime, postdocs can register as auditors and, in some situations, in open studies without conflict of their visa status.

Action Taken
Obtaining an overview of the status of current and former postdocs at the University of Alberta was the first step of the implementation of a professional development program for postdoctoral fellows at the University of Alberta. This environmental scan set parameters about who postdoctoral fellows are, their needs, how long they stay on campus, how they contribute to the local and global economy, and how are they accessing any current services.
Since February 2018, several steps have been taken to create a sense of community for postdoctoral fellows and to increase the awareness of professional development opportunities. This includes providing a monthly newsletter, posting to the PDF digest, creating of a PDF Professional Development Facebook group, and relaying regular messaging through the PDF mailman list server. The postdocs website was transitioned from one platform to another (currently on Sitecore 3) to align with changes happening with the Office of VP Research website. While small changes to improve the site have continued and a feature section allows events and postdocs to be highlighted, much more could be done to improve this site.

The first Postdoctoral Fellows Professional Development Day was hosted June 20, 2018, drawing an attendance of over 200. The program was created with the career outcomes of former postdocs in mind, and included sessions from how to “Ace the Academic Interview” to “Looking Ahead” with career advice from former alumni. Falling Walls workshops were hosted July 18 and August 14 to assist postdocs and graduate students in preparing submission for the Falling Walls event. Killam awardee Mark Johnson also delivered an excellent session on Securing a Postdoctoral Fellowship in the Arts on May 15th that was attended primarily by graduate students. A teaching ‘Boot camp’ for postdocs and graduate students to work on their teaching philosophies and teaching dossiers was held on May 11 and equally attended by both groups (another Teaching ‘Boot-camp’ is scheduled for November 13). These are two examples of collaborations that could occur between these two offices.

The first PDF Orientation is planned for November 14th and will provide postdocs with an opportunity to learn about the success of their former colleagues, how to be successful in their current fellowship, and to meet with service providers on campus as well as other postdocs. The Career Centre is also keen to provide programming to postdoctoral fellows and a lunch hour series will be launched in October called Career Action. Topics for the series included: Leading with LinkedIn, Transitioning to the Workplace, Acing the Interview, and Do I qualify for this job?

Postdocs are using many of the services on campus and a conversation with Career Services indicates a large increase in their uptake on opportunities ranging from mentorship, job shadowing, and career advising. The Centre for Teaching and Learning had 1048 registrations for their events, of which 3.6% were postdocs (as a comparison 14.8% Graduate Students that has a population of 7,500). The uptake of postdocs on their benefits package EFAP is currently unknown.

Unsolicited feedback from current and former postdocs

Thanks so much for sharing this wonderful information. – Postdoc Facebook Group – Menglian

I came for one session and stayed the whole day! Was really useful for me. – Postdoc Professional Development Day – Vivian

I appreciate the programs and activities at U of A for career development of postdocs ... some of the sessions I attended did impact my decision to go this route, rather than stay in pure academia, as well as helped me develop skills outside of the lab ... don't stop posting things on the facebook page. – Kelly

24 See Appendix 9 for a sample newsletter.
25 See Appendix 10 for list of first 6 month article postings. Postings to promote events were not included in the list.
26 A copy of the program can be found in Appendix 11.
Future Considerations

The University of Alberta has an opportunity to demonstrate leadership in professional development for postdoctoral fellows at the Canada. Through Objective 15, an initiative of the Office of the President, there is momentum to support professional development and career progression for all staff at the University of Alberta. Setting a new vision for the Postdoctoral Fellows Office also creates opportunities to redesign a new future. Moving forward, there are additional areas to be explored for postdoctoral fellows, including:

1. Determining what supports supervisors need as well as postdoctoral fellows\(^{27}\)
2. Providing a spring orientation for postdocs
3. Developing an orientation package for supervisors hiring their first postdocs
4. Assisting postdocs with resources to be more successful in scholarships and grants
5. Creating a larger awareness of the postdoctoral community on campus
6. Establishing a leadership program for PhDs
7. Redesigning the website to be more enticing and effective
8. Following up the success of an introduction of an IDP for postdocs
9. Establish entrepreneurial programming with TEC Edmonton and Alberta Ingenuity
10. Build narratives of successful postdoctoral fellows to assist postdocs with discovering positive career outcomes
11. Continue to maintain a close relationship with the PDFA and meeting regularly to understand their top priorities
12. Work on 1-2 community issues for postdocs to demonstrate their skillsets and to build further understanding by the community of the value of PhDs.

Recommendations

1. Professional development for postdoctoral fellows will require dedicated resources and there are different models to achieve this goal. There are currently no long-term plans in place for the continued oversight of professional development for postdoctoral fellows. The Faculty of Graduate Studies and Research provides some opportunities for postdoctoral fellows, however their prime focus is to support graduate students. Other campus service providers do provide training opportunities for postdoctoral fellows and the Objective 15 results will provide some insights into the professional development and career progression of postdocs.

2. Establish a university advisory group set goals for professional development for postdoctoral fellows. An advisory group would bring different perspectives from across campus regarding the needs of postdocs, they would demonstrate to postdocs that the University values and takes their needs seriously, and would provide an opportunity to gain input on the needs of postdoctoral supervisors.

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\(^{27}\) Half of the Exit Survey respondents could find no issues with their postdoctoral experience, and a follow-up to the comments would be useful. Over the past few years, significant progress has been made in securing benefits for PDFs including more recently EI and paid maternity/paternity leave.
References


University of Toronto School of Graduate Studies. (2016). 10,000 PhDs Project. University of Toronto, Ontario, 12p http://www.sgs.utoronto.ca/about/Pages/10,000-PhDs-Project.aspx
Appendices

Appendix 1: Methodology
Appendix 2: Interview Checklist for Postdoctoral Fellows and Supervisors
Appendix 3: Top 10 Countries Citizenship of Postdoctoral Fellows
Appendix 4: Employment Outcomes based on CRA Work Status
Appendix 5: Composition of Faculties and Units in Constructing the Tri-Council Sectors
Appendix 6: Career Outcomes for Postdoctoral Fellows using Tri-council Funding as Criteria to Establish Cohorts
Appendix 7: Professional Development Resources for Postdoctoral Fellows
Appendix 8: Sample Newsletter
Appendix 9: Administrative Checklist Prior to Arrival of Postdoctoral Fellow
Appendix 10: University of Alberta Postdoctoral Fellows Professional Development Facebook Group postings (PD4PDFs)
Appendix 11: Postdoctoral Fellows Professional Development Day
Appendix 12: Exit Survey
Appendix 1. Methodology

The Postdoctoral Fellows Office at the University of Alberta processes all fellowships, and therefore has a record of current and former postdoctoral fellows from 2000-2018. Records include start and end dates of fellowships, renewals, department/faculty, gender, benefits, work status, location of doctoral degree, and citizenship. The assessment of current postdocs was based on registered postdoctoral fellows as of February 2018 and former postdoctoral fellows was based on records as of May 2018. Requirement for ethics approval was confirmed with the Research Ethics Office. Employment status as retrieved from public data, such as LinkedIn, university supervisor webpages, and employer websites. As compiling the employment status of former postdocs took until July 2018, some postdocs may have changed their employment status during this time. In some situations, postdocs may not have updated LinkedIn pages and employment directories were checked to verify their status.

Categorizing people in their employment sector was typically straight forward however a small number of people worked in two sectors: 1) working for a company/government agency and serving as an adjunct, being a consultant and lecturing at a university, or 2) working a physician who was also a clinical instructor. This group was listed as being mixed and was recorded under their government or industry sector as this typically was their primary source of employment.

A few people in the industry sector did not list their titles and Google Translate was used to assist in interpreting non-English webpages. Postdocs who had academic positions created some of the greatest difficulty as their titles varied from Professor to Lecturer to Instructor. Upon further searching, few postdocs had achieved full professor status. The term “Lecturer” carries different significance, depending of the country of employment. Within North America, the term lecturer implies a contract teaching position however, within the UK and Australia, a Senior Lecturer holds an equivalent status to an Assistant Professor. The position of Reader creates a similar dilemma, as academic roles globally are not consistent. When someone indicated their status as Lecturer, they were included in the category of Lecturer while someone who indicated Senior Lecturer was moved to the Tenure Track category. This will likely result in a conservative estimate of postdocs in tenure track positions; however, they will be captured in the Postsecondary Sector.

Of the 3,577 former postdoctoral fellows, employment outcomes of 17% could not be found, were not current, or could not be confirmed. Former international postdoctoral fellows were the most likely to not be traced. Unless a clear relationship with the University of Alberta could be established, even for people with what appear to be uncommon names, such as John Xipediou who held a postdoctoral fellowship in Chemical Engineering and is now working at a Chemical Engineering industry would be listed as unknown. Employment outcomes were calculated on the basis of all former postdocs as this indicates the minimum number of fellows in these sectors. Therefore stating that 46% of postdocs work in the postsecondary sector and it could be higher as high as 63% if all the missing people were found to be employed in this sector.
Interview Checklist for Postdoctoral Fellows and Supervisors

Building a good postdoctoral-supervisor relation is essential for a successful outcome, and this guide has been developed with the aid of successful supervisors and postdocs. Supervisors typically have postdoc choice. Where possible, supervisors will bring candidates to meet their research group, and often interviews will include other collaborators of the supervisor or their research manager. Interviews typically are 1-1.5 hours long. PIs want to see the problem solving abilities of the postdocs, and may ask questions that are similar to questions asked by external examiners at a PhD defense. Postdocs who have doctoral work to complete will need to find their own time for this, and the more undone work from previous positions, the less appealing a candidate becomes. Contracts were typically for one year with options to renew until the end of the grant if the work was progressing as expected. We hope this checklist will help you prepare for an enriching and productive period of your research career.

Collaboration

- Why do you want to work in this research area and what do you want/can you contribute to the field?
- What are the potential projects that would have support?
- Will the scope of the research be defined by a grant, industry partner, or external agency?
- How much will the advisor or the post-doc determine the research program?
- Do you have a research contingency plan?
- What potential collaborations would be possible?
- How will the PDF’s prior training help advance the research?
- If the research is outside of the current area of expertise of the PI or PDF, is there still interest and confidence in doing the project?
- When the fellowship ends, would the work continue collaboratively, would the project go with the postdoc, or will the project stay with the PI?
- Is this a team project? How is authorship typically determined in your research group?
- Who owns the Intellectual Property?
- What are the common journals you are targeting for submission?

Expectations and Performance

- What are the advisor’s expectations (work style) of the post-doc? (teamwork, work hours, papers, supervision, work ethic...)
- What does the postdoc hope to gain from the fellowship experience?
- Exactly what skills/techniques do you have? What skills/knowledge will you bring to the PI’s group?
- How quickly does the postdoc learn new techniques, concepts?
- How are problems typically dealt with? Can you give an example?
- Will the supervisor be taking a sabbatical or going into the field? How will this impact the fellowship?
- How do you gauge postdoc performance?
- If the supervisor is dissatisfied about the progress of the project or postdoc performance, how is this handled?
- Will the supervisor provide contact information from current and previous postdocs?

Postdoc to provide to Supervisor

- Examples of writing/language competency
- Provide current CV
- Contact information for references
- Written references
Appendix 2

Funding
- How long is financial support guaranteed? Is there potential to renew and if so, under what circumstances?
- Will the supervisor have adequate research funds to support the proposed research?
- What are the expectations for the postdoc to apply for funding/scholarships?

Career
- What are the top goals the postdoc hopes to achieve during his/her postdoctoral experience?
- Does the supervisor approve of postdocs investing time in writing fellowships and attending meetings/seminars that will promote their careers?
- How many post-docs has this supervisor supported and where are they now?
- What is the supervisor's motivation in doing research and in what ways has he/she invested in promoting the career of the postdoc?
- Is a work-life balance essential/important and how has the supervisor achieved it?
- Will the supervisor have time for mentoring (both research and career mentoring)?
- What process is used to track professional development? What are the fellowship requirements?

Research Group
- How many others (graduate students, staff, and postdocs) currently work for this advisor?
- What type of research support can be expected (lab technologists, librarian, and facility staff)?
- Who is responsible for general ordering and maintenance of equipment in the lab?
- Does the postdoc have any experience supervising students/technical staff?
- Does the supervisor assist in troubleshooting experiments?
- If the postdoc does not have much experience in _____, what steps can be taken?
- Has there ever been conflict in your research group and how was it handled?

Research and Professional Activities
- Which technical skills can the postdoc learn?
- Will the postdoc be involved in grant writing?
- What opportunity will the postdoc have to review manuscripts?
- Is there funding available to present at conferences?
- How many conferences would I have an opportunity to attend?
- Are there other training opportunities for postdocs?
- What opportunity will the postdoc have to mentor students?
- What is the likelihood of an opportunity to teach?
- Are there training opportunities for teaching?

Research Preparation
- Are there mandatory or safety training programs required before research can commence?
- Does the research need ethics approval or updating?
- How can I get orientation to the library system?
- What is the work alone policy?
- Are there fieldwork considerations (training, visas)?

Comments/Notes
An overview of the current status and career outcomes of former fellows from 2000-2018

Appendix 3. Top 10 Countries of Citizenship of Postdocs

### Distribution of postdocs 2000-2004

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<td>Australia</td>
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### Distribution of postdocs 2005-2009

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<tr>
<td>Egypt</td>
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### Distribution of postdocs 2015-2018

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<td>Korea</td>
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<td>1.3</td>
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### Distribution of postdocs in 2018

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<td>Iran</td>
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<td>United Kingdom</td>
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Appendix 4. Employment Outcomes based on CRA Work Status

Distribution of postdoctoral fellows by employment status as determined in 2018. Employment status used was by year postdocs were appointed at the UofA.

<table>
<thead>
<tr>
<th>Year PDF Appt</th>
<th>CDN</th>
<th>PR</th>
<th>WP</th>
<th>CDN abroad</th>
<th>% CDN abroad</th>
<th>PDFs in Canada</th>
<th>% PDF in Canada</th>
<th>PR work abroad</th>
<th>% PR work abroad</th>
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<td>2005-2009</td>
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<td>13.5</td>
<td>79</td>
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* Appt = Appointed, CDN = Canadian, PR = Permanent Resident, WP = Work Permit

Distribution of postdoctoral fellows admitted to Alberta by CRA work category.

<table>
<thead>
<tr>
<th>Year</th>
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<th>%PR</th>
<th>%WP</th>
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<td>2015-2018</td>
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<td>20</td>
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\[36]
Appendix 5. Composition of Faculties and Units in Constructing the Tri-Council Sectors

Faculties/Units Included in the SSHRC Sector
- ALES – 16 (Human Ecology 3; Resource Economics and Environmental Sociology 4; Rural Economy 9)
- Arts – 166 (Anthropology 13; Economics 3; English and Film Studies 36; History and Classics 19; Faculty, Institutes and Centres 18; Linguistics 16; Modern Languages & Cultural Studies 2; Music 5; Office of Interdisciplinary Studies 5; Philosophy 10; Political Science 11; Psychology 16; Sociology 12)
- Business – 17
- Education – 41
- Extension – 7
- Kinesiology – 25
- Law – 1
- Libraries – 3

Faculties/Units Included in the NSERC Sector
- ALES – 338 (Agricultural Food & Nutritional Sciences 236; Renewable Resources 102)
- Engineering – 823 (Chemical and Materials Engineering 360; Civil & Environmental Engineering 130; Electrical and Computing Engineering 202; Mechanical Engineering 119)
- Medicine – 558 (Faculty, Institutes and Centres 3; Biochemistry 120; Biomedical Engineering 11; Cell Biology 46; Laboratory Medicine and Pathology 49; Medical Genetics 17; Medical Microbiology & Immunology 67; Oncology 92; Pharmacology 56; Physiology 61; Psychiatry 23; Radiology & Diagnostic Imaging 4)
- Pharmacy and Pharmaceutical Sciences – 50
- Science – 1032 (Biological Sciences 190; Chemistry 330; Computing Science 94; Earth & Atmospheric Sciences 91; Mathematical & Statistical Sciences 130; Physics 183; Psychology 11)

Faculties/Units Included in the CIHR Sector
- Medicine – 656 (Faculty, Institutes and Centres 7; Anesthesiology & Pain Medicine 3; Cell Biology 2; Dentistry 16; Laboratory Medicine and Pathology 49; Medical Genetics 17; Medical Microbiology & Immunology 67; Medicine 183; Neuroscience 2; Obstetrics and Gynecology 21; Oncology 92; Ophthalmology 9; Pediatrics 84; Pharmacology 56; Psychiatry 21; Radiology & Diagnostic Imaging 4; Surgery 23)
- Kinesiology – 25
- Nursing – 50
- Pharmacy and Pharmaceutical Sciences – 52
- Public Health – 57
- Rehab Medicine – 34
Appendix 6. Career Outcomes for Postdoctoral Fellows using Tri-council Funding as Criteria to Establish Cohorts

Career outcomes for Postdoctoral Fellows at the University of Alberta in Tri-council funded faculties or by Tri-council research grants and/or scholarships.

<table>
<thead>
<tr>
<th>Sector</th>
<th>All PDFs in Commonly Funded CIHR Departments (%)</th>
<th>PDFs funded by CIHR (%)</th>
<th>CIHR Scholarship (%)</th>
<th>All PDFs in Commonly Funded SSHRC Departments (%)</th>
<th>PDFs funded by SSHRC (%)</th>
<th>SSHRC Scholarship (%)</th>
<th>All PDFs in Commonly Funded NSERC Departments (%)</th>
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</table>

NA = information is not available
Appendix 7

Professional Development for Postdocs
How can you build up your skills during your postdoctoral fellowship at the University of Alberta? There are many resources on campus that can help you increase your career readiness, keep wellness in your life, empower you to promote your research and develop your teaching skills.

### Career Development and Professional Practice

<table>
<thead>
<tr>
<th>Organization</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career Centre</td>
<td>An introduction to some of the many options found here are career mentoring, networking events, job shadowing, and seminars.</td>
</tr>
<tr>
<td>Employment Equity</td>
<td>EDI Week open to everyone, plus webinars and workshops, e.g. Promising Practices on Women’s Advancement, Diversity &amp; Inclusion on Councils and Committees, Influencing Without Authority, Introduction to Unconscious Bias</td>
</tr>
<tr>
<td>Executive Education</td>
<td>Fee for courses</td>
</tr>
<tr>
<td>Faculty of Extension</td>
<td>Fee for courses</td>
</tr>
<tr>
<td>Faculty of Graduate Studies and Research</td>
<td>Individual Development Plan (IDP) 2 session will help you develop a personalized career plan, the Invest in Your Future Symposium will inspire you to explore careers, Mentorship Mondays address academic issues and PD weeks are just a few options to explore.</td>
</tr>
<tr>
<td>Health Promotion</td>
<td>Various sessions offered under the themes of communication, change and resiliency, conflict and general interest.</td>
</tr>
<tr>
<td>MITACS</td>
<td>Postdoctoral fellowships and workshops on Project Management to Networking and Entrepreneurship.</td>
</tr>
<tr>
<td>Office of Safe Disclosure and Human Rights</td>
<td>Offer workshops on bullying, duty to accommodate, respect in the workplace and disclosure.</td>
</tr>
<tr>
<td>Beyond Graduate Studies: Managing Your Career</td>
<td>Provides an online opportunity to reflect on career choices, determine your definition of career success, identify your skills gap, and prepare an individualized development plan.</td>
</tr>
<tr>
<td>MyGradSkills.ca</td>
<td>On-line modules relating to career management and ethics.</td>
</tr>
<tr>
<td>Organizational Health and Effectiveness</td>
<td>Pathways Learning Series for personal growth to enhance career, workplace learning workshops for fee, EFAP courses relating to Career and Workplace Issues.</td>
</tr>
</tbody>
</table>

### Health and Wellness

<table>
<thead>
<tr>
<th>Organization</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Social Work</td>
<td>Mental Health Sessions, Community Helpers training, Suicide prevention QPR training, and Listening to Support Students in Distress: Front Line Staff training</td>
</tr>
<tr>
<td>Counseling and Clinical Services</td>
<td>Drop in sessions on topics from stress to imposter syndrome.</td>
</tr>
<tr>
<td>Health Promotion</td>
<td>Various sessions often offered over lunch under the themes of communication, change and resiliency, conflict and communication, managers, and general interest.</td>
</tr>
<tr>
<td>Organizational Health and Effectiveness</td>
<td>Workplace learning workshops for fee and EFAP courses relating to Health and Well-Being.</td>
</tr>
<tr>
<td>Faculty of Graduate Studies and Research</td>
<td>Parent Link brings graduate students and postdocs together to discuss issues relating to parenting and academia.</td>
</tr>
<tr>
<td>Virtual Wellness</td>
<td>Postdoctoral Fellows Assistance Program 12 weeks to Wellness and Weight Loss eProgram</td>
</tr>
</tbody>
</table>
## Research

<table>
<thead>
<tr>
<th>Organization</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centre for Writers</td>
<td>Host grammar sessions and provide one-on-one assistance.</td>
</tr>
<tr>
<td>Environmental Health and Safety</td>
<td>Supervisory EHS Development Course plus courses on ATV to Chemical Safety to Helping Individuals at Risk.</td>
</tr>
<tr>
<td>Faculty of Graduate Studies and Research</td>
<td>Professional Development Weeks, Community Volunteer Program and writing boot camps develop different aspects of research.</td>
</tr>
<tr>
<td>Field Research Office</td>
<td>Offers training for snowmobile training, chainsaw certification, wilderness first aid and firearms training.</td>
</tr>
<tr>
<td>Fleet Safety (Driver Training)</td>
<td>Offers a defensive driving course as well as an ATV and Bus/Passenger van orientation.</td>
</tr>
<tr>
<td>IIQM (International Institute for Qualitative Methodology)</td>
<td>Thinking Qualitatively Workshop series to learn about specific methods, techniques and approaches to qualitative research.</td>
</tr>
<tr>
<td>Libraries</td>
<td>Amazing resource to provide data management/storage assistance, workshops on various topics such as citation software, where to publish, maximizing your literature searches.</td>
</tr>
<tr>
<td>John Dossetor Health Ethics</td>
<td>Offer various lunch hour, webinar, and symposiums on ethics in health related fields.</td>
</tr>
<tr>
<td>Research Services Office</td>
<td>Host a Research Administration Day open to anyone.</td>
</tr>
<tr>
<td>Student Success Centre</td>
<td>Workshops cover academic writing and giving presentations.</td>
</tr>
<tr>
<td>TEC Edmonton</td>
<td>Offer learning sessions and an online resource on How to bring your product to market.</td>
</tr>
<tr>
<td>Collaborative Institutional Training Initiative (CITI)</td>
<td>On-line training for Clinical Research Coordinator, Biosafety/Biosecurity, Responsible Conduct of Research, Social and Behavioural Research Course, and another 5 modules.</td>
</tr>
<tr>
<td>MyGradSkills.ca</td>
<td>On-line modules relating to research management and IP.</td>
</tr>
</tbody>
</table>

## Teaching

<table>
<thead>
<tr>
<th>Organization</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centre for Teaching and Learning</td>
<td>Sessions relate to all aspects of teaching and supervision and are open to campus community at large. Also host a teaching symposium and Festival of Teaching.</td>
</tr>
<tr>
<td>Libraries</td>
<td>Provides services for teaching such as packaging your reading list and host library training workshops for students.</td>
</tr>
<tr>
<td>Faculty of Graduate Studies and Research</td>
<td>Graduate Teaching and Learning Program offers 4 streams of training: 1) Classroom Basics, 2) Practicum, 3) Pedagogy and Course Design, and 4) Research</td>
</tr>
<tr>
<td>Technologies in Education (EDtech)</td>
<td>Training sessions on how to use technology, generally targeted to Faculty of Education and when room allows, open to others.</td>
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## Mentoring Opportunities

<table>
<thead>
<tr>
<th>Organization</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Career Centre</td>
<td>Opportunity to receive career mentoring.</td>
</tr>
<tr>
<td>Alumni Association</td>
<td>Venture Mentoring if you are starting a business.</td>
</tr>
<tr>
<td>Undergraduate Research Initiative</td>
<td>Opportunity to mentor undergraduate students.</td>
</tr>
<tr>
<td>MyGradSkills.ca</td>
<td>On-line module relating to mentoring undergraduate research.</td>
</tr>
<tr>
<td>WISEST</td>
<td>Opportunity to mentor high school students.</td>
</tr>
</tbody>
</table>

Contact: Renee Polziehn, PhD, Professional Development Director, 1-03 South Academic Bldg, 780.492.1100
Appendix 9

Postdoc News

Professional Development Day - June 20, 2018
A day for postdocs to meet other postdocs and to pick up career tips.
- Landing the Right Reference Letter
- Funding Mayhem
- Acing the Academic Interview
- Picking Apart the Job Application Process
- Career Advice from Former UofA Postdocs

Upcoming Events - Click items to learn more
...and follow us on the UofA Postdoctoral Fellows Professional Development Group

Communication
1. Toastmasters Presentation Skills - Every Wednesday
2. Finding and using research evidence: A guide for citizens - May 23
3. Knowledge translation beyond publications - May 31
4. Editing a (Thesis) Chapter for Publication ($50) - June 1
5. Develop Your Elevator Pitch Workshop - June 16
6. Writing for Correctness ($40) - July 11
7. Writing for Coherence ($40) - July 13
8. Writing for Conciseness ($40) - July 16

Teaching
10. Teaching and Learning Online: An Online Course for Instructors - June 4
11. Concepts in Course Design: Mapping Out a Learner Centred Course - June 6

Research
12. NSERC Discovery Grant Information Session - May 29 - moved to SAB 436
13. Research Data Management Week(s) - 3D Scientific Visualization May 30 and Advanced Scheduling of HPC Carpentry May 31, June 1
14. NSERC Common CV Workshops - June 6

Entrepreneurship
15. The Ultimate Product Launch $30 - June 21

Keep Informed
While their website is not explicit, the Grant Assist Program encourages postdocs to attend sessions coordinated by their office. They have newsletters for each of the tri-council sector that you can sign up for.

Banting preliminary assessment applications are due at the faculty level by May 29.

Writing Help
The Academic Success Centre provides individual consultations for postdocs who would like editing assistance with their writing. These individual 45-50 minute sessions provide you with personalized advice for your specific academic questions or projects.
- Fee: $25/session
- U of A Student 3-Session Plans: $60/3 sessions

PDF Professional Development Advisory Group
I am recruiting new members to this group. We meet every 2 months for an hour to discuss future professional development opportunities. If you are interested in joining this group, please email me, Dr. Renee Polziehn at rpolzieh@ualberta.ca. Your input so far has led to the development of several resources and the PD Day.

Contact: rpolzieh@ualberta.ca

Thank You
Postdoc Mark Johnson delivered an informative and engaging session on securing a postdoc in the SSHRC sector. Stay tuned for the website posting.

To schedule an appointment, please call the Academic Success Centre at 780-492-2652 or go to 2-300 SUB Students' Union Building.

Note you may need to plan 1 or 2 weeks in advance as advisors can be in high demand.
## Administrative Checklist Prior to Arrival of Postdoctoral Fellow

### Before Postdoc Arrives

<table>
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<th>Department/Faculty/Unit Preparation</th>
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<tr>
<td>• Confirm eligibility (no more than 5 years after completion of PhD)</td>
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<tr>
<td>• Transfer of any grants if required/stipend considerations</td>
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<tr>
<td>• Complete FVCA form for foreign nationals</td>
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<tr>
<td>• Issue an Appointment Letter</td>
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<tr>
<td>• Space allocation considerations</td>
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### Postdoc Preparation

<table>
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<tr>
<th></th>
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<tbody>
<tr>
<td>• International Postdocs need their Work Permit. Depending on Citizenship, a Temporary Resident Visa also may be required before arriving in Canada.</td>
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</tr>
<tr>
<td>• Obtain Travel Insurance and discuss any reimbursements</td>
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<tr>
<td>• Read through the Postdoctoral Fellows Office FAQ page</td>
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<tr>
<td>• Obtain housing</td>
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<tr>
<td>• If arriving with family, apply for daycare/schools as necessary</td>
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<tr>
<td>• If required, applied for a parking permit</td>
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<tr>
<td>• Learn about the Postdoctoral Fellow Association</td>
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### Once Postdoc Arrives

#### Once Postdoc Arrives - Need to do outside of U of Alberta

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<td>• International Postdocs need to apply for Social Insurance</td>
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<tr>
<td>• Apply for bank account</td>
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<tr>
<td>• Apply for Health Care if staying 12 months or longer</td>
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#### Once Postdoc Arrives – Within Sponsoring Unit (Department/Faculty/Institute)

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<tr>
<td>• Postdoc is introduced to the Administrative staff of hosting unit</td>
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<tr>
<td>• Unit creates a UAAlberta ID# and Campus Computing ID (CCID)</td>
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<tr>
<td>• Provide Social Insurance to Department for Payroll</td>
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<tr>
<td>• Provide information for Postdoctoral Fellows Pay/Benefits Action Form</td>
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<tr>
<td>• Complete Direct Deposit to receive stipend if finances received through University of Alberta</td>
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<tr>
<td>• International Postdocs paid by country outside of Canada need to complete a Determination of Residency Status for taxation purposes</td>
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<tr>
<td>• Complete Personal Tax Credit Forms (TD1 &amp; TD1AB)</td>
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<tr>
<td>• Completed PDF registration form</td>
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## Once Postdoc Arrives

### Once Postdoc Arrives – Within Sponsoring Unit (Department/Faculty/Institute)

- Bring CV and original signed Appointment letter
- Provide copy of Work Permit (International Postdocs only)
- Complete the University of Alberta Health Insurance Plan if staying less than 12 months (contact HR Benefits person designated for your unit)
- Added to faculty/department/unit mailing lists (will receive Employee Digest automatically)
- Update website
- Access to building/lab/facilities - swipe or key
- Order business cards if applicable
- Network mapped for computer access if applicable

### Last stop - Once Postdoc Arrives - Postdoctoral Fellows Office

1. Department provides registration information to PDF Office. PDF Office notifies department/postdoc of any missing documents.
2. PDF Office verifies eligibility, benefits, and forwards information to Human Resources.
3. Campus welcome and orientation package forwarded to postdoc by campus mail
4. Postdoc will receive notification from Postdoctoral Fellows Office when they can go to One Card Office in HUB Mall for their University of Alberta ID card.
5. PDF Office provides reminder for postdoc to make last changes to health care benefits.

**NOTE:** Human Resources (HR) can take up to two weeks to process requests and the earliest payroll deposit is typically two weeks later after processing. Therefore, payroll will take at least a month before a deposit is made into the PDFs bank account. Deductions taken off the pay include CPP, EI, and WCB. Full library and other university services are suspended until HR has completed processing.
Appendix 10

Articles posted to the UofA Postdoctoral Fellows Professional Development Face Book Group (PD4PDFs)

Feb 21, 2018 The Future of the Postdoc
Feb 28, 2018 Academic Job list
Mar 6, 2018 StatsCan to reinstate survey to better understand PhD underemployment
Mar 7, 2018 This LinkedIn Expert’s Tips For Nailing Nontraditional Job Interviews
Mar 8, 2018 How Women Can Develop — and Promote — Their Personal Brand
Mar 9, 2018 How to invest in PhDs
Mar 12, 2018 People Behind the Science
Mar 15, 2018 Aging professoriate placing stress on PSE budgets: HEQCO
Mar 16, 2018 Why Postdocs Make The Best Industry Employees
Mar 20, 2018 Surviving as a postdoc
Mar 21, 2018 Ways new leaders can pursue an education in leadership
Mar 22, 2018 Recovering from postdoc mistakes
Mar 23, 2018 Labor Market Outcomes Ontario
Mar 24, 2018 Happy Secret to Better Work
Mar 29, 2018 Work too Much
Mar 31, 2018 How to increase your attention span
April 3, 2018 Gender Pay Gap
April 5, 2018 Implementation Science - How do we implement evidence to advance practice?
April 6, 2018 Time management: Seize the moment
April 10, 2018 How to give feedback that actually works, without hurting anyone more than you have to
April 13, 2018 Priceless!
April 14, 2018 You must expect great things of yourself before you can do them
April 16, 2018 She Wrote a Farewell Letter to Colleagues. Then 80,000 People Read It.
April 16, 2018 Why your advice for PhDs leaving academe might be making things worse
April 18, 2018 Why I collapsed on the job
April 20, 2018 Beyond the professoriate conference
April 22, 2018 High achieving people
April 24, 2018 The Academic CV: 5 Common Mistakes
April 25, 2018 What your PI forgot to tell you: why you actually might want a job running a research lab
April 30, 2018 Fake recruiter and predatory professional agencies
May 1, 2018 Research Proposals
May 2, 2018 PhDs and the “gig” economy
May 2, 2018 Securing a Postdoctoral Fellowship in The Arts - May 15th
May 3, 2018 How to check your unconscious biases
May 4, 2018 Worst Meetings Academia
May 7, 2018 Canada facing ’Brain Drain’ as young tech talent leaves for Silicon Valley
May 8, 2018 It’s possible to play at the front edges of science
May 9, 2018 Time Management
May 10, 2018 The Dreaded Teaching Statement: Eight Pitfalls
May 11, 2018 Ten things never, ever to say in a salary negotiation
May 12, 2018 7 Serious Questions to Plan Your Future
May 14, 2018 What’s Included in a Teaching Dossier
May 15, 2018 The Stressed out Postdoc
Appendix 1

May 16, 2018  Applying for a postdoc job? Here are 18 tips for a successful application
May 17, 2018  You are not just leaving academe, you’re leaving your students
May 22, 2018  Is it time to eliminate tenure for professors?
May 24, 2018  Postdoc advancement: Marketing your value
May 25, 2018  Postdocs: Big lab, small lab?
May 26, 2018  15 things you can do to recharge yourself this weekend
May 28, 2018  Value of a PhD
May 30, 2018  Why your leadership skills won’t get you hired
May 31, 2018  Advice for those hoping to move from a postdoc to a tenure track position
June 1, 2018  Before you sign: understanding publisher agreements
June 5, 2018  The need to nurture a skills economy
June 6, 2018  Supporting research that touches Canadians live everyday SSHRC
June 7, 2018  Money and confidence are interchangeable
June 8, 2018  Postdocs What would you say to your younger self
June 11, 2018  University, postdocs headed to mediation for first collective agreement Saskatchewan
June 12, 2018  Working in Physics: Have PhD, will travel
June 13, 2018  What not to reveal in a job interview
June 14, 2018  Gender Gap Without Gender Bias?
June 15, 2018  What happens when an adjunct instructor wants to retire?
June 18, 2018  Research: Where the scientists go
June 19, 2018  I’ve Read More Than 300 Cover Letters, And This Is How I Decide If They’re Good Or Bad Within Three Minutes
June 21, 2018  Part 1: What’s it like to work beyond the professoriate?
June 22, 2018  Part 2: What’s it like to work beyond the professoriate?
June 25, 2018  Part 4. Does a PhD actually make a difference in a non-academic work environment?
June 26, 2018  Payscale website
June 26, 2018  Payscale website
June 27, 2018  How will you fit into the future?
June 28, 2018  Help That Hurts Women
June 28, 2018  Science and Engineering PhDs: A Canadian Portrait
June 29, 2018  SSHRC distribution of International Collaborators
July 3, 2018  Study say tension between graduate training, research, and teaching false?
July 4, 2018  Becoming a Job Candidate: The timetable for your search
July 5, 2018  What actually happens after the interviews are over? And who decides?
July 6, 2018  University of Guelph giving raises to full-time female faculty after review
July 9, 2018  Postdoc blues: how do you know when it is time to give up?
July 10, 2018  Why email is so stressful, even though it's not actually that time consuming
July 11, 2018  Finding your unicorns
July 13, 2018  Treadmill to Oblivion
July 16, 2018  Picture yourself post postdoc
July 17, 2018  Our politicians need to understand why science matters
July 20, 2018  Work Life Balance
July 24, 2018  29 tips for Linked in
July 24, 2018  Graduate Students must take responsibility for their own careers
July 26, 2018  Beware claims of a direct connection between a PhD and a non-academic career.
July 30, 2018  The myth of the intrapreneur
July 31, 2018  Crash and burn: 5 stages of postdoctoral collapse
Professional Development Day – June 20, 2018

Welcomes postdoctoral fellows, graduate students, and members of the campus community to attend. Graduate students wishing to use these sessions towards their PD hours will need to confirm their eligibility with their Graduate Administrators and bring attendance signature sheets with them.

**Location:** All sessions take place in South Academic Building (SAB) 321.

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**Quick Overview of the Day**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30-10:30</td>
<td>Landing the Right Reference Letters</td>
</tr>
<tr>
<td>10:45-11:45</td>
<td>Funding Mayhem</td>
</tr>
<tr>
<td>12:00-13:00</td>
<td>Acing the Academic Interview</td>
</tr>
<tr>
<td>13:15-14:15</td>
<td>Picking Apart the Job Application</td>
</tr>
<tr>
<td>14:30-16:00</td>
<td>Looking Ahead: Career Advice from Former UofA Postdocs</td>
</tr>
</tbody>
</table>

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**Landing the Right Reference Letters 9:30-10:30**

Whether you have been asked to write a reference letter or if you need one for scholarship or work purposes, the magic behind crafting great letters comes from knowing the candidate and understanding the criteria of how candidates will be judged. Join this session to get an idea of how you can prepare your referees to write better letters and what you may want from candidates if you are the one who needs to deliver on a reference. Please bring a pen or pencil to this session for a quick exercise.

**Presenter:** Dr. Renee Polziehn is the Professional Development Director for the Postdoctoral Fellows Office. Following 19 years developing the Community Volunteer Program, Graduate Teaching and Learning Program, and Professional Development programing for the Faculty of Graduate Studies and Research, writing reference letters has been one of many tasks that crossed her desk. As an adjudicator for several scholarships, she has had access to seeing both well-written and poorly crafted letters. Renee has also had the opportunity to consult with many academics over their reference writing practices.
Appendix 11

**Funding Mayhem**

10:45-11:45

With 27% of UofA Postdocs working in tenure track positions and another 14% as research associates, understanding how funding moves through an institution would be an asset for anyone considering a career in academia. All research institutions follow a similar process, so as you continue your research journey, knowing what you should be paying attention to can be very helpful. When should you accept the conditions of a grant and how could this effect your publication options? Do I really only get 80% of my grant – what happens to the other 20%? Can a postdoc or graduate student be named on a research grant? Learn the very basics of how a research grant is managed, some common errors that new researchers make when setting up their funded research programs, and who is there to assist you when you manage your first research grant.

Presenters: Julie Stephens is the Assistant Director, Research Facilitation and Strategic Initiative, and Martine Desrochers is a Research Facilitator with the Research Services Office. Collectively they have more than 26 years of working with research grants and their jobs have included reviewing conditions of research grants, catching errors in grant applications, following up on the release of research funds, and closing down research accounts. The Research Service Office reviews and signs off on approximately 2600 grant applications a year and currently manages over 8700 awards worth more than $500 million dollars per year.

**Acing the Academic Interview**

12:00-13:00

While we know the academic job market is discouraging, the trend for UofA postdocs to land a position in academia is about 30%. How are UofA candidates making themselves competitive? The following former UofA postdoctoral fellows have offered to share their experiences of the academic hiring practice they experienced in landing their UofA tenure track positions.

Presenters:

Dr. Shannon Stunden Bower – Assistant Professor in History and Classics. She has her PhD in Geography from the University of British Columbia. Her UofA postdoc from 2006 to 2012 in History and Classics was first funded by the Grant Notley Postdoctoral Fellowship and later by SSHRC. Following 3 years as a Research Director and Director, she began her tenure track position in 2015.

Dr. Michael Doschak – Associate Professor in Pharmacy and Pharmaceutical Sciences with ties to Biomedical Engineering and Dentistry/Dental Hygiene. He received his PhD in Medical Sciences with the Faculty of Medicine at the Uof Calgary. His UofA postdoc in Chemical and Materials Engineering was from 2004 to 2005 and he started his tenure track position here in 2005.

Dr. Marleny Saldana – Associate Professor in Food/Bio-Engineering Processing. She has her PhD in Process Engineering from the State University of Campinas, Brazil. Her UofA postdoc in Agriculture, Food, and Nutritional Sciences was from 2003 to 2004 and she started her tenure track position here in 2004.
Picking Apart the Job Application Process
13:15-14:15

There are many factors that lead to one person getting a job over someone else - work experience, skills, and professional contacts. Sometimes it comes down to how you communicate the skills you have - remember that your cover letter and résumé are key ways for you to share your personal branding. Improve your career success by uncovering the common errors and assumptions people make in compiling their résumé and cover letter and interpreting job descriptions. Bring your CV or résumé with you to take notes on where you can improve.

Presenters:
As a Career Advisor for the UofA’s Graduate Student Internship Program (GSIP), Tyree McCrackin provides support to graduate students applying for a wide range of internships. Since 2012 he has held several Human Resource positions where he managed recruitment, advised employers on best HR practices, and oversaw marketing of job opportunities. In his current role, Tyree advises graduate students on the application process and has a keen sense of what employers are looking for in their postings and what applicants can do to effectively communicate their many skills and strengths.

Andrea Spevak is the Internship Advisor for GSIP. She was first on the ground to get GSIP growing and is on a target to place 450 interns from all disciplines by 2019. Andrea has contact with a variety of companies and organizations, from government to industry to not-for profit. She has a diverse background across many sectors, including roles as a Research Manager of a Not-for-Profit, Entrepreneur, Program Coordinator with the Federal government, and ESL instructor. Andrea has a good sense of the challenges that people with post-graduate degrees make when preparing their job applications.

FEATURE

Looking Ahead: Career Advice from Former UofA Postdocs
14:30-16:00

Do you know what career path you want to follow? Was your next step after a PhD’s to secure a postdoctoral fellowship, but are approaching the following step with apprehension. Career decisions are challenging for most of us and asking other people who have traveled a similar path “What has helped you make decisions” can be insightful. What is it like to work for the government? Not-for-Profit? Should I strike out on my own or can I find something else on campus? What questions should I be asking? Should I stay in Edmonton? Join our panelists, Drs. Thomas Lo, Craig Emmerton, Rebecca Graff-McRae, and Michael Taschuk as they have carved out their own paths following the completion of their fellowships at the UofA.
Panelists:

Dr. Thomas Lo is a health economist who has a strong passion for cost-effective ways to improve the health of the aging population. He is currently employed at the Institute of Health Economics, a Not-For-Profit organization where his goal is to provide policy-relevant evidence to enhance the provision of healthcare services and use of prescription medicines. During his postdoctoral training with the Translating Research in Elder Care (TREC) program at the University of Alberta, Thomas’ research focused on critical elements of the Promoting Action on Research Implementation in Health Sciences framework and their association with evidence-based practice in clinical settings. Thomas has Bachelor’s degrees in Economics and Life Sciences from Queen’s University. He received his Master of Clinical Epidemiology and Doctor of Philosophy in Gender and Health at the University of Newcastle in Australia.

Dr. Craig Emmerton is a Water Quality Scientist in the Environmental Monitoring and Science Division with the Government of Alberta (Environment and Parks). He has almost 15 years of environmental science research experience focused mainly on the cycling of nutrients and contaminants in rapidly-warming northern ecosystems. Craig has held postdoctoral fellowship positions at the University of Alberta and the International Institute for Sustainable Development in Winnipeg. During his PhD he managed to supplement his degree and teaching requirements with a MITACS internship, teaching training, and volunteering. In addition to research, Craig has over 5 years of government, consulting and industry experience with relevant skills in environmental monitoring, data management and community outreach, among others. His degrees and co-op placements have taken him from one side of Canada to the other with a BSc in Environmental Sciences at McMaster University (Ont), an MSc in Physical Geography at Simon Fraser University (BC), and a PhD in Ecology at the UofA.

Dr. Rebecca Graff-McRae is a Research Manager with the Parkland Institute, an Alberta-wide, non-partisan research centre situated within the Faculty of Arts at the UofA. The Parkland Institute examines power and wealth differentials, social and class-based conflicts, and ways in which public policy and public choice shape and are shaped by these factors. Rebecca previously worked with the Equality Commission for Northern Ireland and the Edmonton City Council. Although an Alberta native, Rebecca’s schooling as a Political Sciences was developed at Queen’s University Belfast, Ireland where she completed both her undergraduate and doctoral studies. Her research which probed the role of memory and commemoration in post-conflict transition brought her first to a postdoc position at Memorial University Newfoundland and later at the UofA.

Dr. Michael Taschuk is the Founder and Technical Lead for G2V Optics Inc. Following a short time working as a machinist in Calgary, Michael moved to Edmonton to complete his Bachelors and PhD in Electrical Engineering at the UofA. His research on laser-induced breakdown spectroscopy (LIBS) led to numerous scholarships and a patent. Michael is a dedicated, efficient Research and Development engineer who thrives on challenging technical problems in experimental optics, nanostructured thin films, compact optical devices, gas sensors and organic solar cells. After 7 years working as a Research Associate at the UofA, Michael founded his company to commercialize his research in Edmonton. He has found that many of the skills in engineering are transferable to the world of commercialization, and that many supports were available at the UofA to get him started on this career path.
University of Alberta Postdoctoral Fellows Exit Survey

1. 263 Postdoctoral Fellows completed the survey from 34 different departments/units from the time of February 2008 to February 2018.

Departments/Units of Participating Postdoctoral Fellows

- Agricultural Food and Nutritional Science
- Biological Sciences
- Chemical and Materials Engineering
- Civil and Environmental Engineering
- Dentistry
- Earth and Atmospheric Sciences
- Electrical and Computer Engineering
- Laboratory Medicine and Pathology
- Mechanical Engineering
- Medicine
- Nursing
- Occupational Therapy
- Pediatrics
- Pharmacy and Pharmaceutical Science
- Physiology
- Rehabilitation Medicine
- School of Public Health
- Biochemistry
- Cell Biology
- Chemistry
- Computing Science
- Dentistry
- Education (CRTED)
- English and Film Studies
- Mathematical and Statistical Sciences
- Medical Microbiology and Immunology
- NA
- Nursing, International Institute for Qualitative Methodology
- Oncology
- Pharmacology
- Physics
- Psychiatry
- Renewable Resources
- Surgery

2. How did you learn about your postdoc position at the UofA?
   - Found faculty member using internet – 28.9%
   - Graduate advisor/mentor – 22.1%
   - Advertisement – 16.3%
   - Colleague – 14.8%
   - Met faculty member at a conference – 13.3%
   - Other – 4.6%

3. Were you given contact information for current or former postdocs in the lab prior to taking the position?
   - 46% Yes, 54% No

4. Were you interviewed for your position prior to accepting an offer?
   - 80% Yes, 20% No
   4a. People who were interviewed gave the responses:
      48.6 % in person, 44.3% by phone, 7.5 % through Skype/Video conference

5. Did you and your PI write out a plan outlining the expectations of your project(s)?
   - 77% Yes, 23% No
6. Did you receive any performance evaluations from your PI?
   - 63.1% Yes – Oral
   - 11.8% Yes – Written
   - 27.8% No

7. In the most recent year, how often did you meet individually with your PI to discuss training?
   - Daily – 10.6%
   - Weekly – 61.2%
   - Monthly – 17.5%
   - Less than monthly – 10.6%

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8. How many individuals in the following categories did your PI supervise during your appointment?
   - **Postdocs**
     - i. None – 11%
     - ii. 1 – 25.5%
     - iii. 2 – 30%
     - iv. 3 – 15.2%
     - v. 4 – 7.2%
     - vi. 5 – 3.8%
     - vii. 6-10 – 3.2%
   - **Technicians**
     - i. None – 48.5%
     - ii. 1 – 21.8%
     - iii. 2 – 17.6%
     - iv. 3 – 5.6%
     - v. 4 – 3.1%
     - vi. 5 – 0.8%
   - **Graduate Students**
     - i. None – 9.5%
     - ii. 1 – 4.9%
     - iii. 2 – 9.5%
     - iv. 3 – 12.5%
     - v. 4 – 11.8%
     - vi. 5 – 14.8%
     - vii. 6 – 8%
     - viii. 7 – 6.8%
     - ix. 8 – 3.8%
     - x. 9 –3.8%
     - xi. 10 or more – 14.4%
   - **Undergraduate Students**
     - i. None – 39.5%
     - ii. 1 – 12.5%
     - iii. 2 – 12.2%
     - iv. 3 – 12.2%
     - v. 4 – 8.7%
     - vi. 5 – 3.4%
     - vii. 6 – 2.7%
     - viii. 7 – 1.5%
     - ix. 8 – 1.9%
     - x. 9 – 0.8%
     - xi. 10 or more – 4.6%
9. How many conferences did you attend?
   i. 0 – 23.6%
   ii. 1 – 23.2%
   iii. 2 – 17.9%
   iv. 3 – 15.2%
   v. 4 – 8%
   vi. 5 – 4.9%
   vii. 6 or more – 6.5%

How many presentations did you give?
   viii. 0 – 22.3%
   ix. 1 – 21.3%
   x. 2 – 18.3%
   xi. 3 – 8.7%
   xii. 4 – 6.1%
   xiii. 5 – 4.9%
   xiv. 6 or more – 11.4%

10. How many papers did you write?
   i. 0 – 16.3%
   ii. 1 – 17.5%
   iii. 2 – 19%
   iv. 3 – 11.4%
   v. 4 – 8%
   vi. 5 – 8%
   vii. 6-10 – 12.5%
   viii. more than 10 – 4.2%

How many abstracts did you write?
   ix. 0 – 30.8%
   x. 1 – 18.2%
   xi. 2 – 12.9%
   xii. 3 – 10%
   xiii. 4 – 6.5%
   xiv. 5 – 4.6%
   xv. 6-10 – 5.7%
   xvi. *more than 10 – 4.2%

11. What was the most positive aspect of your experience at U of A? Themes that emerged include:
   - Mentoring/Supervision
   - Training
   - Research
   - Facilities
   - Supervision
   - Community
   - Funding
   - Did not answer

12. What was the most negative aspect of your experience at U of A? Themes that emerged include:
   - Nothing negative reported: 104 replies
   - Funding
   - Research
   - Weather
   - Lack of Community
   - Supervisors
   - Lack of Teaching Opportunities
   - Training
   - Isolation and Self-Care
   - Food issues
   - Future employment opportunities

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13. Did you teach during your postdoctoral appointment at the U of A?
   • Did no teaching 69.2 % (182)
   • Gave a lecture 20.2% (53)
   • Taught at least one section of a course 6.4% (17)
   • Taught at least one full term course 4.2 % (11)

14. Did you participate in the Postdoctoral Fellows Professional Development Program?
   • No – 75.3 % (198)
   • Yes – 24.7% (65)
   14a. If yes, which units
       Career 45/Communication 10/Professional Practice 16/Other 2 (Teaching/PDF Research Day)

15. How satisfied are you with your overall postdoctoral experience at the University of Alberta?
   • Very Dissatisfied – 1.9% (5)
   • Somewhat Dissatisfied – 6.1% (16)
   • Neutral – 9.5% (25)
   • Somewhat Satisfied – 32.3% (85)
   • Very Satisfied – 50.2% (132)

16. Have you prolonged the length of time of your postdoctoral appointments due to difficulties finding other employment?
   • No 79.5% (209)
   • Yes 20.5% (54)

17. You planning to pursue a permanent career in
   • Academia 70.7% (186)
   • Industry 17.9% (47)
   • Both 3.4% (14)
   • Did not answer (9), not sure (2), other (6) – 6.5%