



Building skills for Canada's bio-economy

RESEARCH BRIEF

# Academic Bonds

## Examining the ties that bind STEM grads to their school



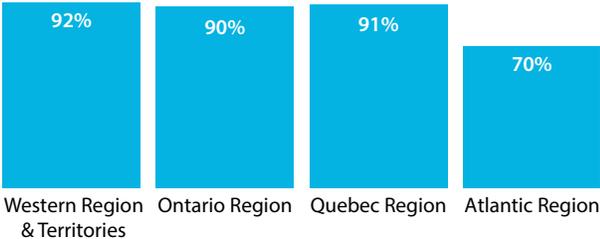
Graduates from Canadian post-secondary education (PSE) institutions are a key source of talent for the bio-economy. One component of the labour market information study (LMI) currently being undertaken by BioTalent Canada is to examine graduate outcomes for program areas and fields of study that most closely align with the bio-economy. The analyses of these outcomes will help shape recruitment, talent development, and strategies for engagement and retention.

**Location. Location. Location.**

It’s the first rule of real estate but has a place in the bio-economy. According to an analysis of graduates from 2015, most elect to remain close to the institution at which they studied. A company’s proximity to a university or college can play a key role in the recruitment of new graduates and the development of relationships between that company and PSE institutions. One reason is that the location of a company impacts its ability to engage students prior to graduation.

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**FIGURE 1**  
**Percentage of graduates employed in same region as studied (3 years post graduation)**



Source: National Graduate Survey, 2018

A 2018 survey of graduates from bio-economy-related programs<sup>1</sup> backed up the findings from 2015. Most reported that they were employed in the same region where they had graduated three years previously. The outlier was the Atlantic region where 30% were working in other regions (13% in Western region, 11% in Ontario, 4% in Quebec, 2% Outside Canada).

The higher relocation rate of the Atlantic graduates is nothing new, but it does provide opportunities for firms in other regions to recruit in the region. Unfortunately, this creates a challenge for Atlantic-region bio-economy employers as they face competition for talent from elsewhere.

Participants in sector roundtable discussions identified work-integrated learning, such as BioTalent Canada’s **Student Work Placement Program**, as a way to encourage students to consider opportunities outside of their region and ultimately accept a position upon graduation. BioTalent Canada’s **Career Starter** wage subsidy program is another viable option for employers interested in hiring youth, and adopting a diverse and inclusive work culture while satisfying their need for skilled labour.

<sup>1</sup> Bio-economy related program groupings included the following *Classification of Programs (CIP)* codes at the two-digit level: 06-Physical and life sciences and technologies; 08-Architecture, engineering, and related technologies; 09-Agriculture, natural resources and conservation; and, 10-Health and related fields.

## Among the bio-economy related programs, graduates in the physical and life sciences have the lowest levels of employment that align with their PSE program of study.

A post-secondary education is an expensive investment. There's a reasonable expectation, then, for graduates to seek employment related to their program or area of study.

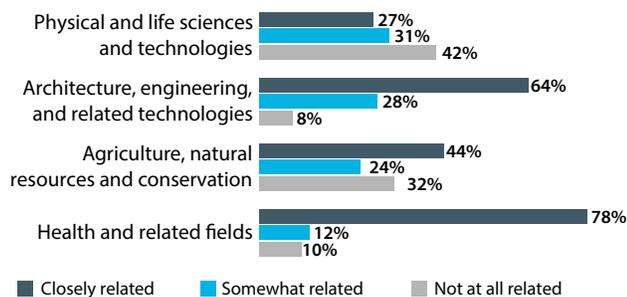
Interestingly, graduates from the physical and life sciences and technologies (CIP:06) reported the lowest levels of alignment of employment with area of study among bio-economy-related program graduates. This trend was evident for both undergraduate and graduate degree holders.

**42% of undergraduate grads' employment was "not at all" related to what they studied.**

A 2018 survey of 2015 physical and life sciences and technologies (CIP:06) graduates showed:

- 42% of undergraduate grads' employment was "not at all" related to what they studied.
- 22% of master's graduates' jobs were "not at all related" to what they had studied.

**FIGURE 2**  
Relatedness of current job to program of study - Undergraduate Graduates (3 years post-graduation)

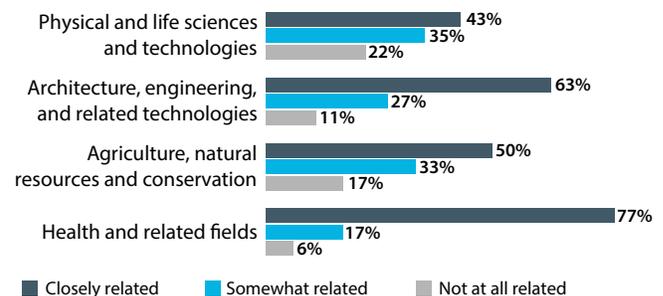


Source: National Graduate Survey, 2018

These findings highlight the need that exists within the bio-economy to better engage with and recruit these trained graduates into the industry. There's an opportunity to direct graduates to positions in the sector that aligned with their area of study.

Conversely, there's also an opportunity for post-secondary institutions and students to identify areas of potential misalignment between their programs and the bio-economy industry.

**FIGURE 3**  
Relatedness of current job to program of study - Masters' Graduates (3 years post-graduation)



Source: National Graduate Survey, 2018

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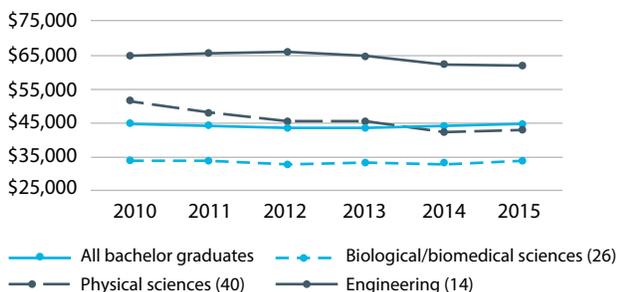


## Stagnant earning potential

The median employment income for all bachelor graduates across all fields of study assessed at two years post-graduation has remained at approximately \$45,000 (for graduates from 2010 through 2015).

Graduates from biological and biomedical science programs have shown a similar trend of no change. Meanwhile, the median salaries for engineering and physical science graduates have actually declined over this same period (measured in 2017 constant dollars).

**FIGURE 4**  
**Median employment income\* by undergraduate cohort and field of study (2 years post-graduation)**



\* All median employment income figures are adjusted for inflation using the Consumer Price Index (CPI) and are presented in 2017 constant dollars

Source: Education and Labour Market Longitudinal Platform

An analysis of median employment income for cohorts graduating from bachelor's programs indicates that biological/biomedical sciences grads earn substantially less than other bachelor graduates.

The annual median employment income for the biological/biomedical sciences graduates was just slightly less than \$35,000 against the overall median of \$45,000. That's a 29% difference. Although recently experiencing declines, Physical sciences graduates were close to the overall median. Engineering graduates; however, earn substantially higher with a median at approximately \$65,000.

The lower levels of employment earnings among the biological/biomedical sciences graduates may be partially attributable to a higher proportion of them working in jobs not related to their fields of study.

These findings point to opportunities for recruiting these graduates into bio-economy jobs that will likely pay them more. This theory is supported by the availability of various wage subsidies that can increase the salary offerings to new hires.

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## What do these results mean for the Canadian bio-economy?

### Mobility presents opportunities and challenges.

The low levels of mobility of graduates across regions is a double-sided coin. It's beneficial for employers in close proximity to clusters of PSE institutions; however, it can present distinct challenges for those in regions or areas with fewer or none. Conversely, the Atlantic region experiences higher rates of mobility among its graduates. While this benefits other regions, it presents an additional challenge for bio-economy employers on the homefront.

### How well is the bio-economy known among graduates?

These findings raise several questions about how Canadian bio-economy firms are seemingly challenged to identify, engage and recruit recent graduates from aligned programs and fields of study at the bachelors' level. This may require additional efforts aimed at making students aware of the bio-economy opportunities and resources that exist before graduation. This may be achieved through:

- more work-integrated learning opportunities, such as the [Student Work Placement Program](#),
- greater presence in and increased partnership with a variety of PSE institutions (not just the ones in geographic proximity), and

- heightened awareness of BioTalent Canada resources like [The PetriDish™](#) job board, labour market reports, National Occupational Standards, and [essential](#) and [technical skills training programs](#).

### Engaging with the bio-economy.

The growth and opportunities in the bio-economy are substantial. However, **a large portion of graduates from closely aligned fields of biological/biomedical science programs are underemployed and have challenges earning median incomes on par with their peers.** This suggests considerable challenges for these graduates in making successful transitions from classroom to workforce. Bio-economy employers may want to consider integrating wage subsidy programs—BioTalent Canada's [Career Starter](#) or [Science Horizons Youth Internship Program](#) to name two—into their recruitment and hiring strategies. Greater promotion and sector awareness activities that demonstrate the potential well-paying careers and opportunities that exist for these graduates might be beneficial as well.

## BioTalent Canada LMI Study next steps

These preliminary findings will serve as a basis for additional data sourcing throughout 2020 and 2021. The following areas are currently being explored based on these initial discoveries:

- Analysis of the challenges that graduates and other talent encounter when engaging with the bio-economy,
- Survey of various groups of Canadians on their perceptions of careers in the bio-economy to better understand potential opportunities and barriers to entry,
- Understanding the various approaches used by employers, and learning institutions, to address knowledge and skills gaps among students, graduates, new entrants and established workers, and
- Assessment of the bio-economy labour market by ascertaining the gap(s) between current and projected demand and supply.

BioTalent Canada will release research briefs throughout the course of 2020 and 2021. In addition to this one, two research briefs have been published to date.

- **Amplifying Success: The value of a STEM education for the bio-economy**
- **The Talent Differential: The case for work-integrated learning in the bio-economy**



[biotalent.ca/reports](https://biotalent.ca/reports)

## Questions or want to participate?

Contact BioTalent Canada Project Manager **Adriana Saenz (asaenz@biotalent.ca)** if you have any questions or would like to offer your expertise to this or any future LMI study.

**Methods and Sources:** This research brief is based on findings from an analysis of national post-secondary outcome data extracted from:

1. Statistics Canada's National Graduate Survey (NGS)
2. Education and Labour Market Longitudinal Platform (ELMLP)

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### About BioTalent Canada

BioTalent Canada™ is the HR partner of and catalyst for growth in Canada's bio-economy. Our engagement with employers, associations, post-secondary institutions, immigrant serving agencies and service providers has built a dynamic network that is strengthening skills, connecting job-ready talent to industry and creating opportunities. Recently awarded a Great Place to Work® Certification, BioTalent Canada practices the same industry standards they recommend to their stakeholders.

Recently, BioTalent Canada was named one of Best Workplaces in Ontario for 2020 and Best Workplaces in Healthcare. These distinctions were awarded to BioTalent Canada following a thorough and independent analysis conducted by Great Place to Work®. Direct feedback from employees was provided to Great Place to Work® through a staff survey.

For more information visit [biotalent.ca](https://biotalent.ca).

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