

MD, MSc, and PhD: you've got options

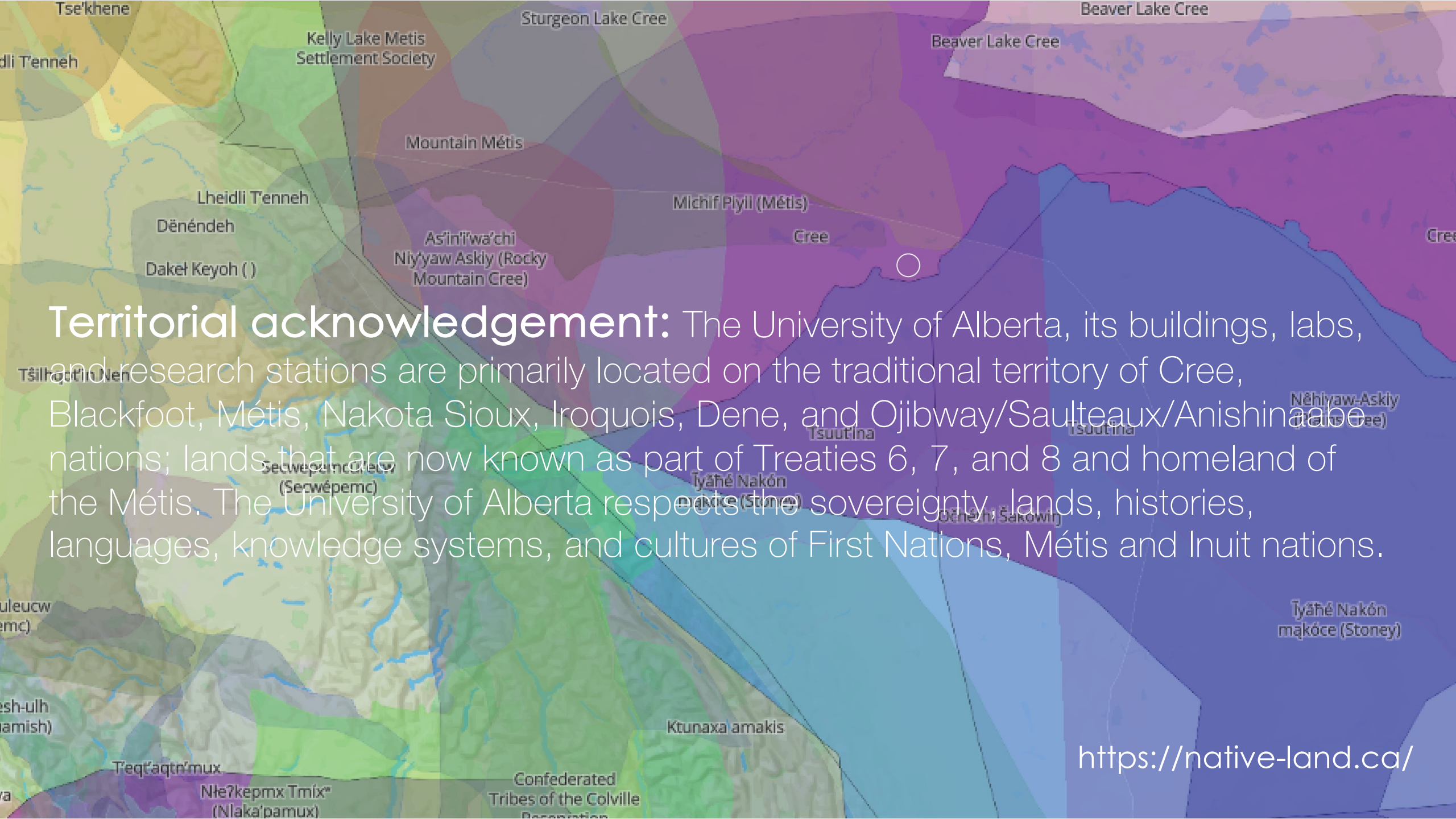


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Summer student's research program
June 11, 2024





Territorial acknowledgement: The University of Alberta, its buildings, labs, and research stations are primarily located on the traditional territory of Cree, Blackfoot, Métis, Nakota Sioux, Iroquois, Dene, and Ojibway/Saulteaux/Anishinaabe nations; lands that are now known as part of Treaties 6, 7, and 8 and homeland of the Métis. The University of Alberta respects the sovereignty, lands, histories, languages, knowledge systems, and cultures of First Nations, Métis and Inuit nations.

<https://native-land.ca/>

Outline

- Graduate degrees in FoMD:
 - ualberta.ca/medicine/programs/graduatestudies/index.html
 - ualberta.ca/graduate-studies/programs/index.html
 - Thesis based MSc and PhD (600+ students); 18 programs
 - Course-based MSc (<10 students, but more options coming)
- MD/PhD (combined degree); contingent on MD admission
 - ualberta.ca/medicine/programs/md/md-phd/index.html
- MD/MSc (combined degree); contingent on MD admission
 - Planned for Fall 2025

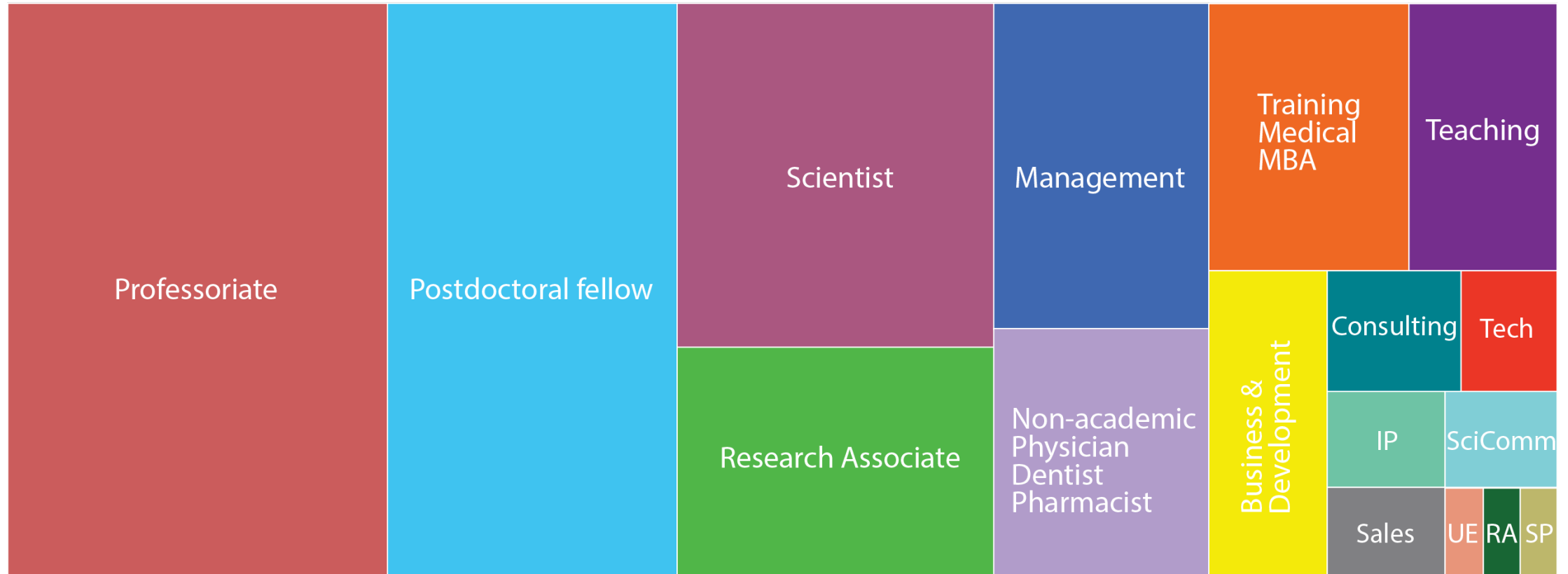
Differences amongst programs

- MSc, thesis-based; research intensive; 2-3 years to complete; can transfer to PhD without writing/defending a MSc thesis. Many possible career options.
- PhD: thesis based, research intensive; 5-6 years (5.6 years on average across FoMD programs). Many possible career options.
- MSc, course based; course intensive with practicum or capstone; typically 2-years. Well-defined career path.
- MD/PhD: combined degree program for physician-scientists; ~14-years with all training. Well-defined career path.

Graduate degrees with defined career paths

- Medical Physics (Oncology): thesis-based, followed by residency and exam. Typically physics or mathematics undergraduate degree. Requires completion of a PhD if you do not hold a doctoral degree in a relevant discipline; requires an MSc if you hold a doctoral degree in relevant discipline.
- Course-based MSc: Pathologists' Assistant (LMP).
- Course-based MSc: Transfusion Science (LMP).
- Course-based MSc: Molecular Diagnostics (LMP); upcoming.

Career outcomes for FoMD PhD grads



FoMD PhD alumni data provided by Dr. Gina McIntyre
Survey of 555 graduates from 2005-2015

What have my students done (Grad and UG)?

- Physician-scientist, head & neck surgeon (MD/PhD)
- Senior university research administration (PhD)
- Gastroenterology resident (MSc)
- Bioinformatics specialist (MSc)
- Intellectual property lawyer (UG; completed PhD abroad and then law)
- Assistant professor (UG; completed PhD and postdoctoral abroad)
- Lawyer (UG and then law)
- Forensic scientist (UG with additional discipline-specific training)
- Orthopedic surgeon (MD-STIR with residency and fellowship training)
- Completed MD training (UG with medical training)
- Research institute program manager (UG with on-the-job training)
- General surgery (UG with medical and residency training)

Features of Canadian MD/PhD Graduates

CMAJ OPEN

Research

Characteristics and outcomes of Canadian MD/PhD program graduates: a cross-sectional survey

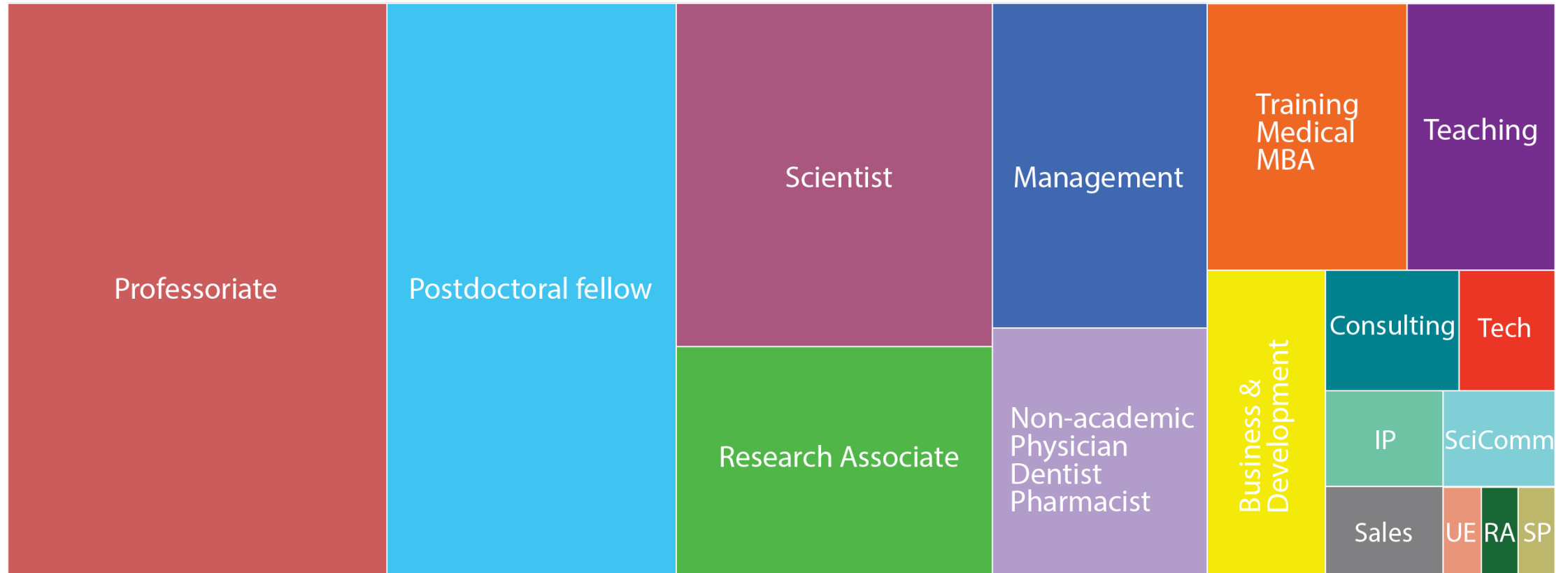
Michael A. Skinnider BArtsSc, Jordan W. Squair MSc, David D.W. Twa BSc, Jennifer X. Ji BSc, Alexandra Kuzyk BSc, Xin Wang PhD, Patrick E. Steadman MSc, Kirill Zaslavsky BSc, Ayan K. Dey BSc, Mark J. Eisenberg MD MPH, Ève-Reine Gagné MD, Kent T. HayGlass PhD, James F. Lewis MD, Peter J. Margetts MD PhD, D. Alan Underhill PhD, Norman D. Rosenblum MD, Lynn A. Raymond MD PhD

<https://www.cmajopen.ca/content/5/2/E308>

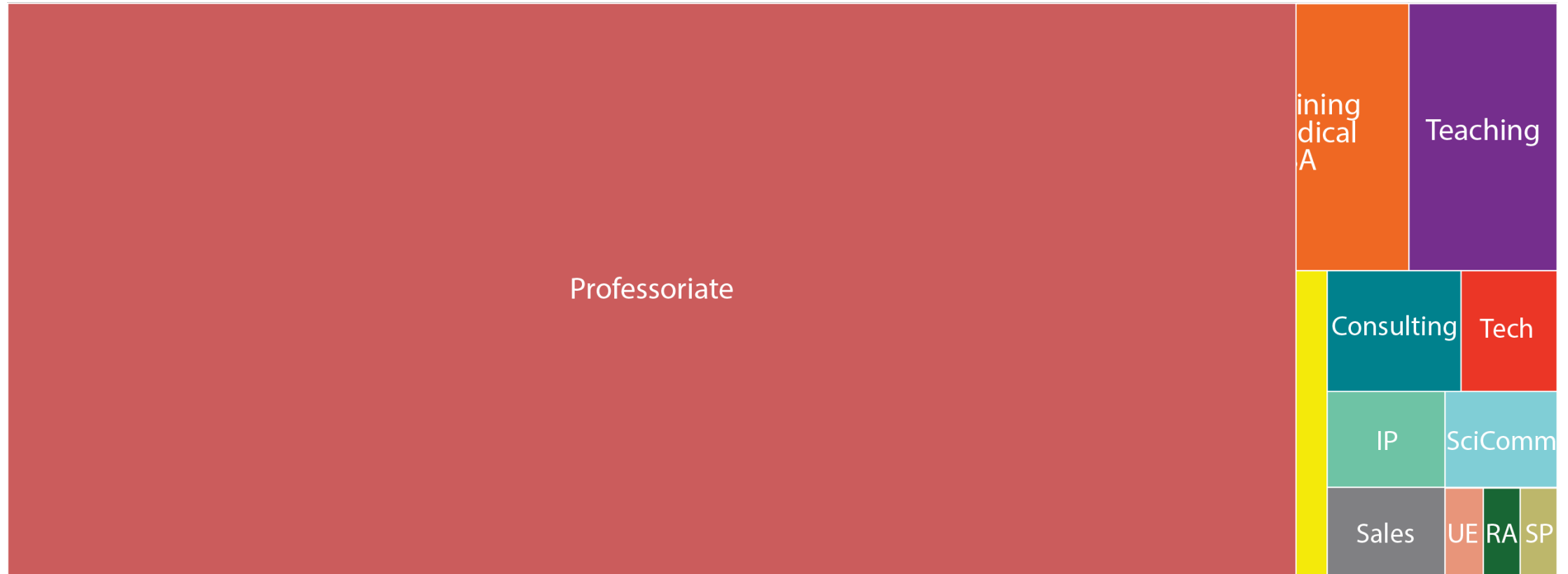
Features of Canadian MD/PhD graduates

- Surveyed 186 eligible alumni of MD/PhD programs (**74.7%** completed the survey) who had graduated prior to 2015
- A majority (58 [**83%**]) of the 70 respondents who had completed all training were appointed as faculty at academic institutions (typically below 20% for PhD graduates)
- Among the 58 respondents appointed at academic institutions, 44/57 (**77%**) dedicated at least 20% of their time to research 25/57 (**44%**) dedicated at least 50% to research
- 133/136 (**97.8%**) matched with their first residency choice (some programs encourage or require a graduate degree)
- The median length of physician-scientist training was **13.5** years

Career outcomes for PhD grads



Career outcomes for MD/PhD grads



Frequently asked question:

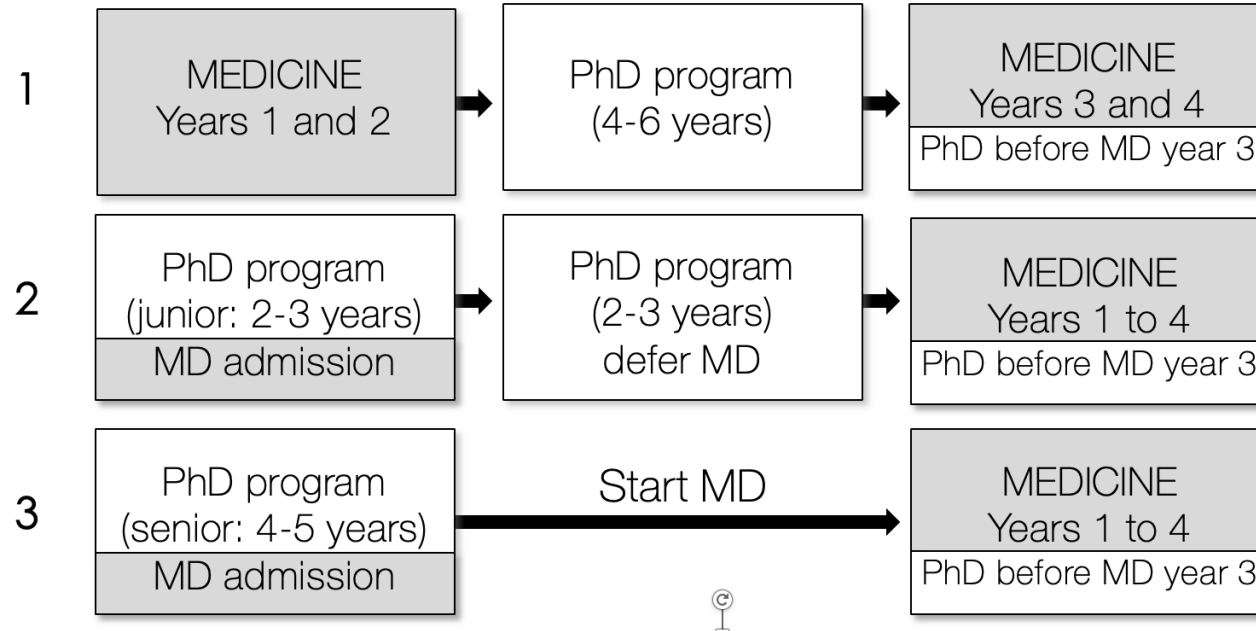
Should I start a graduate degree if I am planning on applying to the MD program?

Frequently asked question

Should I start a graduate degree if I am planning on applying to the MD program?

The structure of the MD/PhD (and upcoming MD/MSc) program is designed to accommodate students in graduate programs so they can complete both degrees

MD/PhD program structure



- Path 1: notify of intent by October of MD year 2; apply by November
- Paths 2 and 3: course work and candidacy completed before starting MD
- All paths require that the PhD be completed and defended before starting clerkship (MD year 3)
- PhD at UofA; not necessarily within FoMD but medically-related
- Meet all PhD requirements of doctoral program (not a specific MD/PhD doctoral stream)
- MD/MSc will be structured similarly

Other paths to becoming a physician-scientist

- Clinical Investigator Program (CIP); carried out in residency; supported by the Royal College of Physicians and Surgeons of Canada; MSc and PhD options
- MSc level degrees (thesis or course based), including Masters in Public Health (MPH)
- Research Fellowships that do not lead to degrees
- Prior graduate degree

Other considerations

- Know your options regarding training paths and career opportunities; understand what the career entails
- Be informed of processes and requirements for different training programs
- Be proactive; map out where you want to go and how best to get there (develop the necessary skills)
- Seek advice and mentorship along the way
- Be realistic

Contact information

- Contact me: **alan.underhill@ualberta.ca**
- Contact the FoMD Graduate Programs Advisor:
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