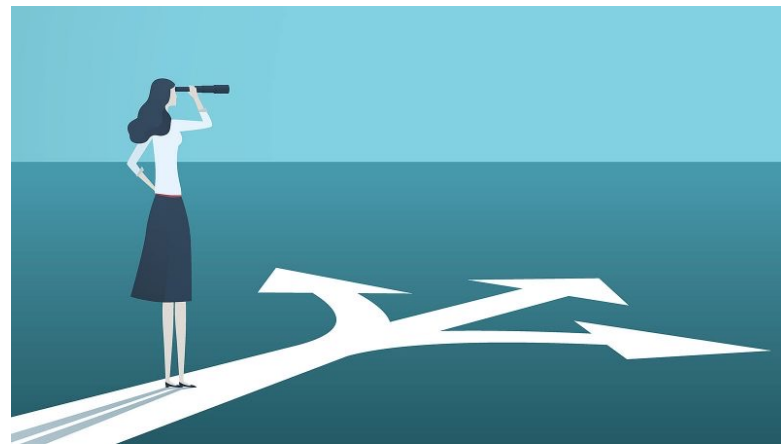


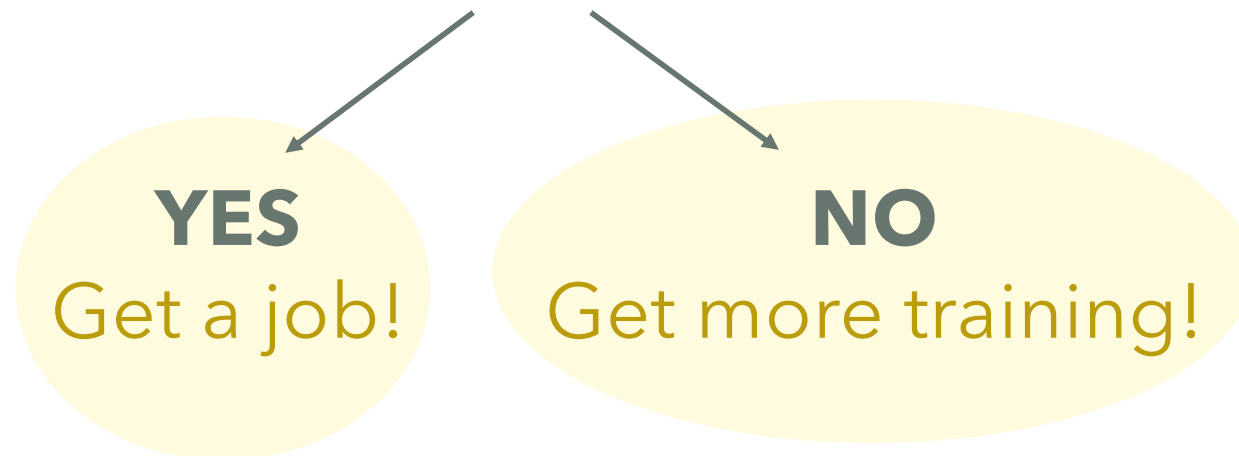
Graduate School 101

Info Session & Panel



Justin Liefer & Julia Riley
Biology Department
Mount Allison University

Is my BSc degree enough?
Can I accomplish my career goals with it?



***This slide show will be available on the MTA
Department of Biology website
under "Courses and Program"***

DISCLAIMER

Our target audience is students interested in earning a Master's or Doctorate degree in the natural sciences:

- Biology
- Chemistry
- Geology
- Environmental Science
- Physics

or interdisciplinary science/humanities fields:

- Psychology
- Anthropology
- Geography

Graduate studies in these fields differ from professional schools (e.g., medical, veterinary, or dental school, teacher's college, etc.) but most advice on preparation applies to both.

Career planning resources at MTA

Lots of resources offered by the Experiential Learning and Career Development Office

- 1-on-1 career advising sessions
- Programs that help you figure out interests and possible career paths
- Career Week is next week, Oct. 2-6!
- See the last slide of this presentation for more details

Find out more or book an advising session at

<https://mta.ca/current-students/experiences-and-career/career-planning-and-resources>
or look for "Career Planning and Resources" under Current Students on the main MTA website

Reach out by email to **careers@mta.ca**

Have you wondered about graduate studies?



What has "school" meant until now?

- Often paid for, motivated, and selected by your parents
- Based on course-work: Acquiring information & Measuring proficiency through tests and reports
- Emphasis has been on knowledge, some skill development, and being evaluated through grades



Graduate Studies

How do they differ from an undergraduate?

The graduate learning environment is **advanced**, **focused** and **scholarly**

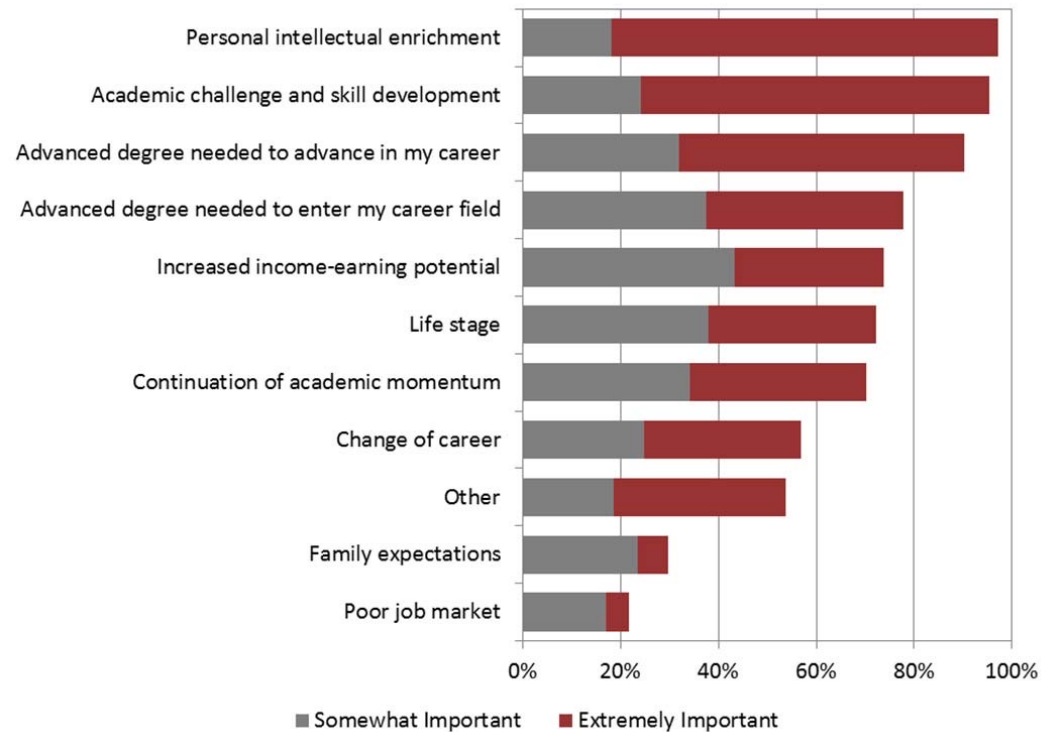
- It is **advanced** because it builds upon an undergraduate education.
- It is **focused** because the emphasis in graduate studies is in depth.
- It is **scholarly** because it is concerned not simply with the acquisition of knowledge and skills, but with the critical analysis of existing knowledge and the creation of new knowledge.

Expectations vary between programs, but in general students will take on acquiring and applying advanced analytical and interpretive skills, as well understanding and/or producing research.

Graduate Studies

Factors listed as "Somewhat" or "Extremely" important for students deciding to begin graduate study now

(in descending order by sum of "Somewhat" & "Extremely" important for all respondents)



From 2011.

Graduate Studies

What are the options?

(1) Professional Programs

- Training in specialized skills and qualifications for a specific profession (i.e., speech-language pathology, science communication, MBA programs)

(2) Master's Programs

- 2 years of full-time study after an undergraduate degree
- **Course-based:** A combination of required courses, practical placements, or capstone course/project
- **Thesis-based:** A combination of required courses and a thesis research project under the supervision an advisor

Graduate Studies

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Graduate Studies

What are the options?

(3) Doctorate Programs

- 4+ years of full-time study, usually after a Master's degree
- Typically an opportunity for a student to pursue research (e.g., thesis-based)
- In Canada it is possible for a Master's degree to feed into a doctoral program (non-terminal) or to start a doctoral program without completing a Master's program. Also, possible to pursue each program separately, one after the other (terminal).

Graduate Studies

Does financial support differ from an undergraduate?

Yes, for thesis-based degrees.

- A minimum master's or doctoral **stipend** typically required to be provided by your supervisor or other sources (scholarships) before acceptance into a program
- Graduate **teaching assistantships** are often offered to supplement income and give build a skillset as an educator
- You will still need to pay tuition, but at some institutions these costs may be waived depending on your GPA
- **Varies a lot.** It is an important topic to discuss with a potential supervisor during correspondence or an interview before you apply.

Graduate Studies

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Graduate Scholarships



Federal



**NSERC
CRSNG**

Master's Program

- Canada Graduate Scholarships (CGS-M): \$17,500 for 12 months
- Deadline is in Dec but also varies by institution

Doctoral Program

- Vanier scholarships: \$50,000 annually for 3 years
- Canada Graduate Scholarships (CGS-D): \$35,000 annually for 3 years
- NSERC Postgraduate Scholarships (PGS-D): \$21,000 annually for 3 years
- Deadline to NSERC in Oct but also varies by institution

An Upcoming Info Session for NSERC CGS-M



These virtual sessions will provide you with information about how to apply, how to prepare your application, tips for good applications, obtaining references, etc. You may attend any of the following identical information sessions (no RSVP required).

Weds 4 Oct, 2:30pm - 3:20pm AST [Click here to join the meeting](#)

Weds 18 Oct 18, 7:00pm - 8:00pm AST [Click here to join the meeting](#)

Fri 3 Nov, 11:30am - 12:20pm AST [Click here to join the meeting](#)

Graduate Scholarships



Federal

Mitacs

- Programs to support MSc & PhD students (and postdocs too)
- Needs to be in partnership with industry or a not-for-profit (NGO) organization
- Application procedure depends on institution

Graduate Scholarships



Provincial British Columbia

British Columbia Graduate Scholarship

- **MSc & PhD:** \$15,000 for one year
- Available to Canadian citizens and permanent residents
- Application procedures/deadlines vary by institution

Graduate Scholarships



Provincial Alberta

Alberta Graduate Excellence Scholarships (AGES)

- <https://studentaid.alberta.ca/scholarships/alberta-graduate-excellence-scholarship/>
- MSc & PhD: \$12,000 per year
- Application procedures/deadlines vary by institution (before the end of October)
- Available for international students too!

Albert Innovates Graduate Student Scholarships

- <https://albertainnovates.ca/programs/graduate-student-scholarships/>
- Student support for one of two eligible research areas: Information and Communications Technology & Advanced Materials and Manufacturing Technologies
- MSc: \$26,000 per year & PhD: \$31,000 per year
- Application procedure by institution

Graduate Scholarships



Provincial Manitoba

Master's Studentships - Research Manitoba

- <https://researchmanitoba.ca/funding/programs/masters-studentship-award/>
- MSc: \$12,000 for one year
- Deadline: November
- Apply directly to Research Manitoba

Graduate Scholarships



Provincial Ontario

Ontario Graduate Scholarships

- <https://osap.gov.on.ca/OSAPPortal/en/A-ZListofAid/PRDR019245.html>
- \$10,000 for 2 terms & \$15,000 for 3 terms
- Issued for up to 2 years (MSc) and 4 years (PhD)
- Application rules and deadlines vary by institution
- Available to international student support!

Graduate Scholarships



Provincial Ontario

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- <https://osap.gov.on.ca/OSAPPortal/en/A-ZListofAid/PRDR019245.html>
- \$10,000 for 2 terms & \$15,000 for 3 terms
- Issued for up to 2 years (MSc) and 4 years (PhD)
- Application rules and deadlines vary by institution
- Available to international student support!

Graduate Scholarships



Provincial Quebec

Fonds de recherche du Québec - "FRQ-NT"

- <https://frq.gouv.qc.ca/>
- MSc: \$17,500/year for 6 terms (2 years)
- PhD: \$21,000/year for 12 terms (4 years)
- Require a valid Quebec Health Insurance card and must have been registered at a Quebec institution for at least 2 terms of the previous 3 terms.

Graduate Scholarships



Provincial New Brunswick

New Brunswick Innovation Fund

- <https://nbif.ca/graduate-scholarships/>
- Matching funds for those receiving tri-council funding (NSERC, SSHRC, or CIHR) up to \$7,000
- Nominated by your institution: one-time award of \$6,000
- Applying under social innovation or STEM option: one-time award of \$4,000
- Application is completed through institution

Graduate Scholarships



Provincial Nova Scotia

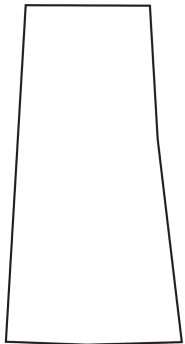
Nova Scotia Graduate Scholarships

- MSc: \$10,000 per year for 2 years
- PhD: \$15,000 per year for 4 years
- Adjudication completed through institution
- Option for international student support!

Graduate Scholarships

Provincial

?



Graduate Scholarships

Other

- Once you decide on an institution, search for and/or ask your potential supervisor about **institutional scholarships**
- Once you know where you will be based, it will be worthwhile to look for local scholarships and awards (e.g., offered by NGOs)
- For overseas graduate studies, look for **international scholarships**

Graduate Studies

The bottom line on cost for thesis-based grad studies

- These programs should pay a salary (stipend), but this funding must come from one or all of the following sources
 - **scholarships you apply for and receive**
 - **Funding provided by your supervisor**
 - **Teaching assistantships**
- **How will get this funding is something you should discuss with a supervisor after they have expressed interest in supervising you**
- **Tuition and fees are a separate cost that you may have to pay, depending on the institution or what scholarships you receive**



Questions?

What doors could grad studies open?

Graduate degrees are not just preparation for the glorious life of an academic, but for many other careers as well.

- Municipal, provincial, and federal government work (including parks)
 - Environmental monitoring
 - Technology development
 - Regulatory work (environmental compliance, food safety, water quality)
 - Natural resources (fisheries, forestry, mining, wildlife management)
 - Public Policy
- Private sector work
 - Engineering and chemical research
 - Agriculture and aquaculture
 - Environmental consulting firms
 - Medical or biotechnology research

What doors could grad studies open?

- Non-profit work
 - Renewable energy resources
 - Conservation and environmental advocacy
 - International development
- Academic
 - Faculty and instructors
 - Research technicians
 - Administration
- Other
 - Science journalist
 - Scientific illustrator
 - Data scientist

Fun fact: The number of PhDs working outside academics is now equal or greater than the number in academia.

+ A MSc greatly increases the number of opportunities and pay ceiling and mobility between fields

So, you've decided to pursue graduate studies...

Preparing for Graduate School

- Best way to prepare for graduate school and succeed once you're there is to **learn how to educate yourself!**
- **Autodidacticism = Self-teaching**
- Autodidacticism is not a skill, it is a frame of mind. Be patient with yourself as a teacher and student.
- Read scientific literature to figure out what topics interest you and what potential mentors are doing
- **Ask yourself, what kind of work interests and suits you?**
Field work | Laboratory work | Applied work | Data science and statistics

What can you show that demonstrates your value?

Preparing for Graduate School

- **Grades**
- **Research experience**
- **Letters of Recommendation**
- **Test Scores** (e.g., Graduate Record Examination - GRE- in USA)
- **Extracurricular activities** (e.g., membership in academics, societies, relevant non-profit work)

What can you show that demonstrates your value?

Grades

- Grades are very important, but not the only criteria that matters
- It is very difficult to get into graduate school if your GPA is below the minimum requirement (varies among institutions)
- A strong applicant can get by with a GPA near the minimum required for graduate school
- Potential mentors, and often scholarship competitions, focus more on your grades from 3rd or 4th year within your major

What can you show that demonstrates your value?

Research Experience

- If you have decent grades, research experience is the next most important thing to acquire
- Honours research, independent studies, internships, volunteering in research labs, summer job experiences, etc.
- **It proves you can...**
Do self-motivated research | Work competently in your field and with others | Complete a project
- **Publish work if you have the opportunity!**

What can you show that demonstrates your value?

Letters of Recommendation (LOR)

- Your professors will have difficulty writing you a recommendation if they don't know who you are
- LOR = a message from one scientist to another saying a student is worth their time and investment
- No-one can speak to your qualities in a LOR better than someone who has supervised you during research or independent work
- Talk to your professors, participate in class by asking questions during and after class (about the course topic, careers, life, whatever). **Engage in your education!**
- Give plenty of lead time when requesting an LOR (2-4 weeks)

Other Tips & Tricks

- Keep track of what you've accomplished
- Keep an eye out for workshops (likely at your institution) about scholarships
- Look up and keep in a diary/spreadsheet the deadlines for each scholarship to stay on track. Make a plan for when you will start work on each.
- Get help from your community (e.g., your research lab, friends, etc.)
- If you aren't successful at first, keep trying! Persistence often pays off.



Questions?

Finding a Graduate School

Two main routes:

Advertised Position

- Professors will advertise graduate positions for research projects they have funding for
- If there is a lab or supervisor that interests you, then check on their website or follow on social media
- Pay attention to any application instructions in the advertisement.
- Reach out to contact on ad if you have any questions.

Secure Your Own Funding

- For most scholarship applications you need to identify a host institution and supervisor
- You will need to approach a potential supervisor and ask whether they will support you
- If you are proposing your own research project, outline your plan to secure scholarship and research funding

Finding a Graduate School

Where can I find advertised positions?

- **Websites of professional societies or scientific journals** - these often have job boards that advertise grad student opportunities
- **Email lists or listservs** - require finding out how to request membership, but can be very valuable
- **Science or academic job board websites** - depending on how specific they are to a field or country, this can be a “needle in a haystack” search
- **Ask faculty members** whose research interests that are closest to your own about websites of professional societies, /journal to check or email lists to join

Finding a Graduate School

Where can I find advertised positions?

Websites of Professional Societies or Journals

- Canadian Society for Ecology and Evolution
- Canadian Society of Zoologists
- Canadian Society of Environmental Biologists
- Canadian Society for Molecular Biosciences
- Bioinformatics.ca

Email Lists or Listservs

- EvolDir, McMaster University
- PlanktonNet on groups.io

Science or Academic Job Boards

- Workcabin.ca - conservation jobs
- University Affairs
- Eco Job Boards (www.ecojobs.ca)
- Chronical Vitae or HigherEd Jobs (very broad, general, and US-focused)

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Other questions you may ask yourself...



Other questions you may ask yourself...

- *Is there a particular part of the world or country you want to be based?*

Personal preference is important to consider; perhaps you want to explore the world, study a particular ecosystem or animal, or you would like to stay close to family or already have local collaborations you will build on.

- *Is there a particular research topic that interests you?*

Do a little research (e.g., Google Scholar) about that topic. Are there researcher names that keep coming up? Read a few papers and see if the work interests you.

- *Is there a particular skillset you would like to develop?*

Do a little research to learn who the experts are in that skillset or have facilities available & whether they may be in a position to take on a graduate student.

But, for research, isn't it more important who you work with?

- You can think of graduate school as an apprenticeship. **Who** you work with is more important than where you go to school!
- How to evaluate a potential mentor:
 - Are you interested in their work?
 - Do they have an active research program (current funding, publications, or other students or postdocs)?
 - Do they have past success (with finding funding, publications, books, successful former students)?
 - Can they support you with a stipend and tuition?
 - Do they seem interested and supportive in person?
 - Do they have potential projects in mind? Are they also encouraging of you garnering the research to your own interests?
 - Do their current and former students speak highly of them?

The part of the “where” that counts

- Stipend and support (**warning:** *it will suck wherever you go or whichever scholarships you may be awarded*)
- Find out about available scholarships & funding for meetings/travel/research
- Cost of living
- The diversity of potential projects. Are there other good researchers at the institution?
- Benefits: Health care, day care, union, etc.
- Quality of life
- **Note:** You should always be paid a stipend and have a proportion of your tuition covered (sometimes through TAing) in a research graduate program

The Application Process

How do you reach out to a supervisor?

- Most research-based graduate degrees require that you have the support of a supervisor before they will accept an application to the institution
- Your prospective supervisor will often help guide you through applications to scholarships, research funding, and the degree program
- Start by researching your prospective labs and supervisors (e.g., on social media, websites, and Google Scholar)
- Take note of whether they have requirements for students approaching them to ask about graduate positions
- Start with an email (with any required info or attachments) explaining why you want to pursue grad studies in their lab, what your ideal research plan is, and to ask for an initial meeting

The Application Process

What should be in the email?

- You want to come off as professional and serious -> *similar to a cover letter*
- Refer to them as **Dr.** Last Name

In your email:

- Introduce yourself
- Share your personal and career motivations for pursuing graduate studies
- State your experience with research so far and give concrete examples
- Make it clear why you want to pursue research in their lab and with them
- Give an example of a research project you want to pursue, and the funding you will apply for to make it happen
- Include any attachments they ask for on their website, but at least include a CV and unofficial transcripts

The Application Process

General Considerations

- Lean on your peers to proofread your email, CV, cover letter and application. *It will be worth taking great care in this initial step. First impressions are everything.*
- Consider reaching out to multiple potential supervisors. *Don't put all your eggs in one basket.*
- *Look into what the application requirements and timeline are at your intended institution.* You may need additional qualifications than simply an undergraduate degree (e.g., a particular GPA threshold, the GRE in the USA). Make note of the timeline early and discuss with a potential supervisor.

The Application Process

The Application & Getting In!

Start building your application packet now!

- Get good grades and research experience
- Build strong connections and be able to get good LORs
- Start doing your own research into your field of interest. Read primary literature!

Start your search and applications early.

- Contact potential supervisors well ahead of time. In Canada, aim for the end of October, so NSERC scholarship can be prepared well in advance.
- Be ready to pay some application fees
- Be professional, humble, and confident

Highlighting A Few Things to Remember

- There are many options for pursuing graduate studies, but they don't align with everyone's career goals
 - There are international, federal, provincial, and institutional opportunities for scholarships
- Research your options for labs, supervisors, institutions, and funding. Make a potential plan but be flexible.
 - Be choosy. Take time to feel out what is best for you and talk current/past members of labs. Be mindful of red flags and listen to your intuition.

Resources from MTA Experiential Learning and Career Development Office

- **Individual career advising**
 - Book a 1-on-1 session at the Career Planning and Resources website listed below
- **Online programs to help you figure out your interests and possible career paths**
 - Assess your interests with [O*Net Interest Profiler](#)
 - Explore career paths with [Career Cruising](#) (username: mount / password: allison)
- **Career Week is next week, Oct. 2-6** (find the schedule at <https://experience.mta.ca>)
 - M: Resume & Cover Letter Workshop, 3pm, Dunn 106**
 - T: Pizza Lunch & Learn: Networking, 12noon, Avard Dixon G10**
 - Drop-in Resume Review, 2-4pm, The Pond**
 - W: Career Fair, 11am-3pm, Gracie's**
 - CPA Atlantic School of Business Info Session, 3pm, Dunn 108**
 - Ron Buckle Leadership Panel & Reception, 4-6pm, Purdy Crawford Centre**
 - Th: Pizza Lunch & Learn: LinkedIn 101, Avard Dixon G10**
 - F: ELCD Office Drop-in Donuts, 9-11am, WMSC 203**

Find more resources or book an advising session at

<https://mta.ca/current-students/experiences-and-career/career-planning-and-resources>

or look for "Career Planning and Resources" under Current Students on the MTA website



Questions for our panel?