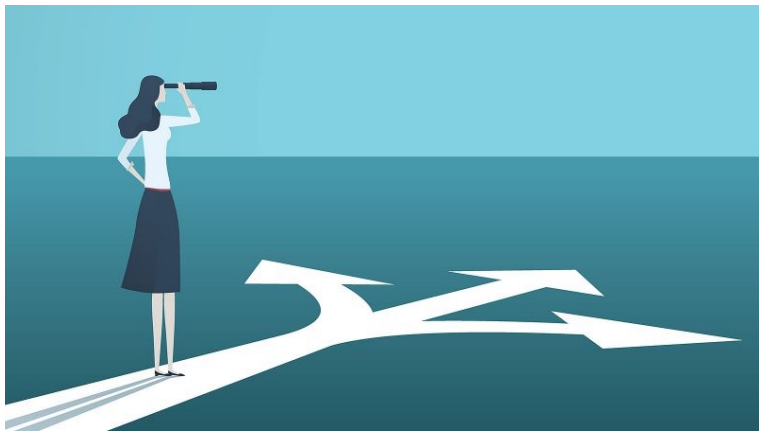
Graduate School 101

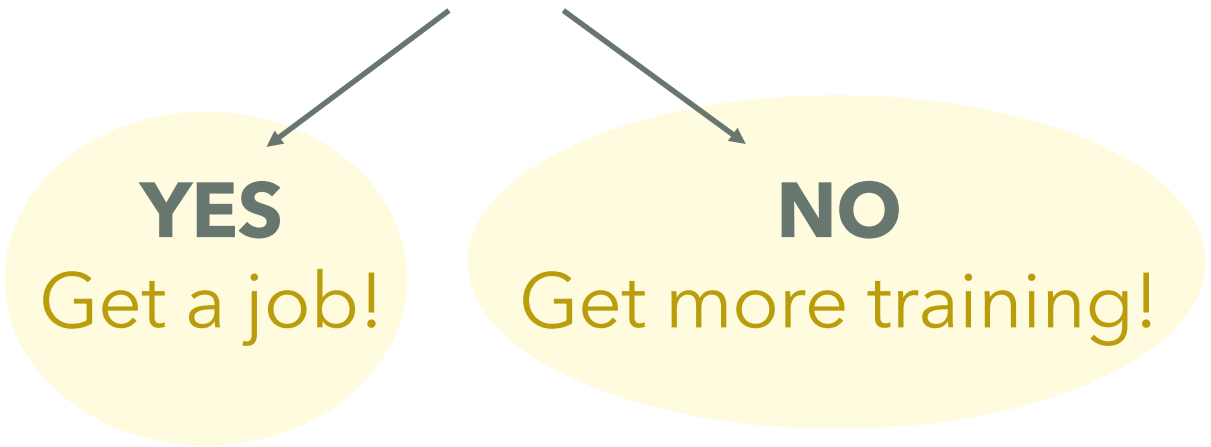
Info Session & Panel



Dr. Loay Jabre & Dr. Julia Riley
Biology Department
Mount Allison University

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

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



Who is this for?

Our target audience is students interested in earning a graduate (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., medicine, veterinary, dentistry, teacher's college) but most advice on preparation applies to both.

Have you wondered about graduate studies?



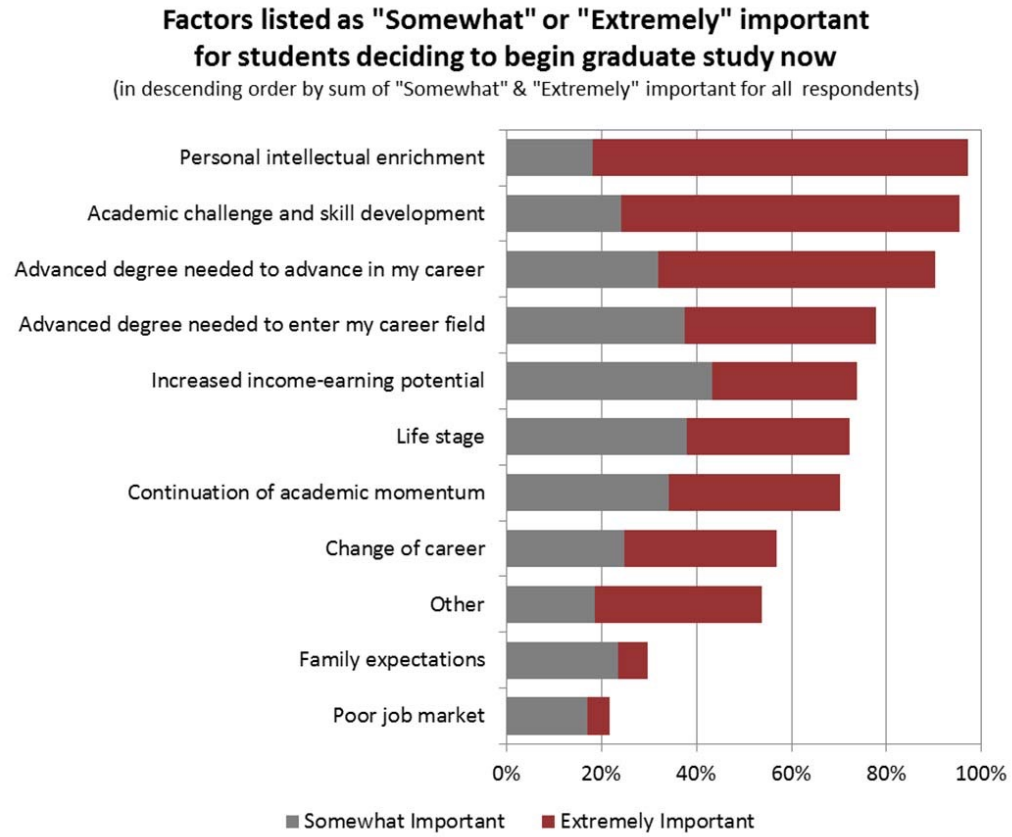
Graduate Studies

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 with critical analysis and the creation of new knowledge, not just learning existing knowledge

Graduate Studies



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

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 undergraduate degree
- **Course-based:** Combination of required courses, practical placements, or capstone course/project
- **Thesis-based:** Combination of required courses (few) and a thesis research project under the supervision an advisor

Graduate Studies

What are the options?

(3) Doctorate Programs

- 4+ years of full-time study, usually after a Master's degree
- Typically focus on independent, original research
- In Canada it is possible for a Master's degree to feed into a PhD program or to start a PhD program without completing a Master's. Also, possible to pursue one program after the other.

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 Research Scholarship – Master's (CGRS-M): $27,000 for 12 months
- Deadline is in Dec, but varies if you apply through an institution

Doctoral Program

- Canada Graduate Research Scholarship – Doctoral (CGRS-D): $40,000 /year for 3 years
- Deadline to NSERC in Oct, but also varies if you apply through an institution

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)
- Application procedure depends on institution

Graduate Scholarships

Provincial

*Additional slides at end of presentation with more details

- British Columbia Graduate Scholarship
- Alberta Graduate Excellence Scholarship
- Alberta Innovates Graduate Student Scholarship
- *Research Manitoba* - Master's Studentship Award
- Ontario Graduate Scholarships
- *FRQNT* – Master's & Doctoral Training Scholarships
- *Research NB* – Student Support Fund (PI must apply)
- O'Brien Foundation Fellowships (NB)
- ~~Nova Scotia Graduate Scholarships~~

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 to 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 prepare you for careers beyond academia:

- Government
  - Environmental monitoring
  - Technology development
  - Regulatory work (environmental compliance, food safety, water quality)
  - Natural resources (fisheries, forestry, mining, wildlife management)
  - Public policy
- Private sector
  - Engineering and chemical research
  - Agriculture and aquaculture
  - Consulting
  - Biotechnology

What doors could grad studies open?

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

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

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

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

Preparing for Graduate School

- Best way to prepare for and succeed in graduate school is to learn how to educate yourself!

- Read scientific literature to find 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 programming |

  Everything?

What can you show that demonstrates your value?

Preparing for Graduate School

- **Academic performance (e.g. grades)**
- **Research experience**
- **Letters of Recommendation**
- **Test Scores** (e.g., Graduate Record Examination – GRE- in USA)
- **Extracurricular activities** (e.g., societies, volunteering, etc.)

What can you show that demonstrates your value?

Grades

- Grades are 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)
- Strong applicants can be admitted with a GPA near the required minimum
- Potential mentors, and often scholarship competitions, focus more on your grades from 3rd or 4th year within your major

What can you show to demonstrates your value?

Research Experience

- If you have good grades, research experience is the next most important thing to acquire
- Honours research, independent studies, internships, volunteering in research labs, summer jobs, etc.
- It demonstrates 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)

- LOR = a message from one scientist to another saying a student is worth their time and investment
- Professors will have difficulty writing you a recommendation if they don't know you
- 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

- Track your accomplishments and **build your CV early**
- Attend scholarship, and other workshops (likely at your institution)
- Look up and keep a diary/spreadsheet of deadlines for each scholarship to stay on track. 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 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 social media
- Pay attention to 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 align with yours about websites of professional societies, journals, colleagues, 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)

Finding a Graduate School

Two main routes:

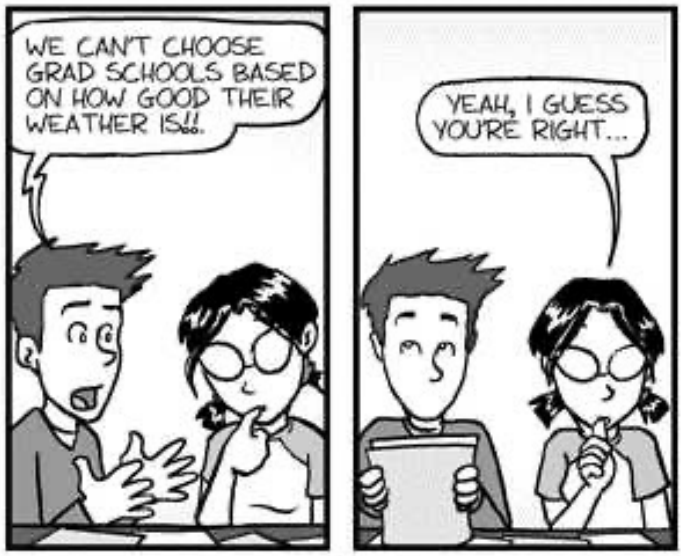
Advertised Position

- 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.
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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 research idea and plan to secure scholarship and research funding

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.

It's also important *who* you work with?

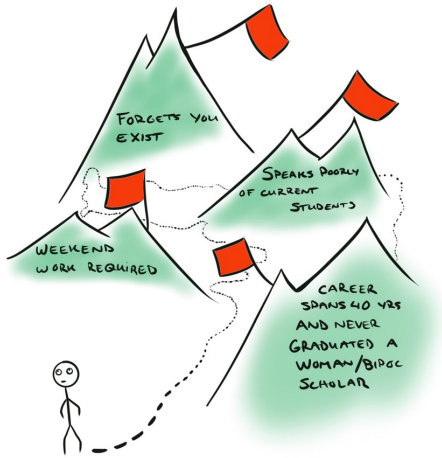
- You can think of graduate school as an apprenticeship. **Who** you work with is sometimes more important than *where* you go to school!

- How to evaluate a potential mentor:
  - Are you interested in their work?
  - Do they have an active research program (funding, publications, students or postdocs)?
  - Do they have past success (with finding funding, publications, 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?

It's also important *who* you work with?

How do you choose a graduate supervisor?

Rule 1: Align research interests
Rule 2: Seek insider feedback
Rule 3: Clarify expectations
Rule 4: Interview them mutually
Rule 5: Evaluate workstyle compatibility
Rule 6: Consult their current students
Rule 7: Consult their past students
Rule 8: Consider your holistic well-being
Rule 9: Trust your gut instincts
Rule 10: Compare multiple options



PLOS COMPUTATIONAL BIOLOGY

EDITORIAL

Ten simple rules for choosing a PhD supervisor

Loay Jabre*, Catherine Bannon, J. Scott P. McCain, Yana Eglit

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These authors contributed equally to this work.
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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?

- Research-based graduate degrees typically require a supervisor's support before accepting your application.
- Supervisors will often guide you through program, scholarship and funding applications.
- Research your prospective labs and supervisors (e.g., on social media, websites, and Google Scholar)
  - Note requirements for students who reach out about graduate positions
- Start with an email (with any required info / attachments) explaining why you want to pursue grad studies in their lab, your research plan, and 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 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 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, GRE for some USA programs). Note the timelines 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
- Do 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 mid-end of October, so NSERC scholarship can be prepared well in advance.
- 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.



Questions for us & our panel?

2026 Panel Members & Contacts

Dr. Corinne Cash: ccash@mta.ca
Associate Professor, Department of Geography and Environment

Naaman Omar: nomar@mta.ca
PhD student, University of New Brunswick

Mathilde Christjansen: mchristjansen@mta.ca
MSc student, Mount Allison University

Dr. Loay Jabre: ljabre@mta.ca
Assistant Professor, Department of Biology

Dr. Julia Riley: jriley@mta.ca
Associate Professor, Department of Biology

Extra Information

Provincial Scholarship Information



Provincial
British Columbia

British Columbia Graduate Scholarship

- **MSc & PhD:** $17,500 for one year
- Available to Canadian citizens and permanent residents
- Application procedures/deadlines vary by institution

Provincial Scholarship Information



Provincial
Alberta

Alberta Graduate Excellence Scholarships (AGES)

- https://studentaid.alberta.ca/scholarships/alberta-graduate-excellence-scholarship/
- MSc & PhD: $11,000-15,000 per year
- Application procedures/deadlines vary by institution (before the end of October)
- Available for international students too!

Alberta Innovates Graduate Student Scholarships

- https://albertainnovates.ca/programs/graduate-student-scholarships/
- Student support for graduate students researching emerging technologies
- Range from $12,000 to $31,000 per year
- Application procedure by institution

Provincial Scholarship Information



Provincial
Manitoba

Master's Studentships – Research Manitoba

- https://researchmanitoba.ca/programs/masters-studentship/
- MSc: $20,000 for one year
- Deadline: December
- Apply directly to Research Manitoba

Provincial Scholarship Information



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!

Provincial Scholarship Information



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.

Provincial Scholarship Information



Provincial
New Brunswick

NB Research: Student Support Fund

- https://researchnb.ca/programs/ssf/
- Relies on the PI to apply

The O'Brien Foundation (NGO)

- https://www.obrienfoundation.ca/en/home
- Need to have resided in NB for 5 years or more
- Unspecified amount (likely around $10-15K) for one year