

Navigating Graduate School Applications and Decisions

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Types of Graduate Programs (in Math and Stats)

- ▶ Masters/PhD in Math/Applied Math
Typical Placements: College or University Teachers/Faculty, with some crossover into industry
- ▶ Masters/PhD in Statistics
Typical Placements: University Faculty, with much more crossover into Industry (Finance, Data science, Artificial Intelligence, Biotech) or Government and Non-Profits

In Europe, Canada, Masters is typically a separate program from PhD. In the States, for the “pure subjects” Masters/PhD is combined in one program (so you would apply for the PhD program directly, even without a Masters degree).

There has been a growing presence of Masters (and PhD) programs in more specialized fields, such as on the next slide.

Types of Graduate Programs (related to Math and Stats)

- ▶ Masters/PhD in Computer Science, Data Science, Machine Learning, Artificial Intelligence
Typical Placements: University Faculty or Industry
- ▶ Masters/PhD in Operations Research, Economics, Financial Math
Typical Placements: University Faculty or Industry
- ▶ Masters/PhD in Math-Intensive Fields: Biostats, Computational Bio, Physiology, Physics
Typical Placements: University Faculty or Industry (Biotech)

There is a small number of jobs requiring these degrees in government agencies, think tanks, large non-profits. Look out for those as well!

Ingredients for a Strong Application to Graduate School

- ▶ Having a strong foundation in coursework, with solid grades. (Note: The title of your major does not carry as much weight as you think.)
- ▶ Building relationships with your teachers, who can write personalized reference letters.
- ▶ Having some type of research/independent study experience.
- ▶ Being involved in your department/community (grad schools want to admit students who will make their departments a better place!)

There is no magical GPA+research experiences+activities formula that guarantees anyone a spot in any given graduate school. Graduate school admissions (and many future admissions/offers) will most likely be based on fit.

If the program is funded, how that funding works

- ▶ Some of Canada and Europe: Funding is typically tied to a specific faculty member. When you apply, you are essentially trying to pique the interest of a faculty member. This faculty member is your supervisor.
- ▶ US and Some of Canada: Funding is done at the departmental level. This means your application goes to a general committee (of math/stats faculty) who then makes decisions regarding your admissions, and there is more flexibility (usually you are required to choose a supervisor within 1-2 years).

Most departments say something on their website about how students are funded, and it is very reasonable to ask this question to a department you are applying to, as you may want to tailor your application based on this funding.

External Funding Opportunities

You are strongly encouraged to apply for external funding opportunities. These fellowships give you much more flexibility for who you might work with and where you might attend (very few schools will turn away someone who is awarded a graduate fellowship). These fellowships are however very competitive and typically require you to be “on the ball” with a separate application process.

- ▶ Canadian Students (with Canadian PR/citizenship): NSERC Graduate Fellowships
 - ▶ Masters in Canada (CGS M)-Apply as Undergrad or Masters
 - ▶ PhD in Canada (CGS D)-Apply as Masters or PhD
 - ▶ PhD in Canada or Abroad (PGS D)-Apply as Masters or PhD
 - ▶ FRQNT Graduate Fellowships
 - ▶ Ontario Graduate Scholarship Program
- ▶ US Students (with US PR/citizenship): National Science Foundation Graduate Research Fellowships (only applies for your graduate studies in the US)-Apply as an undergrad, and only one chance to apply as a graduate student

All have early application deadlines!

General Pointers in Preparing Your Application

- ▶ Do not try to be someone you are not.
- ▶ Do not be too definitive about what your future will be (e.g. a specific problem/subfield within a general area of math, unless you have prior research reasons to believe you are destined to be a specialist in _____).
- ▶ Show that you have thought carefully about your decision to apply to graduate school, and specifically, the graduate schools you chose to apply to.
- ▶ Present yourself as mature not only in a personal/social sense, but also in your mathematical background and interests.
- ▶ Take the preparation of your application materials seriously, aiming for polished documents. The usual advice for writing applies: start well in advance, go through a few rounds of edits, ask others for comments, proofread carefully, etc.

CV

Your CV should come across as clean and professional. For an academic CV at your stage, you might want to list:

- ▶ Degree program and GPA
- ▶ Coursework
- ▶ Mathematical Interests
- ▶ Supervised reading or research projects
- ▶ Publications/preprints, if there are any
- ▶ Employment experience
- ▶ Extracurricular activities that demonstrate leadership

There are plenty of templates for CVs online and you can also contact McGill Caps for additional resources:

<https://www.mcgill.ca/caps/students/prepare/cv>

Statement of Purpose

The statement of purpose is a very nice opportunity to have a voice in your application.

- ▶ Do not start your statement talking about how ever since you were a kid, you loved numbers and math.
- ▶ Convey that you are flexible, open-minded, and ready to learn more.
- ▶ Present yourself as qualified, without coming across as a primadonna.
- ▶ Use explicit sections to make it easier for people to read and navigate your statement.
- ▶ Have a section/paragraph that is devoted to what attracts you about that specific school program: list faculty, talk about specific features of the program to show you have done your research.

Requesting Letters of Recommendation

Letters of recommendation are an important aspect of your application. You should aim to select letter writers from a variety of contexts (from classes, research projects, etc).

We had a *Letters of Recommendation Event* this past Monday, find the slides from that by going to <https://www.mcgill.ca/mathstat/eosw>, then clicking on *Resources for Undergraduate* (or *Graduate* if that is your case) *Students* then *Academic/Employment* then *Recommendation Letters*.

After You Have Submitted Your Application, and Email Etiquette

Generally, if there is a school you really have your heart set on, it is a good idea to send an email to a faculty member whom you might be particularly interested in working with. In this email:

- ▶ Introduce yourself. Have your CV attached. Let them know kindly that you have recently applied to their program, and you are interested in their research.
- ▶ Let them know you'll be available to talk if they have any further questions about your application.
- ▶ Make the email concise, and thank them for their time.

Do NOT be alarmed if you do not hear a response, and definitely do not follow up if you do not hear a response.

Upcoming Event

Monday, October 30th, 4:00-5:30 PM in BURN 920: Career Panel with McGill Alumni (with bachelors degrees)

The End. Good Luck!