Navigating Graduate School Applications and Decisions

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Types of Graduate Programs (related to 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, AI, Biotech)

- Masters/PhD in Operations Research, Economics, CS
  Typical Placements: University Faculty, with much more crossover to Industry (Finance, Data science, AI, Biotech)

- Masters in Math Intensive Fields: Financial Math, Data Science, Biostats, Computational Bio
  Typical Placements: Industry (Finance, Data science, AI, Biotech)

In Europe, Canada, Masters is typically a separate program from PhD. In the States, Masters/PhD is combined in one program (so you would apply for the PhD program directly, even without a Masters degree.)
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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 then becomes 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.
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 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.
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.) Some things to keep in mind:

▶ Email professors well in advance (minimum 1 month from deadline) to ask if they would be willing to write a support letter.

▶ Make it easier on them. I typically ask all students to send me 1 email that contains: CV, transcript, statement of purpose, and a list of all deadlines for all schools they plan to apply to. Make it easily organized so it is easy for them to find!

▶ Aim to ask faculty who know you more personally, and have taught you more recently.
After You Have Submitted Your Application and Emails

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.
The End. Good Luck!