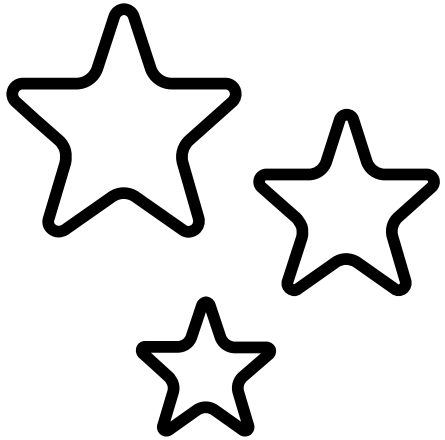
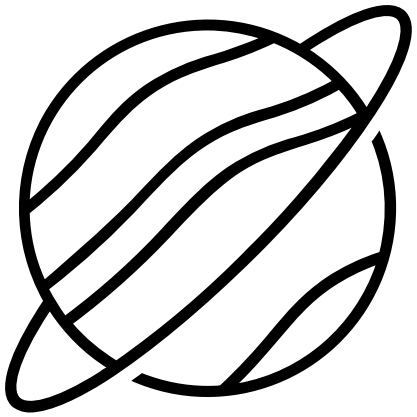
# Applying to graduate school in astronomy (or physics!)

By your friendly neighborhood DADDAA graduate students





# Who we are (we're first year PhD students)

## Michael

- <3 planets
- *Did an Astronomy and Physics double major here at U of T*
- Best equipped to answer questions about domestic apps or undergrad here
- **Let Mairead make the entire PowerPoint**

## Mairead

- Stars, computational science
- Undergrad in physics
- Best equipped to answer questions about deferring admission, US grad apps or programs in the US

# A brief overview

What are we even talking about?

# “Graduate School”

## PhD programs

- Direct entry: 5+ years (~2 of courses, ~3 of thesis research)
- Otherwise, enter with masters, ~3-4 years of thesis research
  - Less common in US
- Funded (stipend + tuition) in CA and the US
  - UK and Europe: direct entry uncommon. Identify a supervisor who agrees to fund you before applying.
- Required for most academic positions

## Master’s programs

- 1-2 years of courses and/or thesis research
- Typically, unfunded in the US
- Funded in CA

## PhyAst

Physics dept., Astronomy dept., or PhyAst?

- Different course requirements, different research breadth/depth, different ethos
  - Be prepared to take E&M, quantum, etc. in a physics department
- Beware the PGRE

## Summer before 4th year

- Ask for letters of rec
- Research schools
- Start scholarship apps
- Start drafting personal statement

Most scholarship apps are due in October and November

## Fall of 4th year

- Get feedback on statement
- Apply to schools
- Apply to scholarships

## Winter of 4th year

- Finish applying
- Interviews

Most grad school apps are due between Dec. 15th and Jan. 15th

US Decision Day is April 15th. US schools cannot ask you to commit before that!

## Spring of 4th year

- Visit schools
- Decide!

# Choosing where to apply

# Seriously, make a spreadsheet or some other way to keep track

# Where to apply:

# Science/program considerations

## To get an initial list

- Ask your supervisor and profs!
- Where do the authors of interesting papers work?
- Literally anywhere you've heard of that seems interesting. Don't write anywhere off too early!

## To narrow it down

- Do they have 2-3 profs you would work with?
  - Look at their recent 1st and 2nd author papers
- What is important to you?
  - Methodology: emphasis on data science, computation, observation, physics
  - Breadth versus depth

# Personal considerations

Grad school is long! It's important to like where you live.

- Location
  - City, rural, college town
  - Proximity to friends and family
  - Immigration (self and family/partner)
- Culture
- Political climate
- Access to necessary healthcare, family support, or social services

# Playing the game

Rule of thumb is to apply in a 2:3:2 ratio of safeties, matches, and reaches

Apply where your letter writers know people or where they went to grad school

Some subfields are more competitive, or more desirable, than others

Diversity statements can be a money maker! Don't write them off as unimportant.

There's no such thing as a true 'safety'. People get rejected from programs because they're under-qualified, overqualified, in an oversaturated subfield, subject to departmental politics, and so on. Grad apps are unpredictable!

# How to apply

Nuts and bolts

# Application requirements

- ✓ Transcript
- ✓ Personal statement
- ✓ 3 ±1 letters of recommendation
- ✓ CV
- ✓ $$$$$
  - ✓ https://www.btaa.org/resources-for/students/freeapp/introduction
- ✓ Standardized tests (GRE, PGRE)
  - ✓ List of schools by GRE requirement
- ✓ Diversity statement

Check whether you need an official or unofficial transcript.

US physics departments often want the PGRE, and almost all US departments will require the general GRE

# Personal statement

- 1-2 pages about your academic and research background, your research interests, and the specific school
  - Now is not the time to wax poetic about being 7 and seeing a constellation.
  - School specific paragraphs (1-2ish at the end) may be the only thing that changes!
  - Mention profs you want to work with, and why
  - How your skills/interests match the profs and program
- Start early
- Revise a lot. More than you think.
- Peers, advisor, writing center

# Asking for letters of rec

## Who do I ask?

1. Your current research advisor
2. Past research advisors
3. Profs in relevant courses who you have a relationship with
4. Academic advisor

## How do I ask them?

- Early
- Include your CV
- Offer to meet to discuss
- Give them a copy of your personal statement
- If it's time sensitive, tell them.

## What do I do next?

- Tell them the earliest deadline
- Give a concrete list of schools + deadlines
- Remind them!



*What if they say no?!*
It sucks! But it's better that they tell you than write a weak or damaging letter and send you on your merry way.

# Interviews

Not all schools do them!

Be genuine and be prepared

- What are you interested in, and why?
- Know your own research well! What did you do, why is it important, what were the results, etc.

Ask them about things that are important to you

- *It's okay to ask questions about things related to diversity and equality!*
  - Ex. How do your hiring practices reflect a commitment to supporting underrepresented groups in astronomy?

# How to decide

# Visits!

Go EVERYWHERE

It’s a free trip!! It’s a fun reward for apps sucking so much.

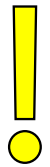
(It’s also helpful in deciding where to go)

# Some questions to ask about the program

- Structure
  - What is the course load?
  - What is the degree timeline? When do I need to find a supervisor?
  - What is the qualifying exam structure?
- Funding
  - How are graduate students funded? How many years do you guarantee funding?
  - How much do graduate students TA? What is required of TAs?
- Completion
  - How long do students take to graduate?
  - Do most students complete the degree?
  - What do graduates do next? Academia, government, industry, etc.

# Some questions to ask potential supervisors

- What projects do you have in mind for new students?
- How many students do you have currently? How many is typical for you?
- What is your supervisory style?
- What do you like/dislike about the department or program?
- In the US: Do you have funding, and for how long?



The last 3 years of a PhD in the US are typically funded by a research assistantship, which your advisor pays, so it's contingent on their grant funding. Not all supervisors have funding for students!

# Some questions to ask current grad students

- Department culture
  - Do people enjoy being in this program? Are they happy?
  - Are grad students friends with each other?
  - How many hours per week are you expected to work?
  - Do people have time for hobbies?
  - What don't you like about the department?
- Stipend—do not trust that a department will pay a living wage. Not all do.
  - Can you afford to live alone? Can you afford to have hobbies? Pets? A family?
- Concerns about diversity, sexism, racism, homophobia, etc.
- Mental healthcare and wellbeing

# Deferring

## How to defer

- After you're accepted, ask the department chair and/or admin
  - You do NOT have to provide personal or medical information when you ask (but you may be required to submit documentation to the graduate school)
- Ask early—some schools have deadlines to defer that are before decision day
- Some schools only allow deferrals for medical reasons

## Why defer?

- Medical or mental health reasons
- Family care
- Work experience or financial need
- If you think you would be more successful by deferring!
  - Wanting to reapply and get in somewhere better is a surefire way to get all offers revoked.

# Some last notes

- Getting into grad school is not the end all, be all.
  - You have to be healthy and happy enough to succeed in grad school once you go—don't run yourself into the ground before you even get there.
- Some programs will let you defer admission
  - It can't hurt to ask!

# Any questions?

| | CANADA | US | UK/EUROPE |
|---|---|---|---|
| Typical degree | Master's or PhD (both direct and non direct entry) | Direct entry PhD | Master's or PhD (no direct entry) |
| Average degree length | Master's: 2 years<br>PhD: 4-6 years | PhD: 5 years (astronomy), 6 years (physics) | Master's: 1 year<br>PhD: 3 years |
| Requirements | Direct entry: undergrad<br>Non direct entry: undergrad + Master's | Undergrad + GRE + PGRE | Undergrad + Master's |
| Coursework in PhD | 1-2 years | 2 years | Uncommon |
| Funding for PhD | Fully funded | Fully funded | Funding typically contingent on supervisor. Not always easily available for international applicants. BYO via fellowships. |
| Teaching | Part of funding package | Part of funding for first 1-2 years | Uncommon |

*None of this will be true *everywhere*, but it should give you a rough idea