General advice for grad applications

- [Resources for the ambitious undergraduate or beginning graduate researcher in astronomy & astrophysics, by Professor Chris Matzner (CITA)](#)
    - Includes tips for writing effectively, writing and maintaining your CV & teaching dossier, obtaining strong recommendation letters, and writing applications
- You'll be needing a lot of information for your applications -- supporting documents, references and their contact information, grad application and scholarship deadlines etc. -- consider a spreadsheet, it was really helpful for me. Even before I started my applications, I made a spreadsheet with all of the programs' information that helped me to decide which ones I wanted to apply to. Possible things to consider:
    - Researchers you are interested in working with and/or how many -- if there's only one person there who you want to work with, I would be careful
    - The type of research they're offering that you're interested in or specific projects being offered to you
    - When you get to start research and whether you have to pick a supervisor by the time you start
        - The Bonn-Cologne Graduate School for example requires that you are basically a fancy undergrad for your first year, taking a huge course load of specialized physics and astronomy courses and not being able to start research in your second year which I wasn't too fond of
        - Other programs where you get to start research in your first year will sometimes require that you pick a supervisor by the time you start; this is less ideal than places like UofT where you have a year to work with a few people and don't have to set on a PhD advisor until your second year
    - If there are teaching and/or outreach opportunities and whether they are requirements or not (e.g., do you want to be forced to teach, or to not have the opportunity to do outreach etc.?)
    - If you have to teach, the number of hours you are expected to TA every week
        - Sometimes they will reduce/waive the number of required TA hours if you received a scholarship which would be useful to look into if your grades are high enough to get these kinds of scholarships
    - The number of courses you would have to take
        - I made a separate spreadsheet with the course requirements and course offerings alone, this helped me a lot because some programs have requirements in hardcore physics courses (like quantum mechanics and electromagnetism) with very little course offerings in specialized astrophysics topics which I am more interested in
    - The application fee (some are free in Europe!)
    - Possible tuition fee, or net stipend and how that compares to the cost of living in the area
    - Possible internal scholarships

- ○ How long the program is and if there are admission/qualifying exams
- ○ Are there colloquia, journal clubs, paper sessions, social events etc. for grad students to attend?
- Things to highlight in your application (whether it be in your letter, CV, or other supporting documents):
  - ○ Research experience
  - ○ Publications
  - ○ Technical written reports (undergrad thesis, research "report", etc.)
  - ○ Research posters
  - ○ Research presentations
  - ○ Programing and/or computer experience
  - ○ Conferences
- When deciding references to help support your application, make sure to choose people who can advocate well for you
  - ○ People who supervised your: undergrad thesis, summer research, undergrad research course etc.
  - ○ Want to try to pick the people who would be able to highlight the best things possible in your application like:
    - ■ Ability to follow a project through to the end or knowing when to stop and move on
    - ■ A genuine interest in the field of research and how well you understand it
    - ■ Willingness to read papers, ask questions
    - ■ Interpersonal skills
- Once you have decided who you would like to ask references letters for, make sure to give them time to put together your letter
  - ○ I've probably given my references several months, but at least a month in advance would probably be okay
  - ○ Make sure to tell them specifically what programs you plan on applying to (this will help them to personalize their letter), what the deadlines are (** give them a reminder ~ 1 week in advance, I've heard horror stories about references forgetting to submit their letter and you do not want to be in this position **), if there are specific people you are trying to work with etc.
- The programs will have application deadlines, but there will likely be earlier deadlines for those who are applying for scholarships so make sure to look out for these
- Some places will offer application and/or tuition fee waivers; read their websites to see if these are available and talk to people who already are in the program or professors who you are interested in working with because they may have application advice
  - ○ I found out about a 75% tuition waiver for international students at Leiden University simply because I had a friend who was in the program
- Make sure that you follow the instructions for their application process!; it sounds obvious but it's an easy way to show whether you can follow directions or not
  - ○ E.g., do not go over their length requirements for written letters, upload documents in the correct format and under the required size etc.

- When explaining your research experience, you want to show that you understand the topic but that you can explain it in a clear and simple way (i.e. the "elevator pitch")
  - Don't use jargon that people outside of your specific field may not understand
  - Writing and communication skills are very important in science, so they will be considered in your application
- In your statement of purpose, make sure to answer any/all questions that they ask for
  - E.g., a "statement of purpose" can have a different focus than a "statement of interest"; I suggest writing out the specific questions that they ask for and make sure to answer each of them explicitly. You can also find additional questions or things to comment on by reading the program's website, or by reading the website of researcher(s) you are interested in working with; sometimes they will post a letter for interested students or will spell out the kinds of things that they are looking for in a student
  - Be very clear to spell things out, specifically when you are answering questions that they are asking you; make it very easy for them to find the information they are asking of you
  - Give examples to highlight your skills; examples will mean more than you saying that you have particular skills
- Be clear about what your ultimate goals are (research-oriented career, teaching, outreach etc.)
  - This is an opportunity to tell the committee why investing their time and money in you would be beneficial and worthwhile
  - It also goes to show your sense of ambition and commitment
  - Can use this to your advantage if programs that you are applying to have some focus on outreach or if there are teaching opportunities for grad students
- Specify people you are interested in working with (and why) in your written letter; this shows that you did your research and it's a good opportunity to grab their attention
  - Make sure not to just list a bunch of people though, it will be obvious if you are only listing people with no incentive other than to try to make your letter look better (would would just end up working against you); so be honest!
- Email people you want to work with ahead of time; I think this is not only incredibly helpful for you but it will help your application a lot. I genuinely think that this is one of the most important things to do.
  - I would much rather work with someone who is clearly interested in and willing to talk to me about their research; among people, I've gotten responses from only a couple sentences to several paragraphs long
    - If their response is lacking during a time in which they are supposed to be trying to recruit new students, it's a good reflection that they will probably not be more enthusiastic once you're working with them
    - the best kind of advisors know how to instill excitement and interest in their topic and these are the kind of supervisors that know how to drive your motivation and curiosity

- There could be certain details in their explanation that may not have been up on their website which could help you decide how much you'd enjoy working with them
- It looks great in your letter if you can not only say who you are interested in working with but if you can also make it known that you've already been in contact with them which shows incentive
- Once you have decided who you are keen on working with, contact their (past) students; a good advisor will give you their students' contact information and suggest this to you themselves if you are having serious conversation about working together, otherwise just ask them or find this information online
  - You don't want to learn from bad experience that someone is awful to work with
  - You can learn more about their teaching style, personality quirks etc. which can be helpful to decide who you would and would not get along well with
- Ask several people to read over your written statement and CV; they will probably go through many revisions and it really helps to have different perspectives
  - It's easy to get tunnel vision and forget about the big picture; getting others to read it is usually a good way to figure out if there is a coherent "story" to your letter, if things flow well, if you didn't explain something very well etc.
- If you are invited for interviews, make sure to ask questions!
  - [Here are some that I found on AstroBetter](#)

Good luck! :)