

Graduate Physics Programs Admissions Overview

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(borrowing heavily from Cal-Bridge Handbook)

Timeline

Before Junior Year

- keep your grades up
- get some research experience
- for summer research: start arranging it in *January*

Junior Year: that, plus think about taking physics GRE in spring

Summer Before Senior Year:

- **June** write statement of purpose/personal statement
- **July** get peer feedback on statements
- **July/August** start studying for GRE
- **August** iterate with mentor(s) on statements
- **August** start shopping for programs

Timeline ct'd

Senior year

- keep studying for GRE
- **September/October?** take GRE
- **End of October** NSF GRFP deadline
- **November** finalize list of programs to apply to; check deadlines
- **December-January** most graduate application deadlines

Choosing Where to Apply

- Goal is *not* to get into the highest ranked department on some national listing. **It is finding a good fit.**
- MS or PhD?
- Choose a program with more than one faculty/topic you are interested in doing research.
- Your interests/research topic choice is not a commitment, and ~50% of the time students work on different topics than initial interests.
- Contact faculty at programs in which you are interested... at least for 2 or 3 graduate programs you are interested in.

(these are all quotes from the Cal-Bridge Handbook)

Application Components

- Undegraduate academic record
- GRE

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How do admissions committees use the Physics GRE?

GPA/PGRE	20	40	60	80	100	
3.25	3-0	4-0	3-0	3-0	1-1	14-1
3.50	3-0	8-0	9-2	2-0	1-0	23-2
3.75	6-1	4-0	11-1	11-8	1-1	33-11
4.00	1-0	6-1	11-5	9-6	8-6	35-18
	13-1	22-1	34-8	25-14	11-8	105-32

Application Components

- Undegraduate academic record
- GRE (*Don't panic*)
- **Letters of recommendation**
- Statement of purpose/personal statement

Personal Statement and Statement of Purpose

- **Always answer the prompts.**
- **Statement of purpose:** why you want a PhD or MS (including what you plan to do with it afterward) and why you want to earn it in *this* program.
- “focus on your path to achieving your goal as a research scientist, from entering an undergraduate program to now...do not...include information or motivations from childhood, primary or secondary (high) schools.”
- **Personal statement:** “your personal history and how you will enrich the community you are wanting to join” (including contributing to diversity)
- “do not be afraid to get technical in short order.”
- both statements should convince faculty that you are aimed for success—in *this program*

(quotes from Cal-Bridge Handbook)

Statement of Purpose Key Elements

- “What is the purpose of your graduate study?”
- Any specialized areas of interest? Who did you work with, what did you do: internships, projects, employment, research and publications?
- What skills do you have: using, testing, designing or researching equipment?
- What are your future goals?
- Tailor it to the department to which you are applying. What makes you uniquely suited for this particular department, this specific institution?
- Include faculty with whom you want to work. this shows you have done your homework [and can save you a lot of grief!]. Contact faculty before you apply to build a relationship.”

(quotes from Cal-Bridge Handbook)

What if I'm Torn Between Two Fields of Study?

- “Try to be coherent in [your] fields [of interest]: e.g., it can be dangerous to say you are interested in astronomy or condensed matter theory.”
- “It is not *necessarily* dangerous if both topics are *well* motivated in the text.” [emphasis mine]
- If you are really divided, consider writing very different applications to very different programs.

(quotes from Cal-Bridge Handbook)

Tips for Writing

- Start early and revise, revise, revise (w/help of readers)
- Target length: 2 pages (personal statement can be much shorter; *always check the prompt*)
- “do not present [your] faculty [mentors] with very messy and highly incomplete drafts. Present a package that reflects you: The Professional.”
- Same goes for the final product!
- “Include the adventure that got you to want to do research. What is the wow factor that got you into astronomy or physics? Did a certain book or article inspire you? Read specific faculty’s research in the department you are applying to and tie into it...think of yourself as a scientist: astronomer or physicist (in training). Every paragraph should somehow be related to your research area, interest, experience, and future.”

(quotes from Cal-Bridge Handbook)

But...

- Avoid elements of astronomy statements that often start or include: “I’ve wondered about the night sky since I was N years old...” This should be made be more specific, scientific, professional.
- Avoid the Yawn Effect: “I love science. I love to study it, to breathe it, to be it. Science is the foundation for all that we are. I have worked long hours pursuing my goal to become a PhD.” Do not *tell* us you are passionate and a hard worker; *show* us how you are passionate and what you did because of your passion.
- do not compare the content of your Statement of Purpose with friends applying to social sciences, humanities, law, medicine and health related programs. They have their own criteria for selection in those fields, and do not necessarily apply to physics & astronomy departments.

(all quotes from Cal-Bridge Handbook)

Extenuating Circumstances

- “Keep this section brief: such circumstances must be addressed, but a few sentences at most.” Put in personal statement to the extent possible.
- “Describe any problems or inconsistencies in your records or scores, such as a bad semester. Explain in a positive manner. Since this is a rebuttal argument, it should be followed by a positive statement of your abilities.”
- Point out positive trends in your grades.
- “Describe any special conditions that are not revealed elsewhere in the application, such as a significant (35 hour per week) workload outside of school. This, too, should be followed with a positive statement about yourself and your future.”

(quotes from Cal-Bridge Handbook)

Frame the negative as a positive: building experience

- What did you learn from this experience?
- write a strong statement instead of a weak statement about the extenuating circumstances. Avoid “excuse” statements such as: “I had to work two jobs to support my family because my father was injured. My grades suffered.” [This doesn’t help me see how you will be successful in my program.]
- Better: “I maintained a B+ average while working in Dr. Sprout’s botany laboratory despite having to work forty hours a week as a waitress to support my family.” [Took ownership of this circumstance...]
- Best: tell the story of the extenuating circumstance and how your perseverance or motivations overcame that.

(slightly modified quotes from Cal-Bridge Handbook)

PhD student timeline (at UC Davis)

- **Year 1:** core courses, teaching (usually)
- **Start of Year 2:** written preliminary exam
- **Year 2:** specialty courses, teaching (usually), start research
- **Year 3:** research, teaching (usually)
- **End of Year 3:** qualifying exam
- **Years 4+:** research, somewhat less likely to be teaching