The Art of Applying to Grad School

Eric Prebys, FNAL

Why I decided to give this talk

- In retrospect, I don't think I had very good advice when applying to graduate school.
- I've served on graduate admissions committees at two universities (Rochester and Princeton)
  - Competitive universities must make tough choices
  - Surprisingly few no-brainers at either end of the spectrum.
  - Many sort of "in the middle"
    - Process much more subjective than most people think
    - Little things can matter

First: Do You Want to Go to Grad School??

- If you really want to *do* physics, you probably have to go to grad school.
- Do you really want to *do* physics, or do you just want to do a challenging job which uses a lot of the same "tools"?
- Graduate school usually takes about 6 years, and pays very little.
  - During this time, people you went to college with will be buying their first house, BMW, etc.
- The only reason to go to physics graduate school is for exactly the same reason you would go into art or music.
  - *There is no practical reason to go to physics graduate school.*
- Even if you do decide to go to graduate school, think long and hard whether there's anything you need to "get out of your system" first (join the Peace Corps, climb Mt. Everest, etc).
  - *This is the last time for many years you can do such things with impunity!!!*

What Graduate Schools are Looking for

- Graduate schools are not *necessarily* looking for the "smartest" students. They *are* looking for:
  - **Students with potential to do first rate research.**
  - Students who are capable of completing their program.
  - Students who the believe likely *will* complete their program.
  - Students who's interests are compatible with the research program at their institution.
  - Students who they are willing to deal with for several years.

The Typical Admissions Process (how it worked at Princeton and Rochester)

- An admissions committee is formed out of regular faculty.
- (~350) Applications are divided out amongst (3 or 4) groups of two.
- Each group meets to divide their applications into three roughly equal groups: *A*, B, and *C*, *A* being the best.
- All members of the committee read all the *A* applications and assigns each a numerical score, which are used to roughly rank order them.
- The committee meets to decide on and rank the top (60) candidates, to whom offers are made.
- *B* applications are kept on hand so the rest of the department can consider making a case for them, or if specific subfields are found lacking.
- *C* applicants are thrown away.

A Few Comments on the Process

- No hard and fast rules or formulae. Chairman of the committee gives guidelines, but it's up to each member how they rank applications.
- *Extremely subjective*. Ultimately, it's the overall impression of the application. Very small factors can influence this.
- A single member's opinion, *one way or the other*, can determine the outcome on a particular application. This might involve factors beyond your control.
- A significant fraction of the committee has never done it before.

Some Guidelines

- It's very hard to make yourself look better than you are.
- It's very easy to make yourself look worse than you are.
- **Your application is being read by smart people who are experienced in physics, so you are unlikely to successfully bullshit them.**
- They were all once where you are now, and are generally sympathetic.
- **Be honest!**

What Grad Schools Look at (actually, what *I* looked at), in Order of Importance.

- Letters of recommendation.
- GRE scores
  - Have their flaws, but…
  - the only standard metric
- Grades
  - Pretty good (A's and B's)?
  - Consistent with what is said in letters?
  - Beyond that, can't really compare from one school to another.
- Personal statement
  - Not as important as the others, BUT
  - The only thing over which you have total control!

Note! Always on the lookout for anything odd or inconsistent in the application.

Things that Obsess Students which Nobody Really Cares About

- Although people *are* impressed by broad interests, no one cares about the exact wording of your diploma (e.g. your "minor", "second major", "certificate", etc).
- Although people are impressed by academic achievement, no one really cares if you've taken any graduate courses.

Good Letters of Recommendation

- Perfect
  - someone for whom you done an independent project, who is in a position to compare you favorably to specific students who have gone through the program.
- Good
  - someone who can comment in detail on your **motivation, creativity, independence**, etc, in any sort of scientific or technical project.
  - someone who can comment on *outstanding* performance in a class.

Letters of Recommendation (cont'd)

- Neutral
  - academic letters which merely back up what's already in your transcript.
- Bad
  - negative letters. Be sure you understand the referee's opinion of you.
  - letters from famous or "connected" people who don't really know you.
  - letters that have nothing to do with scientific or technical ability.
  - letters from relatives.

Letter Etiquette

- Figure out who you want to write letters to particular schools.
- Ask them if they would be willing to write you letters, and try to get a feel for what sort of letter they would write.
- Give them all forms with addressed, stamped envelopes well before the first one is due (min. 2 weeks, preferably 4).
- Politely remind them when half the time has passed.
- Repeat until they confirm they sent the letters.
- Verify with the schools that they have received letters and all other supporting materials.

The Personal Statement

- The only thing in your application over which you have complete control, and an excellent opportunity to shoot yourself in the foot.
- The goal is to get the reader on your side.
- Keep it short!!!!! One page max, half page better.
- **First and foremost, address any rough spots or possible issues in the rest of your application.**
- Say as much *as you know* about your interests and what you want to do.
  - **Be totally honest here!!**
- Point with pride to experiences or qualifications which you feel make you a good candidate
  - *Make sure they are backed up by the appropriate letters.*
- If appropriate, make specific comments about why you feel that department is a good match for you.
- Take the time to double-check spelling, grammar, etc!!

Personal Statement "don't"s

- Long rambling boiler-plate about your love of physics
  - "When I was a small child, I looked at ripples in a pond…"
- A "thesis idea" which is obviously paraphrased from Scientific American.
- Specific comments about the department which are obviously the result of a quick look at the department catalog.
- Sounding pompous.

"Extra Stuff"

- Acceptable:
  - Publications or technical documents you have written, or played a large part in writing.
  - Extra letters that don't quite fit into the previous categories, e.g. letters from graduate students (note them in your personal statement).
- Unacceptable:
  - Writings that have nothing to do with scientific or technical abilities (e.g. poetry).
  - Computer program source code!!

Parting Comments

- Think long and hard about whether you really want to go to graduate school.
- Apply to lots of places.
- Don't get your heart set on one place!!
- Once you're in graduate school, look around and keep an open mind about what you want to do. Remember, **it's your life.**
- The most important thing, once you've decided what you want to do, is to finish up and get out!
- If you have questions about applying to graduate school:
  - Don't ask your fellow students; they haven't been to grad school.
  - Don't ask graduate students; they don't know how they got in.
  - Ask people who have served on graduate admissions boards!