

## Applying to Graduate School in Physics

### Components of the file, very roughly in order of importance:

1. Letters of recommendation.
2. Physics GRE; General GREs.
3. Courses taken; GPA.
4. Statement of Purpose.

### Letters –

- Three letters usually required.
- Who to ask? Research advisor(s); academic advisor; instructors who would recognize you and know your work.
- Ask letter-writers early.
- Provide material at least three weeks in advance of the first deadline.
- Keep lists of schools and materials VERY organized for letter writers. Do not give materials to letter writers in bits and pieces. Consider putting the lists and materials on a well-organized website.
- Provide at least an unofficial transcript, CV or resume, and draft statement of purpose to letter writers. Offer to meet with them.
- Ask letter writers if they prefer electronic versions or hardcopies of materials (or both).

### General and Subject (Physics) Graduate Record Exam

(<http://www.ets.org/gre>):

- Students who do not prepare for the Subject GRE in Physics are unlikely to do well...
- Best to prepare over the summer if you are taking the Subject GRE in Sept or Oct.
- Study resources exist on the web. (Be aware that some resources for General and Physics GRE must be used with caution! Stick to Princeton Review for sample tests. The “reasoning” is sometimes flawed for Physics GRE answers online.)
- Form study groups for Physics GRE preparation.
- No absolute GRE cut-offs in Physics at Stanford.
- General GRE has three parts: Verbal, Quantitative, Analytical.
- Low General GRE scores can raise “red flags” so do take the General GRE seriously.
- Many committee members do not put much weight on analytical score – unless it is anomalously low.
- See [Grad School Shopper](#) for GRE ranges at various schools.

### Coursework and GPA:

- Readers of files in Physics generally do not use GPA as a filter – in either direction. However, some committee members use grades on upper division physics courses to decide “close calls.”
- Subjects studied as an undergraduate are important.
- “Trends” in grades and level of courses are important.

## **Statement of Purpose:**

- We use the statement primarily to look for “**fit**” with the opportunities in the department and **balance** in research areas in the incoming class.
- Should you be very specific about your research interest? Or is it OK to be open to a broad range of research directions? Either is OK as long as you support your stated interests.
- Only ~50% of our graduate students in Physics at Stanford end up pursuing a thesis in precisely the area that they stated as their “primary interest” on their application.
- Be honest in your statement and speak from your heart.
- Avoid “fluff”. Be specific about achievements and goals. In discussion of research, emphasize big picture (science goals; what you achieved; high level skills you developed) rather than minutia.

## **How many schools to apply to? Where to apply?**

1. Apply to 6 to 12 schools, depending on the strength of your application and how many ‘safety’ schools you are including.
2. Since the median time to PhD is six years, do take into account geographic preferences, etc.
3. Use “Grad School Shopper” to help develop list of schools. The site lists # of applicants and # admitted for each Physics / Applied Physics / Engineering Physics department.
4. Ask faculty for suggestions for ‘sleeper’ schools that are excellent in a particular area.

## **Physics vs. Applied Physics vs. Engineering Physics:**

For particle physics and astrophysics/cosmology, generally apply to Physics departments. For condensed matter and AMO, look at both Physics and Applied Physics or Engineering Physics. Also consider engineering programs, such as Materials Science. Schools vary in how they distribute research areas between departments.

## **Taking a year off between Undergraduate and Graduate school:**

Taking a year off is OK. Sometimes students are saturated with learning and need a break from coursework. They often come back from a break re-energized and more motivated to learn. Or, you may need another year to determine the area on which you want to focus in graduate school – Physics? Applied physics? Engineering? Other?

If you decide to take a ‘gap’ year, there is a choice of when to apply to grad school – during senior year (and then request a deferral), or after the senior year. There are pros and cons for each. It’s easier to contact letter writers during the senior year, but you have more experience on which to base your choice of schools, departments, etc., after the senior year. If you apply during senior year, you will need to make a decision on which school to accept in the Spring quarter of your senior year, before spending time learning more about your long-term interests. Most schools will grant a one-year deferral – but there is no guarantee.

## **Fellowships:**

Most (all?) PhD programs in Physics in the US provide tuition and a stipend. However, an internal or external fellowship can give you more choice of research area and advisor. Spend some time researching Fellowship opportunities and apply when appropriate -- e.g., NSF Graduate Fellowship, DOE Graduate Fellowships (Computational Science GF, NNSA Stewardship Science GF, High Energy Theory GF, etc.), Hertz Fellowship, National Defense Science and Engineering GF, Ford Foundation Predoctoral Fellowships for Minorities, American Association of University Women Fellowship. For some fellowships, one must be a US citizen or permanent resident.