

Phys 496 Graduate School Q&A Session

Topics

“To be, or not to be” (a graduate student)

- Things to consider when deciding whether to go to graduate school
- What’s life like as a grad student

Applying to graduate school

- Issues to consider: e.g., recommendation letters, statement of purpose

How to choose a graduate school

- Sources of information on schools, faculty, and research

Getting into graduate school

- Some ways to make yourself competitive



What's grad school like?

HOW GRAD SCHOOL IS JUST LIKE KINDERGARTEN

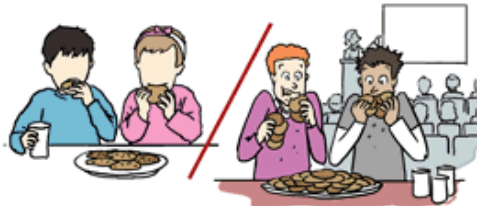
ALL DAY NAPPING IS ACCEPTABLE



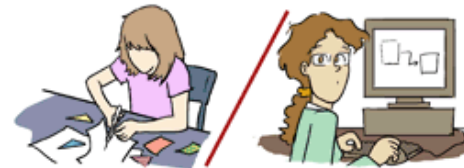
THERE IS CONSTANT ADULT SUPERVISION



YOU GET COOKIES FOR LUNCH



MOST COMMON ACTIVITY:
CUTTING AND PASTING



THERE ARE NO GRADES
(YOU JUST HAVE TO PLAY WELL WITH OTHERS)



CRYING FOR YOUR MOMMY IS NORMAL



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Grad school and doing research is a very different endeavor than your undergrad experience!

Less structured

There are no deadlines for getting the right answers, no solution manuals, and nobody who can give you the answer!

Research focused

It's not about courses. It's about research.

Grad school and research can be hard and tedious

Tedious and frustrating at times, but sprinkled with moments of exhilaration and discovery

An opportunity for you to be more 'creative'

To do new science, it helps to be able to think outside the box

Requires personal interactions

You need to deal with many different types of people and work collaboratively

Timeline of a typical grad student

- First year
 - some courses (2 to 3 per semester); prep for qualifying exam
 - learn about research opportunities
 - Serve as a teaching assistant
- First summer
 - start up with research group
 - hopefully that is the start of a longer term relationship
- Second year
 - generally you take a ‘qualifying’ exam at beginning of year
 - 1 or 2 courses each semester, ramp up on research
 - Become a research assistant in this and (maybe) subsequent years
- Third year
 - 1 specialized course per year (maybe), mostly research
 - thesis proposal (“prelim” exam)
- Years 4-N
 - focus is entirely on research
 - you may take an occasional “seminar” course

“To be or not to be” (a grad student)



Did you enjoy your undergraduate research experience?

Graduate school is (almost) all about research. You must be willing to invest the time (typically 5-6 years) and long hours to get a PhD.

Do the research areas you have been hearing about sound interesting?

It's important for you to expose yourself to all the different research areas, to see if anything strikes your fancy!

Does the open-ended nature of research appeal to you?

You'll have guides in your research, but no experts who'll know the answer for sure!

Are you resilient and not easily distracted or deterred?

You'll definitely run into road blocks in research, and you'll need to pull yourself through

What's Grad School Like?

Question: “Can we take some time off to [insert activity here] and then go to grad school...or would my chances lessen as a result?”

Answer: There is no rush to go to graduate school! If you decide to take a year or two off before going to grad school, this won't hurt your chances with most admissions committees. Doing something productive certainly helps, but is probably not essential. Beware the GRE delay!!

What's Grad School Like?

Question: “How is grad school paid for?”

Answer: Generally in grad school you will be supported either by a TA or an RA, so you won't have to work at Burger King to support yourself. Tuition is generally waived.

Preparing for Grad School

Freshman/Sophomores

Get good grades!
Think about undergraduate research
Don't put off laboratory courses!



Juniors

Undergraduate research!
Get good grades!
GRE in April?

Seniors

Check test deadlines and applications deadlines early!
Take GREs in October or November
Research graduate schools, faculty, and research areas
Line up recommendation letters early...think carefully about writers
Polish the statement of purpose...have someone proof it!
Apply to schools starting in early December...check deadlines!

Preparing for Grad School

Question: “How much research experience is needed to be competitive for a top grad program?”

Answer: You’re not competitive if you have NO research experience, but it isn’t necessary to have long experience or multiple experience. A quality experience – leading to a happy supervisor and a strong recommendation letter – is probably better than several short research activities.

Preparing for Grad School

Question: “Should I be taking grad courses before I apply?”

Answer: You should demonstrate a strong foundation in upper level physics and math courses. Grad level classes are not necessary in my opinion...I'd opt for a deeper/broader preparation at the undergraduate level (e.g., more math!) than diving into grad courses. Make sure you're prepared for the GREs!

Preparing for Grad School

Other issues:

Grades vs GRE?

At Illinois – and indeed at most places, I think -- grades are weighted more than GRE scores. Math and Physics grades are most important, as are grades in upper level courses

Don't slack off your senior year!

If you're on the borderline for admission, admissions committees often ask for updates of grades and look at course deficiencies.

Interested in theory?

Take lots of math!

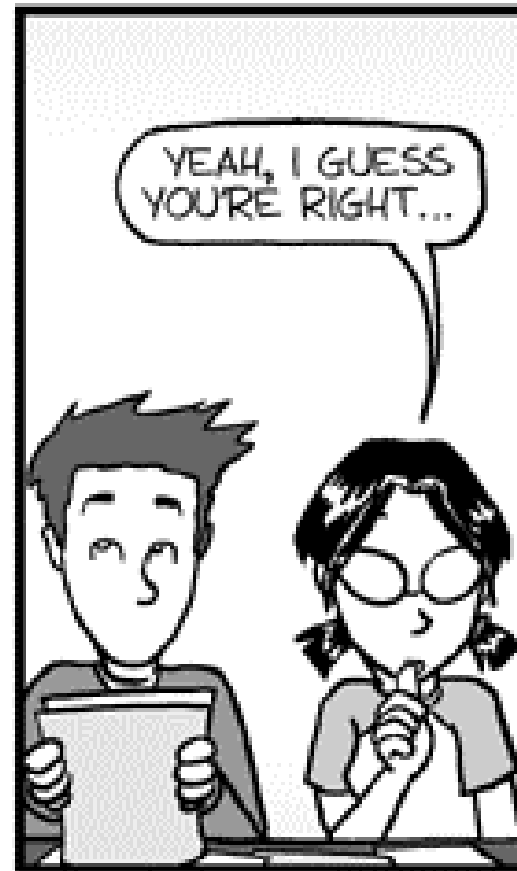
Interested in experimental physics?

Take lots of labs! Take labs earlier rather than later!

Not sure about your research interests?

Sample different research areas, if possible.

Applying to Grad School



The Admissions Process at Illinois

Question: “Is Grad Admissions Like Undergrad Admissions?”

NO!

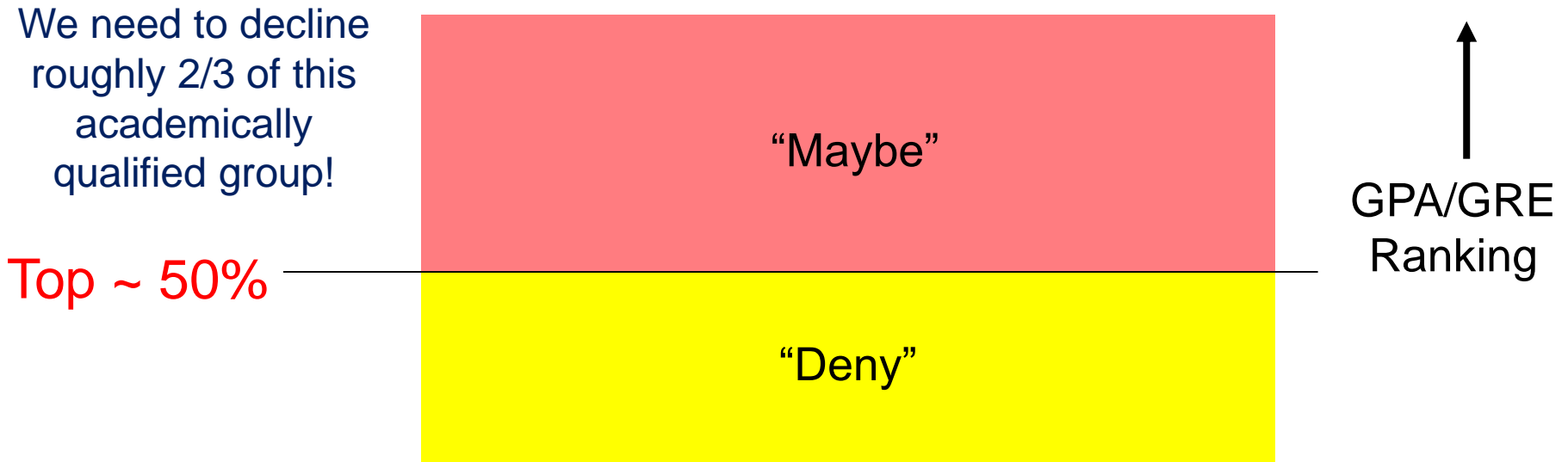
Having outstanding GPA and GRE scores will only get you so far in graduate school admissions.

It's probably most appropriate to think of graduate admissions as a combination of undergraduate admissions and a job interview.

The Grad Admissions Process at Illinois

After an initial screening of applications, maybe 50% of applicants (~350 students last year!) have GPA and GRE scores that suggest they are qualified to enter our graduate program.

We can only offer admission to <20% (~130 students this year)



The “job interview” process begins: To make cuts within the “Maybe” group, faculty on the admissions committee *with whom you might work* will make decisions based on (i) how excited they get about your research experience, (ii) whether your research interests fit well with the program.

Applying to Grad School

Question: “What should be included in the statement of purpose?”

Answer: The statement of purpose is very important, as it is one of the only places to put information about your research abilities in your application.

- Emphasize your research experience and enthusiasm for research...describe what got you “hooked” on scientific research
- Explain your interests: don’t be too vague or broad in your descriptions
- Tailor part of the statement to the institution: explain why the institution you’re applying to is ideal for fulfilling your goals...name specific faculty in whom you’re interested
- Have someone edit your SOP...avoid typos and grammatical mistakes!

Applying to Grad School

Question: “Who should I consider for recommendation letters?”

Answer: Recommendation letters are of crucial importance, and they should emphasize your research abilities, if possible

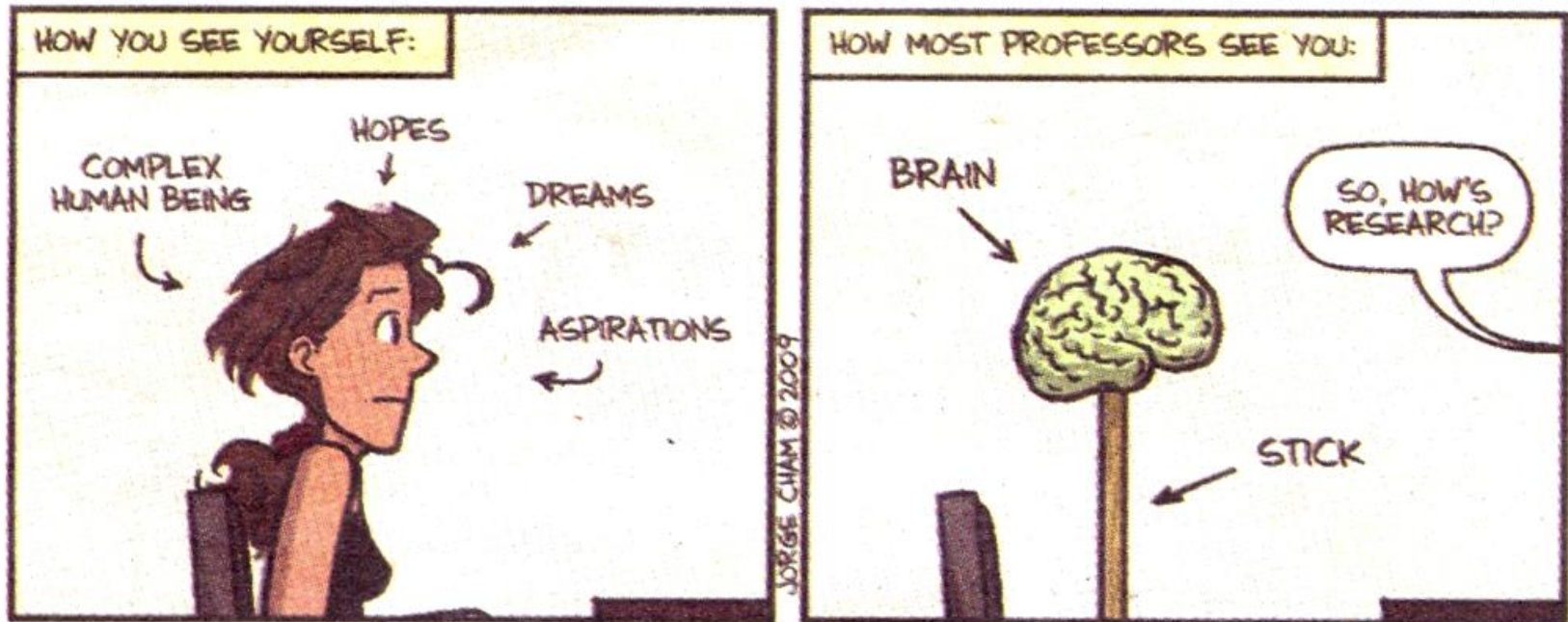
- You should have **at least** 1 letter writer who can describe your research abilities
- If you use a letter writer from a course, choose someone who can comment on special qualifications you have, not just what grade you received
- Give your letter writers plenty of notice...do not wait until the last minute to ask them to write letters
- Provide your letter writers with a copy of your CV and, if possible, a draft of your SOP

Some Graduate school application deadlines*:

<u>Deadline</u>	<u>Schools</u>
Dec. 1–21, '16	<u>Berkeley</u> , <u>Cal Tech</u> , <u>Cornell (Physics)</u> , <u>Cornell (App. Physics)</u> , <u>Harvard</u> , <u>Michigan</u> , <u>MIT</u> , <u>Ohio State</u> , <u>Stanford (Physics)</u> , <u>UCLA</u> , <u>Santa Barbara</u> , <u>Princeton</u> , <u>Texas</u> , <u>Johns</u> <u>Hopkins</u> , <u>Maryland</u> , <u>Wisconsin</u> , <u>Chicago</u> , <u>UC-San Diego</u>
Dec. 26–31, '16	<u>Rutgers</u> , <u>Northwestern</u> , <u>Minnesota</u>
Jan. 1–6, '17	<u>Columbia</u> , <u>Yale (Phys & App. Phys)</u> , <u>Stanford (App. Phys)</u> , <u>Purdue</u>
Jan. 14-21, '17	<u>Illinois</u> , <u>Rochester</u> , <u>Florida</u>

*Often significantly earlier for fellowship/international applicants

Choosing Graduate Schools or an Advisor



Choosing Grad Schools

Question: “What schools are considered safety schools?
How many schools should I apply to?”

Answer: Tough question -- the answer to this of course depends on your grades and GRE scores. The top 10 programs aren't sure bets for anyone. You should NOT apply just to 2-3 top programs. You should probably apply to 6-10 programs, with a good distribution between “top” and “mid-level” schools. Try going on-line to see qualifications of different classes.

Choosing Grad Schools



Where to get information on departments:

Departmental websites

<http://www.google.com>: Search: "school" + physics
<http://www.physlink.com/Directories/Departments/Index.cfm>

Rankings:

PhD.org: <http://www.phds.org/rankings/physics>

National Doctoral Program Survey:

<http://sites.nationalacademies.org/PGA/Resdoc/>

U.S. News:

http://www.usnews.com/usnews/edu/grad/rankings/rankindex_brief.php

Graduate Programs in Physics, Astronomy, and Related Fields:

<http://www.GradschoolShopper.com>

caveat emptor!



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and Related Fields

www.GradschoolShopper.com

AIP
American Institute of Physics

Choosing Grad Schools

Other issues to consider:

Don't be too selective: Apply to all the programs in which you have a strong interest

Aim high! Don't be too quick to convince yourself that there are schools you simply can't get into—but also apply to a “safe” school

Don't put your 'eggs' in one research 'basket': Make sure there is more than one research project you're interested in at a particular school

Don't assume you're sure about what research area you're interested in: Allow yourself the opportunity to shop around

Fellowships! Remember, it's not just about admission. If your application is in top shape, you can also have a shot at a fellowship...these may have an earlier application deadline

Fellowship Deadlines

- NSF: October 28, 2016
http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=6201
- Hertz Foundation: ~ October 28, 2016
<http://www.hertzfoundation.org>
- National Physical Science Consortium: December 9, 2016
<http://www.npsc.org>
- American Assoc. Univ. Women Fellowships: Nov 15 (US), Dec 1 (International)
<http://www.aauw.org/what-we-do/educational-funding-and-awards/>
- Gates: Oct. 12, 2016 (US citizens); Dec. 7, 2016 (non-US)
<http://www.gatesscholar.org>

Choosing a Graduate School

Other issues to consider:

If you haven't settled on a research area, think big: Larger schools generally have more diversity of opportunities and research areas

Go on as many visits as possible: This is a great way to see the true level of activity in a department, to get a feel for the style of the department and of the different research groups, and to get a feel for the surrounding community

Talk to graduate students in the department and research groups you're interested in: They can provide real insight into the character of the group or department...but consider only first-hand information

Quality of life issues are important!: You're going to be in grad school for 5-6 years, and so to do your best work, it's important that you're comfortable in the environment and with the people you're working with

Choosing a Grad School

Question: “How do you find a group/advisor once you’re admitted?”

Issues to consider:

Is your “top choice” faculty member taking students?

Call or e-mail him/her and ask, ask during visit days

What is the “style” of the group in which you’re interested? (find out from current grad students, by calling or asking during visits)

- Does the faculty member maintain close oversight of students, or does he/she let students work for long periods of time by themselves?
- Are the research projects collaborative (multiple students), or does every student have his/her own project?
- Will you be expected to build a new apparatus (or write new code), or will you be jumping in the middle of a well-developed project?
- Is it likely you’ll be constantly funded during your tenure, or will you be expected to TA periodically?

Choosing a Grad School

Question: “How do you find a group/advisor once you’re admitted?”

More issues to consider:

Consider an advisor who is just starting out: You’ll have to set up a lab, but this is invaluable experience if you want to set up your own lab someday

Do the students get to write papers: Check Inspec, Web of Science, and/or Google Scholar to see if adviser’s students publish any papers

**OTHER
QUESTIONS?**