



WHY GO TO GRADUATE SCHOOL?

GRADUATE EDUCATION: WHAT ARE THE QUESTIONS?

- Why go to graduate school?
- What degree? Masters or Doctorate?
- Where should you go? And how to choose?
- When is the right time for graduate school?
- What about preparing a good application?
- How can the cost of grad school be covered?
- What is the typical graduate school experience?
- Who do I talk to for my questions?

WHY GO TO GRADUATE SCHOOL?

- Approximately $\frac{1}{3}$ of your adult life will be spent at work ($\frac{1}{3}$ sleeping and $\frac{1}{3}$ “living”)
 - The NUMBER ONE REASON to go to graduate school is so that you can do what you really want to do, because so much of your life IS work
 - And part of a life well-lived can be life spent doing what you really want to do

WHAT ARE THE TOP 3 REASONS TO GO TO GRADUATE SCHOOL

1. Doing what you really want to do is immensely rewarding.
2. Graduate degrees in science and engineering lead to (on average) roughly \$500,000 more income over a lifetime – this number is not really quantifiable for individuals, just the aggregate.
3. Graduate degrees enable upward mobility AND lateral mobility.

WHAT ARE THE OTHER REASONS TO GO TO GRADUATE SCHOOL

4. Graduate school exposes you to the frontier of your field, you become a true expert in your discipline.
5. Graduate school ties together (i) curricular expertise with (ii) basic research and (iii) industrial applications. Those “big picture” connections are hard to make in any other way – which is why so many fail to appreciate the importance of basic research and advanced degrees.
6. Graduate school is an excellent way to “re-tool” in a tough or challenging economy.
7. Graduate school opens new career possibilities that many students have never considered.
8. Research and Teaching Assistantships: Many graduate programs in science and engineering pay you to go to school: salary, tuition, and school fees (in part or in full, depends on your program).

SO WHY GO TO GRAD SCHOOL?

- The NUMBER ONE REASON is because part of a life well-lived can be a life spent doing what you really want to do.
 - When your work is something that you enjoy, life is enormously more satisfying.
 - When your work is something that you enjoy, you are generally far more productive for yourself and for society as a whole.
 - When your work is something that you enjoy, you are not only happier with yourself, but that happiness often positively “rubs off” on others in your life.

WHAT DEGREE: MASTERS, DOCTORATE, BOTH?

- What do you want to do? What are your career ambitions?
 - Leadership positions in research, or professorships in academia, generally require a Ph.D.
 - Research positions in industry or government typically require a thesis Masters degree
 - Leadership (non research) positions in industry or government, and instructorships in academia, typically require a Masters (with or without research)
- How does your degree affect your career options?
 - M.S. : Enables both advancement and leadership roles in industry and government. It also enables research positions in industry and government, as well as instructor-level academic positions.
 - M.S. : However, it can sometimes inhibit entry-level positions in industry and government (i.e. “over-qualified”).
 - Ph.D. : Enables higher-level research and leadership roles in industry and government. It also enables professor-level positions in academia.
 - Ph.D. : However, can inhibit lower-level positions.

MASTERS, DOCTORATE, OR BOTH?

- If you are after a Ph.D. does it matter if you earn an M.S. prior to applying, or enroute to the Ph.D.?
- This depends on the discipline and the size of the school:
 - Many engineering programs either require or strongly prefer doctoral applicants to have an M.S. first
 - Many science programs are indifferent to whether doctoral applicants to have an M.S.
 - Larger, research-intensive universities tend to be indifferent to whether you earn a M.S. prior to applying to a doctoral program
 - Many of the larger, research-intensive universities award a non-thesis M.S. enroute to completion of the Ph.D.

WHAT IS THE DIFFERENCE BETWEEN A THESIS AND NON-THESIS MASTERS?

- Thesis Masters (Research Driven)
 - Coursework for thesis degree serves to provide Masters-level foundation and position the student to do research
 - The central accomplishment and education of a student pursuing a thesis degree is completion of their research
- Non-Thesis Masters (Coursework Driven)
 - The central accomplishment and education of a student pursuing a non-thesis degree is completion of their foundational and specialized advanced coursework
 - Some (not all) non-thesis Master degrees require a small research project (much less than a thesis – usually a class), primarily to give such students some sense of the research endeavor

WHERE SHOULD YOU GO?

- Ultimately, it comes down to what fits your life best. What are YOUR objectives: discipline, level of degree, career goals, etc.
- Next, what graduate school criteria are most important to you?
 - National Ranking
 - Strength in your particular interests
 - Personal interaction with the faculty
 - Funding (RAs or TAs)
- Source of Information
 - Faculty at your current college/university
 - Fellow students
 - U.S. News & World Report
 - REU experiences
 - Internships: Former supervisors who have higher degrees

COMMON QUESTION

- Does it matter if your graduate degree(s) come from the same institution as your undergraduate degree? Two arguments.
 1. Attending different institutions often expose the student to a broader range of academics, research, culture, faculty, and students.
 - This is the most commonly-held view in academia
 2. Attending the same institution often exposes students to a deeper connection with faculty, students, and a particular academic area.
 - This option is particularly attractive for BS/MS or Accelerated MS programs. This option is also very attractive for students who are place-bound (for reasons of family, two-career couples, etc.)

ADDITIONAL CONSIDERATIONS

- Do they have an accelerated MS (or BS/MS)?
 - Speeds completion of degree
 - Reduces cost
- Online or distance learning classes
 - Can they accommodate your requests?
- Region of nation the school resides in
- Are other graduate students happy with their program?
- Any other personal reasons

WHEN SHOULD YOU GO TO GRADUATE SCHOOL?

- Two schools of thought.
 1. Should you wait? Many larger employers will pay your tuition and fees, after you have worked for them for “X” years and usually with a commitment from you to continue working for them for “Y” years.
 - Are you burnt out from school?
 - Don’t know exactly what you want to do yet?
 - Can’t get funding?
 2. Should you go right away?
 - Do you already know what you want to do?
 - Can you get funding?

HOW TO PREPARE FOR YOUR GRADUATE APPLICATION

- What to do before you decide to apply (what to do as an undergrad)
 - Get involved in unpaid/paid research opportunities
 - UF: University Scholars Program
 - Get involved in an organization, take on leadership positions
 - Take graduate-level coursework if available, substitute for your undergrad coursework
 - Take beyond the bare minimum coursework in a subject if interested
- Also, see my presentation “Prepare for Grad School” for when you are about a year out (or less) from applying

HOW CAN I PAY FOR GRAD SCHOOL?

1. Federally-backed undergrad loans can be deferred while you attend graduate school, with no payments and no interest while you a graduate student
2. In STEM fields, most programs will provide a stipend (salary) and some or full coverage of tuition and fees, which means that you should not have to incur any further debt while in graduate school
 1. Research assistantships
 2. Teacher assistantships
 3. NSF
 4. SMART application

WHAT IS THE GRADUATE SCHOOL EXPERIENCE?

- What's different about graduate school? It's still school isn't it?
 1. Pace
 - Just as undergraduate goes at a pace 2-3 times faster than high school education, so too does graduate education proceed at a pace 2-3 times faster than undergraduate education
 2. Rigor, Depth, and Specialization
 - The subject-matter depth is much greater, the standards by which one is held is much higher, and the curricula are much more focused and specialized (there are no "gen eds" in grad school and students generally do not take courses outside their discipline)
 3. Freedom, Self-discipline, and Self-sufficiency
 - Graduate students have considerable freedom to construct a specialized program of study and research topic, graduate students are expected to do most of their learning and discovery outside the classroom, and graduate students are expected to emerge as intellectual leaders in their discipline

HOW LONG WILL IT TAKE?

- National Averages
 - M.S.: 2 years, starting with B.S. and no prior graduate work
 - Ph.D.: 5 years, starting with M.S. (or 7 years, starting with a B.S. and no prior graduate work)
- HOWEVER
 - These national averages include fully funded, partially funded, and unfunded research-focused degrees
 - According to professors: students that take control of their education can complete Ph.D. in 5 years, post B.S.
 - According to professors: M.S. average is consistent

ACCELERATED M.S. OR B.S./M.S. PROGRAMS

- Depending on the program, allows from 9-12 credits to be double-counted toward both your B.S. degree and your M.S. degree
 - Saves money
 - Saves time, you can complete an M.S. in 1 year (with hard work)
 - Both thesis or non-thesis options (for most programs)

WHERE TO GET MORE INFORMATION

- Programs
 - Graduate Recruiter
 - Department Head or Program Coordinator
 - If interested in a certain professor, contact him/her
- Funding and Assistantships
 - Department Head or Program Coordinator
- Costs and Application Procedures
 - Graduate Recruiter
 - Department Head or Program Coordinator

FOR MORE INFORMATION

- Please contact Mitzi Dennis
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- Or contact anyone on eBoard
 - <http://sweufonline.weebly.com/>
- Special thanks to Dr. Wells at South Dakota School of Mines & Technology

REFERENCES

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