

# Graduate school: Why, What, & How?

+ Supplement Info (email)

Today's Presenter (3<sup>rd</sup> version)

Jason Halloran, "h#\$#"  
Assistant Professor, Mechanical Engineering  
(Ireland State) University  
(Ireland, \*H ++, , -

1<sup>st</sup> version

Alli Sarleswaran, "h#\$#"  
Director of the Center for Air Scholars Program  
(Ireland State) University  
(Ireland, \*H ++, , -

2<sup>nd</sup> version

(Christopher Wirth, "h#\$#"  
Assistant Professor, (Chemical and Biomedical  
Engineering)  
(Ireland State) University  
(Ireland, \*H ++, , -

# Questions?

- How many of you are considering pursuing a "h\$?"
- How many of you are considering pursuing a %S, %. , %2. , etc#?
- How many of you are considering some other 'rad de' ree 3 %\$, 1\$, etc?
- How many plan to 4oin the wor5force followin' your /achelors?

# Comments on today's seminar

- Focused on students who go from /S7%S to "h\$, but remember there are other paths to a "h\$#
  - Caveat: in spite of "h\$ programs existing, not every field requires one for advanced instruction and/or research (e.g. dance)
  - Takeaway: if you have a specific interest, learn your degree options
- Seminar has facts mixed with thoughts from previous presenters, which also includes my own (in italics)
  - Caveat: may be at odds with other advice you have received
  - Takeaway: talk to others (especially at programs of interest)

Outcomes of /S

# Outcomes of BS vs. MS vs. PhD (or BA vs. MA vs. Phd)

- An individual holding a PhD will typically make 60% more than someone with a master's degree
- The unemployment rate for PhD holders is less than 5%
  - Similar for other types of professional degrees (MD, JD, etc.).
- There are limited opportunities for jobs in college instruction, or in research, for people lacking PhDs in their field
  - Especially true in STEM, but it may not be the case in other fields
- A PhD can lead to preferential treatment with regards to promotion and project assignment
  - My experience is that it can also make you overqualified for some industries
- A PhD enables its holder to work in academia, to work in an industry related to their field, or even to start their own business

# Outcomes of /S vs. %S vs. "h\$ (or BA vs. MA vs. Phd)

- . n %S, %. or "h\$ may put you in a position to create knowledge#
- . /S7/. may put you in a position to conduct research, but typically working for someone with a %S, %. or "h\$#
  - unless you , or & in an industry that does not 'value' an advanced degree -
- . "h\$ allows you to set the course of a research lab<
- All of the above requires a "tion and independent thinking -
- Food for thought: 'America produced more than . //, /// doctoral degrees "et, een 0//1 and 0//2. In the same period there , ere 4 st . 5, /// ne, professorships. \*
  - <https://www.medi m.economist.com/6, hy/doing/a/phd/is/often/a/aste/of/time/7820/5f2add> "

- Corporate research and development  
o t of my grad ate la "

Applying for a %S, %. = PhD  
program

# Applying for a **BSc, BA = PhD** program

- Prerequisites
- Most SAO programs do not require a degree prior to applying for a PhD program (this is called direct entry)
- Any BA programs result in an area of specialization:
  - BA in History
- Some programs are :eld of specialization:
  - Masters of Social Work
- (many options) Honours (one of) in Mair:
  - BA, BSc in ) rban Studies, BA in Environment Studies, BA in &onpro: t . dministration and Feadership
  - 1\$7% dual degree program \* N a BA in ) rban Studies and "u8lic . Mairs

# Applying for a MS, MEd = PhD program

## Academic evidence

- Transcript, GNO
- \* recommendation letters
- Portfolio

## \* Research experience

- Resume
- \* recommendation letters
- Publications

## Demonstrated potential

- Evidence of leadership
  - reach out to lab/s programs that may interest you
- \* Other experiences and extracurricular activities

## Ability to collaborate or work with others

- \* recommendation letters
- Statement of purpose and/or a personal statement
- Interview ; questions

## Ability to multi-task

## Creativity. writing ability

# Applying for a PhD program: Research Experience

- Research experience is just as much for you as it is for your PhD application)
  - Applied work outside the classroom may, be equally as, essential for some PhD programs
- This is a very important qualification, particularly in SAO% disciplines#
- Showcase your work outside the classroom no matter, what it may be.
- If you have had the opportunity for longer research, it is more advantageous to mention, 66 semester(s) of research than to mention 12 weeks of summer only work

# Applying for a MS, MEd = PhD program: The GNO

If your GPA is low, you will have to address it in your cover letter and statement of purpose)

- You may wish to focus on your GPA within your major
- You may wish to focus on your Upper level GPA (excludes your freshmen or freshmen and sophomore years) (remember doing this)

The following approaches may compensate a low GPA

- Excellent reference letters
- Good research experience (the more, the better, case your research very well)
- A convincing statement of purpose
- A good GNO score, particularly a good Subject GNO score
- Research experience at the institution to which you are applying
  - Again, talk with professors (here you may want to go

# Applying for a **MS, M.A. = PhD program:** **The GRE**

## General GRE

- **Verbal reasoning** Tests the ability to analyze and evaluate written materials and synthesize information obtained from them (Scored from 130-170, 6 sections of 30 minutes each)
- **Quantitative reasoning (T&A)** Tests basic mathematical skills and the understanding of elementary mathematical concepts (Scored from 130-170, 6 sections of 30 minutes each)
- **Analytical writing** Tests critical thinking and analytical writing skills (Scored from 4-6, 6 sections of 30 minutes each)

# Applying for a %S, %. = PhD program: Ahe GNO

- You may take the computer-delivered test once every 21 days. up to 3ve times within any continuous rolling 12-month period (3<= days)
- (core reports
  - >n test day (free for ? reports)
    - &ot to send reports
    - Send
      - %ost recent
      - . ll
  - #fter test day (@2 per score report)
    - %ost recent
    - . ll
    - Selected one
- 6\* & scores are valid for = years

# Applying for a %S, %. = PhD program: Ahe GNO

- Aa5e the GNO in your 4unior or sophomore year# Ima' ine preparin' for the GNO durin' your senior year###course wor5, under' raduate research, writin' personal statements and preparin' ' rad school applications#
- Aa5e the dia' nostic GNO as a 8allpar5 indicator of your future scores
  - [www.collegeboard.com](http://www.collegeboard.com) = [www.collegeboard.com](http://www.collegeboard.com)
- Awo 8ad GNO scores will indicate a trendB don@ ta5e the test a second time unless you are ' oin' to 8e 8etter prepared than you were the : rst time#
- Fet recruiters 5now if you plan on ta5in' your GNO a' ain#
- . s5 recruiters a8out the GNO scores for their pro' ram (this , ill tell yo a lot)
- \$on@ report unless it is ' ood#
- . ' ood Su84ect GNO score may help if you are chan' in' disciplines, or if your G". is not so ' ood#
- . ' ood GNO score in ' eneral will help if your G". is not so ' ood#

# Applying for a %S, %. = PhD program: Pour transcript

- Those reviewing your application will be examining your transcript
- You should do the same# If your G.P. is low, you should be able to explain what drove it down and why#
- It will be even better if one of the faculty members writing on your behalf can address that issue in their letter#

# Applying for a PhD program: Letters of Recommendation

*Note: This is considered the most important of all application materials, - +. / / iased advice ##0*

- Ideal order of Preference: 1. Faculty member who has supervised your research 2. Supervisor who has seen your direct work with clients in practicum or internship experiences 3. Faculty member with whom you have worked closely 4. Faculty member who has supervised your research 5. Anyone else
- Your discipline faculty mentor (20%) and non-discipline faculty mentor (<20%) can be your references
- Professor who taught you classes, preferably upper level classes, may be other references
- Letters from advisors, graduate assistants, teaching assistants, or research assistants, will not be considered seriously.
- A letter from someone who directly supervised your undergraduate research is okay, but I would still ask the faculty supervisor to write a supporting letter
- If you are applying to top schools, it is not a bad idea to ask the letter writers to attach their own CVs
- Industry letters tend to be weak. You may have to let them know exactly what you would like them to highlight in the letter

- . s5: I Would you be able to write me a strong recommendation letter?J
  - Personal experience: I have been asked by students for a letter I've been honest with them about what I could say in the letter and they ultimately decided to ask someone else) They didn't bother to ask the above questionAA
- "Provide your resume and a paper/project that the faculty recommender awarded you an A#
- It is not a bad idea to invite them a little blur about what you would like them to include
- Give your letter writers a folder of documents with a picture (may be not necessary)
- Give your letter writers sufficient time to write (the day before, will not result in a strong letter)#
-



# Applying for a Statement of Purpose = PhD program:

## Statement of Purpose

- The second third of a statement of purpose is where you sell yourself
  - What is impressive about you? You should mention that you are a first-generation low-income student (2GFI) and/or that you are from a group underrepresented in higher education (URM)
  - Explain any gaps or discrepancies in your academic records
  - If you have worked a lot during your college years, explain this as well
- The last third of a statement of purpose is your conclusion
  - Outline your future plans
  - Mention faculty with whom you would like to work) (Have you met any faculty?)
  - Explain why you like the institution to which you are applying

- In your conclusion, make sure to incorporate your interest in the specific qualities of

Applying for a %S, %. =

# Applying for a MS, M. = PhD program: Your portfolio

- Resume
- Research papers
- Projects
- Group projects
- Final reports
- \* Other significant graded work
- . picture of yourself (either on the outside or inside of the cover)
  - *None of them did this but it can't hurt*

Remember to make all the suggested corrections on your reports)

# Applying for a PhD program: Nan5in' s %atter (5inda)

There is probably not much difference between the U= program and U, , program 3 But there a difference between the U, , program and U+- program 6 (hec5 ) S &ews and World Neport and \$\*C \*ankings) (counter: my school (asn't e\$en ran 'ed)

Sites where students can generate their own rankings of graduate schools:

<https://www.phds.org/>

<https://college-scorecard.edu/>

<http://graduate-school.phds.org/>

<http://www.petersons.com/default.asp?ShowAa8V'r>

Apply, at minimum to , > schools 3 C#(T # C5' & \$&T (unless you 'no / (hat you (ant):

Top 37 Pour miracle choices do not self-select out of these

Bottom 37 Schools to which you don't want to go, but which you are prepared to accept

Medium ?7 Solid choices to which you should gain admission# ; our ' E4 may , e a valuable resource (This was 8&\*; important for /oth mine and ' r) Cirth's situation F more on that later))

Your list should depend on your grades, your GNO score, and your O(. #

# Acceptance to and Choosing a PhD program , - +. / /iased 0

# Acceptance to a PhD program:

## \* Mer Fetter

Most programs now will send out offer letters in December or early January. The letter (hopefully) will contain the amount and conditions of your stipend. Offer letters from programs are typically in the \$10,000-\$15,000 range. You will have until mid-March to make a decision on the offer.

# Choosing a PhD program

This is one of the most important decisions that you will

# Choosing a PhD program: 2actors

- 1) Number and Quality of potential advisors  
determined from visitation week# may change if advisors are assigned prior to acceptance deadline#
- 6) Feeling comfortable with the culture and location  
including the faculty, graduate students, and city#
- =) Other resources, i.e. how are other SAO% programs ran#ed, how much collaboration is there?
- + ) Graduate placement

# Choosing a PhD program: Advisor Selection

- "It's someone that you could form a healthy working relationship with. This may not be someone that works exactly in the area that you thought you

# Choosing a PhD program: (culture of "room"

- You will more than likely be spending a majority of each day of your early and mid-60s in a single institution with similar people#
- ; >G \$&&' T> "5H& C %&\* & ; >G #\* &)

# Choosing a PhD program:

\* the resources at the university

- Academic resources & other programs in related fields, people that you could work with (but are not your advisor), core research facilities
- Professional resources & seminars, etc.
  - /y school lacked these resources
- Personal resources & \* Spaces, campus facilities, active graduate student associations

# Choosing a PhD program:

## Placement of Graduates

- Where do most graduates go to work? (certain programs have strong ties to corporate or academic labs) Does this fit your plan?

# Choosing a PhD program:

Questions to ask on visitation (Supplement Info)

- Ask everyone (faculty, students, staff)

# Doing a PhD:

- /S (hem0 at S) &P /uMalo, \*! erall G". W=#KL, On' ineerin' G". R=#0, \$oesn@ remem8er his GNO
- %ulti6year research relationship with two well65nown (olloid Scientists (letters))
- ery hi' hly in! ol! ed with student chapter of . I(h0 (letter from dept chair))
- Internship as a researcher at local company
- \$id not 5now what a "h\$ was until late in my 4unior year 3 didn't really know where else to apply, esides (G\$; Du: alo)
- /S %0 at ) ni! ersity of \$en! er, \*! erall G". W=#-, 4unior & senior year G". R=#0, \$on@ remem8er my GNO (8ut it wasn@ terri8ly hi' h)
- %ulti6year research relationship with an emer' in' 8iomechanics researcher (letter)
- Student athlete for two years
  - %ultiple research pro4ects after
- Internship at local orthopedics research company
-

# Doing a PhD:

Dr) Sirth's story

4 y story

- . pplied to 4ichigan, Princeton, Carnegie Mellon University, S) &P /uMalo, (WN) , %IA, Har! ard "hysics, ) "enn#

er m0&d@VaA% m4p VaAfoPt. ter

(#ccepted I visited, . ccepted & did not !isit, Wait listed7re4ected)

- "ro8a8ly should ha! e applied to =G+ more places 3 especially outside of my re' ion#
- "ic5ed the lowest ran5ed pro' ram (of the 3 realistic options) 8ecause he felt C4G had the most options for potential advisors and he 3t very well into the department's culture)

# Doing a PhD: Questions?