

# GENERAL BODY MEETING

UC NSBE 9/26/2023

NSBE General Body Attendance  
Form 9/26



# AGENDA

**01** INNOVATE-O-THON

**02** STUDY JAMS

**03** T-SHIRT DESIGN

**04** FALL REGIONAL CONFERENCE

**05** GRAD SCHOOL PRESENTATION

**06** FOLLOW OUR SOCIALS

# NSBE MISSION STATEMENT

The mission of the National Society of Black Engineers is "to increase the number of culturally responsible Black Engineers who excel academically, succeed professionally and positively impact the community."

# INNOVATE-O-THON



- Overnight hackathon-style event with Marmon, Inc. with a chance to solve a Marmon-specific industry problem
- **October 27th-28th**
- Gen-body can get up to the first 30 spots
- Make sure you say "from NSBE" on question 8

UC NSBE & Marmon Innovate-O-  
Thon Registration




# STEMULATING SATURDAYS



- 1st Saturday of every month, @8:30-11:30 am
- Looking for volunteers to help with students doing STEM activities through hands-on challenge based learning experiences

# STUDY JAMS

Tonight at 7 PM in Baldwin  
537!!!



## SMES STUDY TABLES


### DATES


9/12/23 from 7:30 pm-9:30 pm  
9/26/2023 from 7:00 pm-9:00 pm  
10/10/2023 from 7:30 pm-9:30 pm  
10/24/2023 from 7:00 pm-9:00 pm  
11/7/2023 from 7:00 pm - 9:00 pm  
11/14/2023 from 7:30 pm-9:30 pm  
11/28/2023 from 7:00 pm-9:00 pm


In Baldwin 537


### JOIN US FOR ALL OF THE ABOVE


- Collaborative learning environment with peers, volunteer tutors, and graduate students
- A safe place to do homework and study for upcoming exams
- Learn more about NSBE, AWOCE, SHPE, SASE, and IECE
- FREE FOOD


**NSBE**  


**AWOCE**  


**SHPE**  


**SASE**  


 Baldwin 537

 Join on Campus Link!

# T-SHIRT DESIGN

Are you interested in having a t-shirt design competition? Would you rather us make the design and you guys get to win a t-shirt?

Raise your hand if you want a t-shirt design competition!

# FALL REGIONAL CONFERENCE

- FRC is November 17th to November 19th
- Deadline to submit Interest form is October 17
- Early bird deadline is October 11
- Regular Deadline is November 12

**INTEREST FORM**



**FRC EVENT  
SIGN-UPS**



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# **GRAD SCHOOL PRESENTATION**

# FOLLOW OUR SOCIALS!

Follow us on Instagram: @uc\_nsbe

Follow our CampusLINK/GetInvolvedUC:  
National Society of Black Engineers

Join our Slack!



# Ph.D. Programs in STEM: A Comprehensive Overview of the Process & Lifestyle

Presented By: Reinaldo (Rei) Dos Santos

09/26/2023

# Introduction

- What this talk will be
  - This presentation will cover general information about receiving a doctorate of philosophy (Ph.D.) in Science Technology Engineering Mathematics (STEM)
  - This will include examples from my experience; from applying to present day.
- What I'll cover
  - What is a Ph.D.
  - Applying to schools
  - Ph.D. outlooks: as a student and beyond
- What you will learn

You will have a solid understanding of the reasons why one would pursue a Ph.D.
- Opportunity to ask questions
- My intention is to give you a clear picture of grad school compared with other options commonly pursued by post grads
  - I am **not** trying to persuade you to do a Ph.D.

# My Background

- Grew up in Deerfield Beach
- FAU Alumnus 2020
  - 2017 NSF-T LEARN
  - Studied Mechanical Engineering at FAU
- Currently pursuing a Ph.D. in Biomedical Engineering at the University of Cincinnati
  - 4<sup>th</sup> year grad student
  - Tissue Engineering
- Research background in materials development
  - Functional materials/polymers (Kevlar)
  - Biomaterials

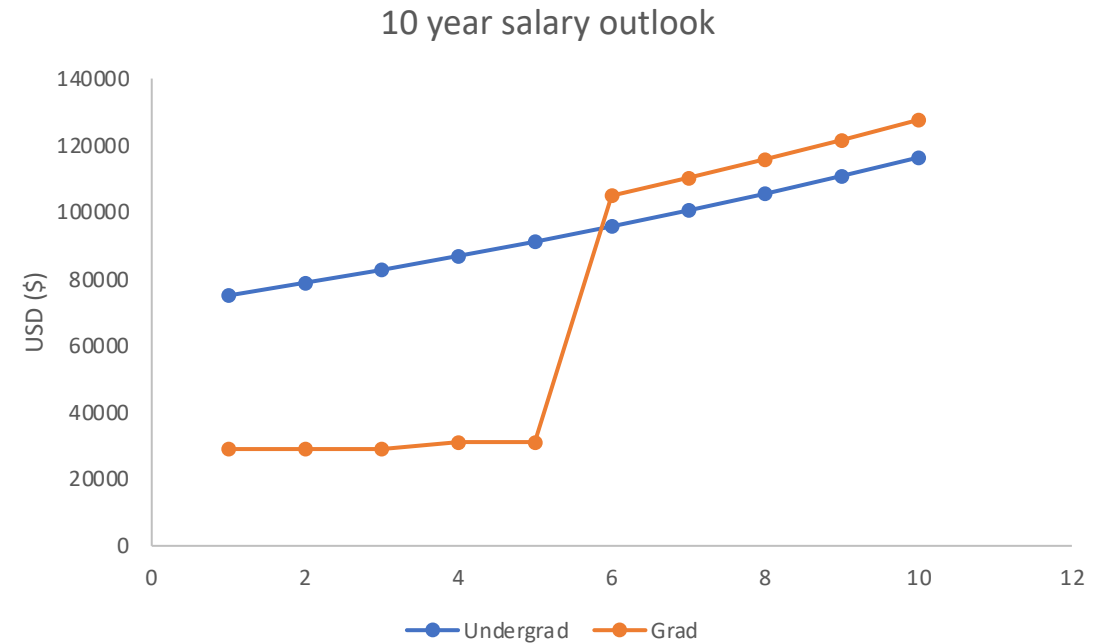


# What is a Ph.D.?

- A Ph.D. is an advanced degree where a student works closely with a professor and their lab to advance knowledge in a specific discipline
  - More about doing research (lab work, publishing, attending conferences, etc.)
  - Less about finishing classes, getting good grades, and working on extracurriculars
- Grad students deep dive into their own project and work towards research independence with the guidance of their advisor
  - While the advisor is there to guide you. The onus will be on **you** to do your research/lab work whatever that may look like
- Ph.D. recipients should demonstrate a deep understanding of their field, an array of lab skills, and ability to independently formulate and defend research projects against the scrutiny of peers

# What is a Ph.D.? C.R.E.A.M.

- Most Ph.D. programs in STEM are FREE!!
  - No tuition paid, earning salary
  - Can be different for R2,3
- Financially, doing a Ph.D. is like taking a 4-5 year pay cut
- With your undergrad degree you can find great paying jobs (degree dependent)



\*These are general estimates to illustrate a trend. These numbers aren't meant to be exact and is subject to a wide amount of variability\*

# What is a Ph.D.? Pros & Cons

- Pros of post BS degree job
  - Earn decent amount of money reflective of your knowledge/experience
  - General independence
  - Establish foundation of your career with practical work skills
- Cons of post BS degree job
  - Limited to scope of company you work for
    - Less room for creative endeavors
  - Can be difficult to learn wide array of skills on the job
  - More difficult to transition to other fields
    - Not impossible
- Pros of doing a Ph.D.
  - Learn more about R&D
    - Hands on research versus talking about it (presentations/seminars)
  - Become an expert
  - Independence is apart of the job
  - Great for the insatiably curious
- Cons of doing a Ph.D.
  - Delayed gratification
    - Being poor (relatively)
  - Difficult, mind intensive work with countless moments of failure
    - Self motivation is key
  - Can be a difficult investment to make given your situation (Kids, moving away from family, etc.)



# A note on post baccalaureate research programs

- Post baccalaureate (Post Bac) programs are an option after graduation
- Used to conduct research in field you are not experienced in
  - Ex. If you are a physics major with little to no research experience in undergrad but want to pursue medical science research this would be a good option
  - If you are in your senior year and just finding out about research opportunities
- Used as experience to transition into a Ph.D.
  - Paying job, develop research experience, network in field you're interested in
- Post Bac resource:
  - (NIH) <https://www.nigms.nih.gov/maps/Pages/Post-Baccalaureate-Research-Education-Program-Institutions.aspx>
  - (More general) <https://www.pathwaystoscience.org/>

# GEM Fellowship

- Masters

- 8000 living stipend per academic year
- Up to two Paid Internship during program with GEM Employer
- Full Tuition and fees up to fifth year

- PhD

- 16,000 Stipend per academic year
- Additional Stipends from GEM University
- One Paid Internship during program with GEM Employer
- Full Tuition and fees up to fifth year

## Eligible Disciplines

Included, But Not Limited To

Aeronautical Engineering  
Aerospace  
Agricultural Engineering  
Analytical Chemistry  
Anatomy  
Automotive  
Biochemistry  
Bioengineering  
Biology  
Biomedical Engineering  
Chemical Engineering  
Chemistry

Civil Engineering  
Computer Engineering  
Computer Science  
Data Science  
Electrical Engineering  
Environmental Engineering  
Environmental Science  
Industrial Engineering  
Information Systems  
Inorganic Chemistry  
Manufacturing Engineering  
Materials Engineering

Materials Science  
Mathematics  
Mechanical Engineering  
Metallurgical Engineering  
Nuclear Engineering  
Operations Research  
Organic Chemistry  
Petroleum Engineering  
Physics  
Robotics/Engineering  
Structural Engineering  
Systems Engineering



THE NATIONAL GEM CONSORTIUM



# Applying to Schools

R1,2,3s

- Universities have research classifications
  - Research levels 1, 2, and 3
- R1 schools have the highest research output and this goes down as you get to R3
- R1 schools will most likely fully fund your Ph.D.
  - R1 Schools usually have teams in the big football conferences
- Can also google as this information is public
- FAU is an R2 university but closer to R1 than other R2s in my opinion



# Applying to Schools

- When applying for a Ph.D. position, you are not actually applying to the school itself but more like the individual program within the school you choose
- Faculty within the program will review your application rather than an admissions officer
  - Be aware of this when writing your statement of purpose. Dr. so-and-so may be reading your name drop and will laugh.
- Helps to have relationships with faculty in a program who can champion your application

# Applying to Schools – What you need to do

1. Identify what program you want to apply to
  - This is a critical step. What do you want to be an expert in? What experience do you want?
  - You do not need all the answers in this point of applying. Choose a discipline and **commit**
2. Identify what schools you will apply to
  - Prioritize questions like: Where do you want to live for 5 years? Is the program at this school fully funded? What are the faculty like in this program  
Location, housing cost, cost of living, application requirements
  - Rather than questions like: How prestigious is this university?
    - Prestige means nothing when it's -5°F outside and you have to go to lab

# Applying to Schools – What you need to do

## 3. Go to conferences

- Grad school conferences are perfect opportunities to talk to individual schools you may be interested in applying to
  - Conferences are an investment towards grad school. They will cost you money but the benefits are great if you're committed to doing a Ph.D.
- You must do the previous 2 steps before this one
  - Know what program you want to apply for/ have an actual interest in a STEM field
  - Have a wide array of schools that offer this program on your radar
- Identify which schools you will apply to and visit these booths first
- Identify other booths that interest you and use your conference time completely and wisely
- **ASK FOR APPLICATION FEE WAIVERS!!!** These schools don't need more money

# Applying to Schools – What you need to do

## 3. Go to conferences Cont.

- While at these booths, ask about:
  - Ask about ongoing research
    - Talk about your research interests
  - Application requirements
  - Recruitment visit weekend events
  - Individual student experiences (Ask the grad students about Ph.D. life)
- You are a potential asset for these programs. Carry yourself professionally and do your due diligence and you will get the most out of the experience
- Some Conferences you can look into:
  - SACNAS, ABRCMS, ASBMB, ACS, SHPE, NSBE

# Applying to Schools – What you need to do

4. When applying you will need to prepare applications for each individual program you apply to
  - Statement of purpose – telling your story and tying it in with your research experience and life goals
  - GRE – Graduate record examination is a standardized tests commonly used in grad admissions
    - Being phased out by many programs as a requirement
    - My scores: Verbal – 148 (34<sup>th</sup> percentile), Quantitative – 148 (27<sup>th</sup> percentile), Writing – 3.5 (37<sup>th</sup> percentile) Summary – not great scores, pretty average!
  - Application fee – Ranges from \$0-\$150
    - Get this waived!
  - CV (resume), official transcripts, TOEFL (for international students)
    - Grad programs love to say they want resumes but a lot of them actually want CV's instead. Inform yourself about the programs you're applying to
- Be aware of the work you need to do for the application and create a timeline for yourself to finish applications



# Applying to Schools

- Submit applications and wait
  - Response usually comes in mid spring (March – April)
- Prepare yourself for potential failure
  - **Do not** tie your worth to the school you get into because departments can still accept applications with no intention of admitting Ph.D. students that year
- Make the most of the admissions you do receive
- Keep yourself in the right mindset that this is a career opportunity and an investment into your future
- Commit yourself to a decision and follow through

# Interviews

- Individual professors may reach out and ask for an interview
  - Sometimes this is done in person
    - Flight to campus paid for and hotel
    - Tour campus and interview with professors in the department
  - Keep in mind that professors may not have funding to take on Ph.D. students so be flexible with your choice of research topic
    - Remember a pro for grad school is the flexibility to be creative
- In a post COVID world this may be virtual
- Read some work from professors you'll be talking to
- You **don't** need to be an expert before the interview, but you **do**:
  - Need to have clear career goals which make sense with doing a Ph.D.
  - An idea of your academic interests (research topics)

# Ph.D. Outlooks – Advisor/boss

- Every grad student works with a PI (professor)
- You don't know who/how your advisor will be until you join their lab
- Dealing with an unreasonable PI is difficult but not impossible
- You'll need to develop a mutual understanding of expectations
- If absolutely no compromise can be achieved, then you have the option to switch labs

# Ph.D. Outlooks – What your experience may look like

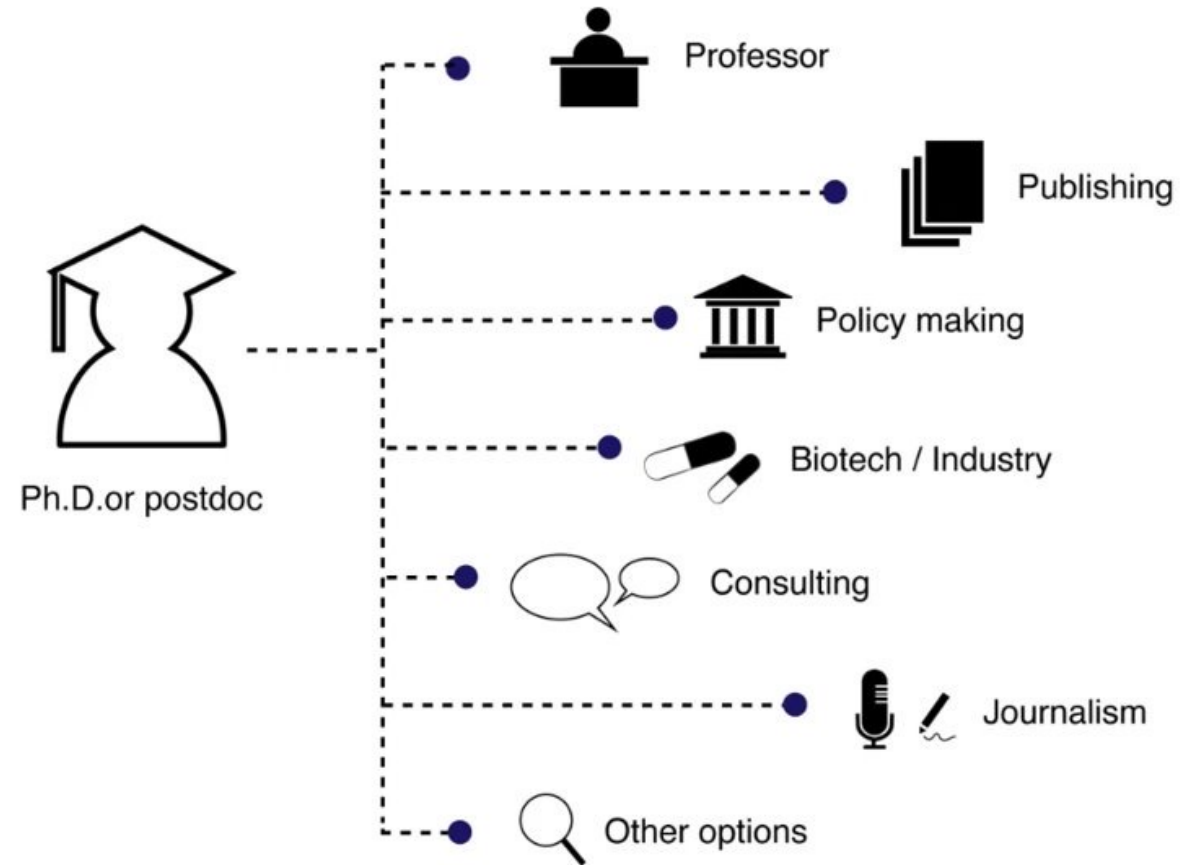
- Moving to a new city
  - Can be expensive
  - I spent about \$4000 between driving up, signing my lease (down payments), and buying furniture
- Admissions are usually for the Fall semester
  - Moving in July-August
    - Peak move in dates for undergraduates
- Taking classes and doing research your first year
  - May do lab rotations
- Essentially getting your feet wet in research and starting to understand your research project

# Ph.D. Outlooks – Lifestyle

- Ultimately doing a Ph.D. is like having an entry level job
  - Except with much more freedom
- I don't typically stay late and if I do, I'm usually out before 7
  - Work hours are highly dependent on the type of work you do
- A decent work life balance is possible to achieve
  - But self motivation is key
- Chris?

# Careers for Ph.D. Scientists

- Can often be simplified to choosing between academia and industry
- You're an expert critical thinker/problem solver
- Think of yourself as a source of skills that you've learned over the course of schooling
- Often these skills are transferable to many fields



# Acknowledgments

- Thank you:

UC NSBE

Special thanks to Deborah and Chris



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## Q & A session