



RICE NATURAL SCIENCES  
Chemistry

# ROAD TO GRAD SCHOOL

**A WORKSHOP BY GRADS**

**Find out more about grad school!**





# ABOUT US



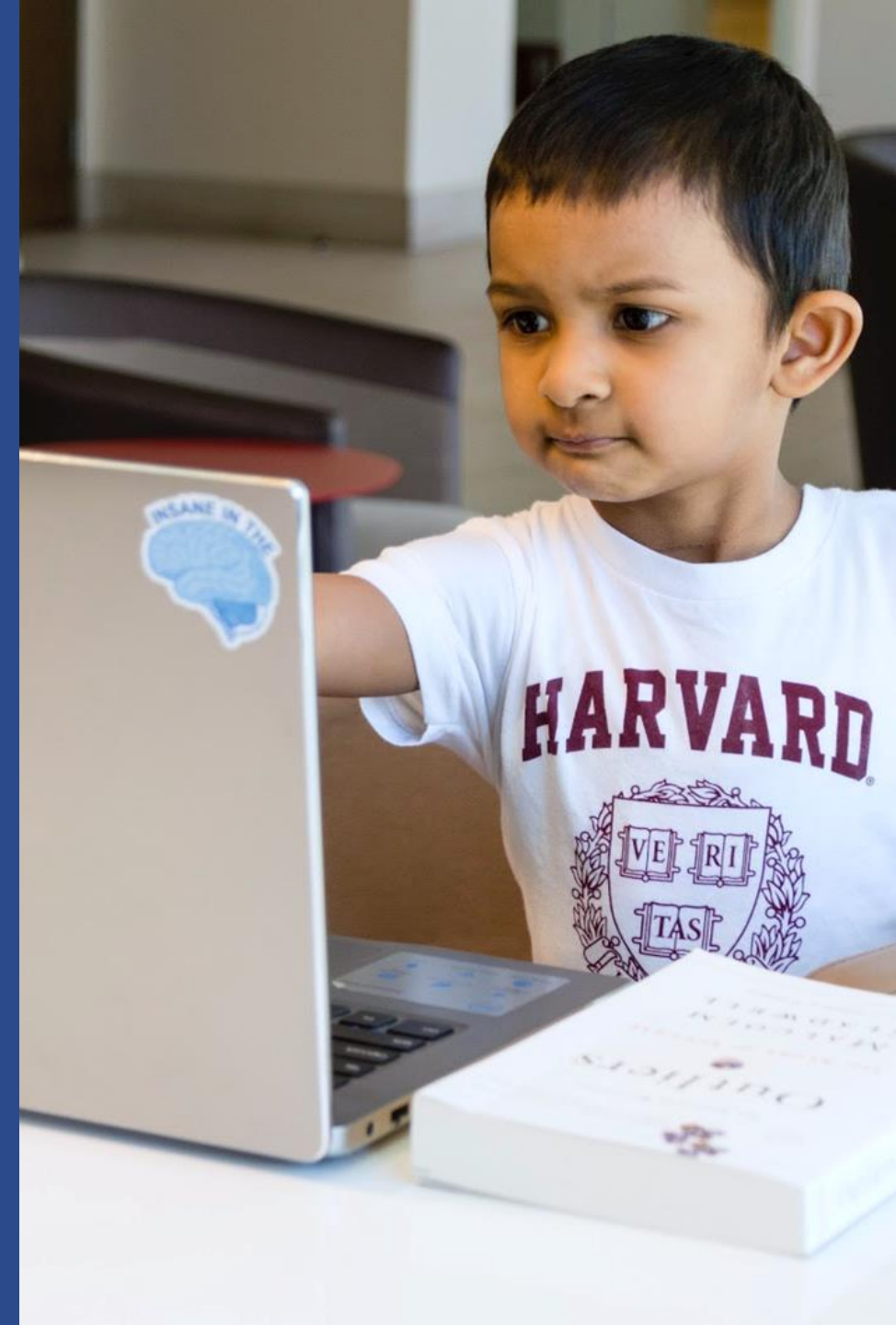
**F**acilitating  
**A**dvances in  
**C**hemistry for  
**E**quity and  
**T**ransparency for  
**S**cholars

- Promote diversity, representation and inclusion
- Encourage dialogue and awareness, getting involved and gaining new perspectives
- Create a welcoming environment for current and prospective students.

# OVERVIEW

- Four important questions:

- What is a PhD program?
- What can I do with a PhD?
- Am I qualified to apply to grad school?
- How do I apply to grad school?



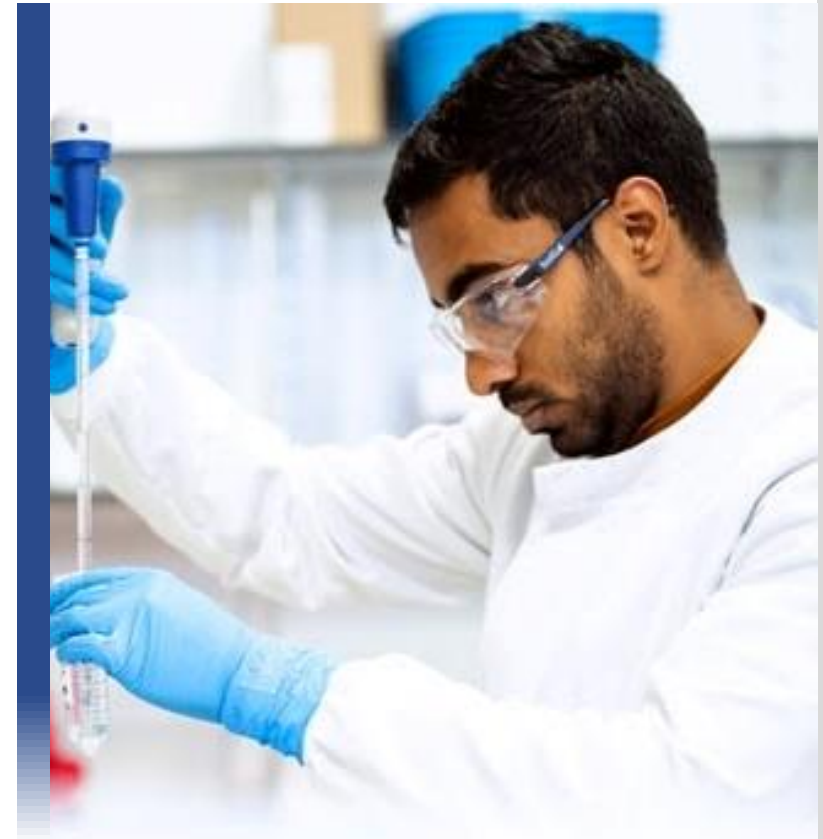
# WHAT IS A PHD PROGRAM? YOU GET PAID



- You get paid to **conduct research**, take some classes, and develop into an independent-thinking scholar and expert in your field
- Let's repeat that: **you get paid**
- Most PhD programs, particularly in STEM and in chemistry, provide a stipend:
  - Often \$20,000 - \$30,000 per year, depending on the program and location
- You do not have to pay any tuition (tuition is waived)

# WHAT IS A PHD PROGRAM? FULL TIME RESEARCHER

- This can be considered a full-time job
  - It is uncommon to have another job while working on a STEM PhD. Your graduate work takes up the majority of your time
  - Of course, engaging in university activities, departments, centers, tutoring, teaching, etc. is normal
- Research is the primary focus, not classes
  - You take some classes, particularly at the beginning
  - In chemistry, you finish all required classes within the first year or two. Some fields require more classes.
  - A PhD is a research degree, so you will spend most of your time thinking about, reading about, and working on your research project(s)
- Your research pushes the boundaries of the field
  - You make new discoveries and help advance science
  - PhD students do both basic and applied research



# WHAT IS A PHD PROGRAM? INDEPENDENT RESEARCH



- Grad school is your journey
  - You lead your own research and drive your project
  - You have some control over your research topic and direction, in collaboration with your advisor
- Grad school is both independent and collaborative
  - Work with other grad students, postdocs, professors, undergrads, other lab groups, different universities, industry
  - At Rice, we have collaborations with NASA, the Department of Defense, the Texas Medical Center, National Laboratories, FDA, Department of Energy, Industry, startups, and more.

# WHAT ARE THE REASONS SOMEONE GETS A PHD?

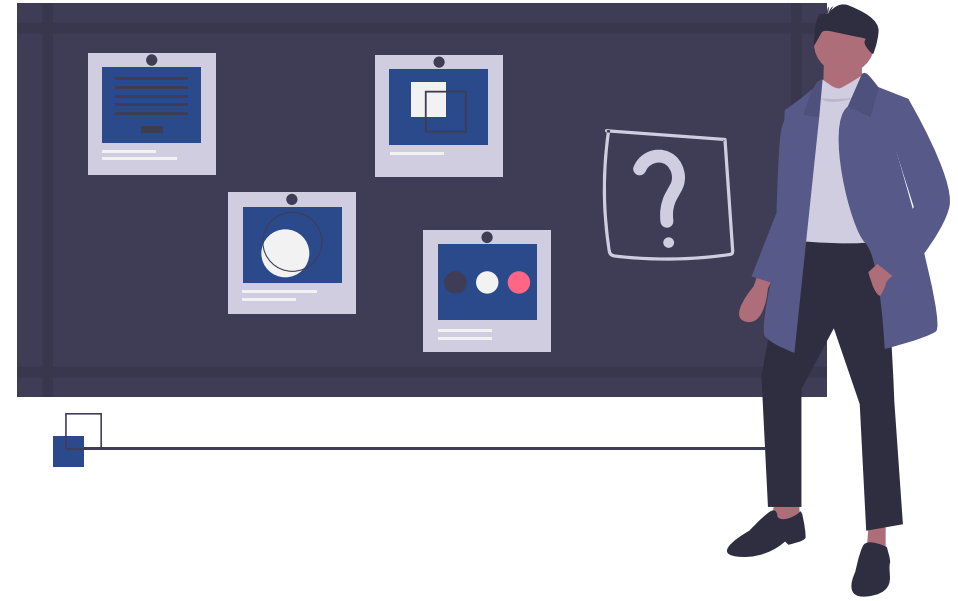


- Individuals go to grad school for a variety of reasons, such as:
  - To broaden career opportunities
  - To learn more deeply about their undergraduate studies
  - To make more money
  - To create new knowledge
  - To earn respect
  - To network with smart people
  - To work in academia (e.g. professor)
  - To stay in school forever
  - To learn a new way of thinking, problem solving skills, independent thinking and mindset and research, analysis
- **Think about your reasons. Do any of these resonate with you? Do you have another reason?**



# WHAT CAN YOU DO WITH A PHD?

- A PhD will give you tools and skills that you can apply in many different sectors. Some of these skills:
  - Data analysis
  - Gathering and interpreting information
  - Quick learning
  - Self management
  - Creative thinking
  - Oral and written communication
  - Project management
  - Decision making and troubleshooting



**At the end of your PhD you will be an independent researcher, capable of looking at a problem or question, analyzing it, and applying the scientific method to gain information and find an answer to it.**

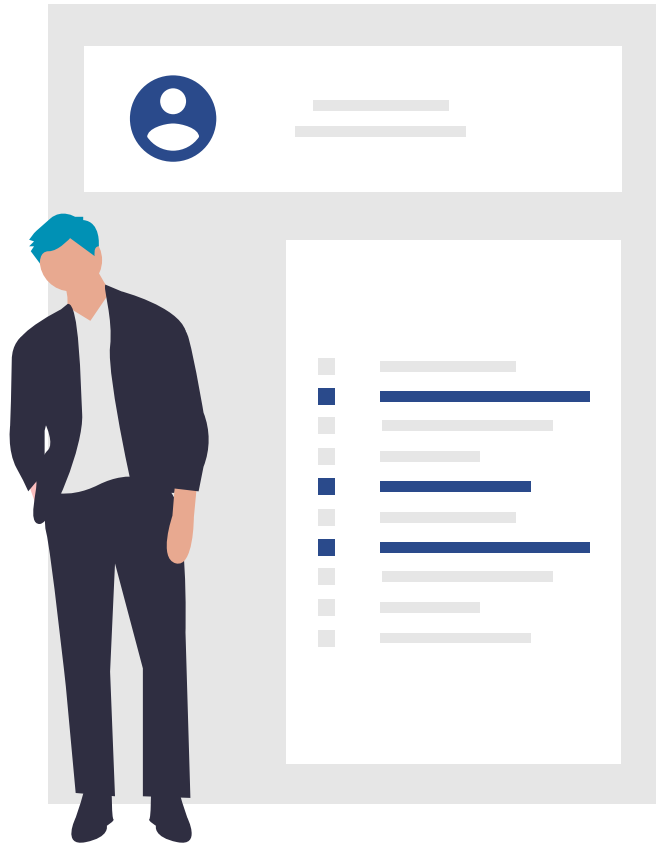
# WHAT CAN YOU DO WITH THE SKILLS OF A PHD?

- Research in academia
- Research in industry
- Research in government
- Business development
- Consulting
- Administration
- Intellectual property
- Politics
- Science Policy
- Regulatory affairs
- Science writing and communication
- Teaching
- Art conservation
- Forensics
- Law enforcement



**Basically anything!**

# WHAT SPECIFIC JOBS DO PEOPLE WITH A PHD GET?



- Here are some jobs that graduates from the Rice Chemistry PhD program have:
  - Postdoctoral fellow in labs at universities around the world
  - Senior Chemist
  - Research Scientist
  - Process Engineer
  - Assistant Professor
  - Battery Scientist
  - Consultant
  - Data Analyst
- The graduates work in a wide range of fields:
  - Chemistry
  - Nanomaterials
  - Oil & Gas
  - Aerospace
  - Bioengineering
  - Pharmaceuticals
  - Polymers
  - Bionics
  - Environmental
  - Patents
  - Big Tech
  - Cancer research

# AM I QUALIFIED TO APPLY TO GRADSCHOOL?

The answer is *CERTAINLY!*

\*Of course, there are some requirements you need to fulfill

# WHAT DO MOST APPLICANTS NEED TO APPLY?

- Bachelors in Science in Chemistry or a related field
- Strong grades, particularly in science courses
- Research experience



\*At Rice, applicants are evaluated holistically, not just on one application component.

\*\*If you have some poor grades or a lack of research experience but can make a case for building skills required for research, the admissions committee would take that seriously.

**You won't be accepted if you don't apply!**

# WHAT DO MOST PIs SAY?



- Working at a research lab as a graduate student means your projects will be highly specialized, and so will the skills.
- Most of the lab skills you will need, you will learn when you join the lab and not prior to being admitted to a program.

## **What really matters:**

- Being invested in your research and learning.
- Passion, willingness to learn and work hard.
- The ability to function independently and in a team

# WHERE SHOULD YOU APPLY?

- Select a school based on your research interests.
- There should be a minimum of 3 PIs that match your interests per university. You should mention them in your personal statement.
- Other potential factors to consider:
  - Access to scientific equipment
  - Department size
  - Graduate student culture
  - Geographic location: weather, city size, proximity to family.
- **Rankings are the least important!**

# THE APPLICATION: WHERE DO I START?

- There is no Common App for PhD applications. Each program has their own.
- There is large variability in application structure and format.
- In general, application fees are not rigid; email the program coordinator and ask for a waiver. Rice Chem waives the fee for all students in 2020.
- Applications are usually due December 1
- Early applications are often reviewed earlier!
- Usual components of an application
  - Personal statement
  - CV/Resume
  - Transcript
  - Letters of recommendation
  - GRE (general and sometimes subject test)
    - Rice Chemistry Department is waiving GRE this year!





# THE APPLICATION: PERSONAL STATEMENT



- **This is important!** Tell the admissions committee who you are and why you want to go to grad school, in your own words.
- Be concise and convey your story.
- Explain why you are excited about pursuing a PhD.
- You will enrich the culture of your cohort and school. Explain how you can do this, what you will bring.
- Discuss any research experience and what you've learned
- Most of this is about you, not about the school you're applying to. You can write your personal statement before even knowing which schools you plan to apply to and modify it slightly for each school.
- The last paragraph must be specific to each university. Do your homework.

# NOTE: YOUR STORY MATTERS

Having a **diverse perspective** is important, even if it isn't the stereotypical science narrative. Your background, your research interests, what you want for your future, it all matters! A lot of the most interesting research comes from people working at the intersection of different fields and interests.

# THE APPLICATION: LETTERS OF RECOMMENDATION

- Letters of recommendation speak to who you are from multiple outside perspectives.
- How do you choose people to write your letters?
  - Who knows you well?
  - Undergrad advisor (academic and/or research advisor)
  - Professor from you are close to and who knows you well
  - Professor whose class(es) were really impactful, and you forged a bond with them.
  - Mentor/boss from job or internship
- Ask them to write your letter of recommendation at least a month in advance, give them the due date, and send them polite reminders.
- Provide them a list of your attributes with your CV. You can jog their memory about an experience that you had with them in their lab or class.

# AFTER YOU GET ACCEPTED

- Acceptances typically occur December to January.
- You receive invitations for graduate visiting weekends.
- They are all expense paid weekend trips to:
  - Tour facilities
  - Meet current graduate students
  - Meet with professors
  - Observe department culture



# SUMMARY

- Three things to ask yourself:

- Is a PhD program appealing to me?
- Do I want these skills?
- Do I now feel qualified and ready to apply?



**APPLY TO GRAD SCHOOL!**

Discussion and question time

