

My ambitions to attend graduate school emerged during my freshman year in undergrad when I found out I could make a career out of research. However, as a first-generation college student at a small liberal arts college with no graduate program in my field, I had no idea what I had to do to reach my newly minted career goal. I didn't even know any graduate students I could ask about their experiences. This document is the list of resources I wish I had as a freshman. The following information is intended to serve as a non-exhaustive resource list and information dump for those who intend to pursue a Ph.D. in a social science/STEM topic in North America. More broadly, I hope this document will help make science a little more transparent and accessible to all.

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This document was written and put together by Courtney Gerver. All links were live as of 4/25/2021 and will be updated annually. Please email me at <a href="mailto:courtneygerver@gmail.com">courtneygerver@gmail.com</a> if you spot any links that need updating or if you know of additional information or opportunities that should be added to this list.

# **External Research, Internship, Post-Baccalaureate, and Co-Op Opportunities**

Most STEM Ph.D. programs require relevant research experience for admission, so the application process really starts far before you'd want to apply. While students can offer to volunteer with faculty members or undertake research for credit, that is not always a financially feasible option. The following links detail paid research opportunities for undergraduates. It is recommended to get research experience by at least by the summer of your junior year before you apply to graduate school. Here are some opportunities you could pursue to get research opportunities. Even if you do not see an opportunity at a particular lab, feel free to reach out directly to professors to see if they have a position.

## For all undergraduates:

National Science Foundation Research Experience for Undergraduates

American Psychological Association Undergraduate Research Opportunities & Internships
Society for Personality and Social Psychology Research Opportunities for Undergraduates
Institute for Broadening Participation
The University of Texas at San Antonio RISE Program List
UC Berkeley List—Undergraduate Research Programs
Duke University Job Board
Summer Undergraduate and Post-Bacc Programs in Cognitive Neuroscience

## For undergraduates from underrepresented communities, specifically:

Paid Summer Research Opportunities in Neuroscience and other life sciences

RIT TEACH Co/Op, Internship, and Summer Research Opportunities
American Psychological Association Fellowships and Programs
University of Georgia Research List
Harvard University List—Underrepresented minority fellowships
Big Ten Academic Alliance Summer Research Opportunities Program List
UC Berkeley List—STEM Programs for Undocumented Students

### For post-baccalaureate positions:

Pathways to Science
NIH-IRTA
Postbaccalaureate Research Education Programs
Applying to Post-Graduate Research Positions in Psychology

#### For positions for all levels of scholar:

Neuromatch Psychology Job Wiki

# **Undergraduate Research Grants**

Experimental research is heavily reliant on external funding. If you want to work with a faculty member but they don't have funding for your salary or your research, you can apply for a grant.

Beinecke Scholarship

American Psychological Association Summer Undergraduate Psychology Research Experience Grants
American Psychological Association Psi Chi Research Grant

Psi Chi Undergraduate Research Grants

National Institute of Health Undergraduate Scholarship Program

Sigma Xi Grants in Aid of Research Program

Mellon Mays Gap Assistance Program

National Institute of Health Undergraduate Institutional Awards

# **General Career Development Resources**

Most job applications ask, "How many years of experience do you have?" In research, your experience starts from your very first position. Take the time to be aware of what you can do to help yourself become an expert. These resources will also help with any research or Ph.D. program application.

Oak Ridge Institute for Science and Education Psych Research List



# **Graduate School Application Timeline**

This timeline is specific to applying to graduate school in North American universities. Make sure to give yourself ample time to prepare your graduate school application. While some schools offer rolling admission, the application season typically occurs once a year, so it is important you plan the months leading up to the application deadlines accordingly. The deadline for some schools is as early as *November 1st*. I recommend starting the actual application process during the summer between your junior and senior years so you don't have to worry about trying to cram it in between schoolwork, extracurricular activities, work, and the like.

## 4-6 months before the application deadline:

- Determine professional goals: what do you want to get out of attending graduate school?
- Research institutions and programs: what program will help you reach your goals?
- Read application requirements carefully: what are the deadlines?
- Prepare and register for required admission exams: how many times do you want to take the GRE? Are you planning on taking a subject test? If you are an international student, do you need to take the TOEFL?
- Make plans to finance the education: How many schools can you plan to apply for (at \$40-\$120/ application)? What scholarships, assistantships, and/or fellowships are you eligible for?
- Think about your story: How do all of the life experiences you've had, classes you've taken, the clubs you've joined, the opportunities you've pursued lead you to where you are today?

### 2-3 months before the application deadline:

- Finalize a list of grad schools/programs.
- Establish contact with potential advisors. Reach out to see if they are accepting graduate students (it may say this on their website). Do not apply to someone not accepting students.
- Draft the statement of purpose and the application essay. I recommend doing this part over the summer if you are entering your senior year so you can focus on your classes once the semester starts up. Send your draft to others for edits.
- Contact professors and mentors about writing good letters of recommendation. Make sure you ask people who you have a professional relationship with over a personal one.
- Take the exams you need to take.
- Request official transcripts. This can be a surprisingly time-consuming and time-sensitive process.
- Complete as many elements of the application as possible, paying close attention to instructions and requirements.

#### 1 month before the application deadline:

- Gather letters of recommendation by sending university portal links to your recommenders.
- Polish the essay, personal statement and application. Ask as many people as you can to read and review your drafts.
- Continue financial planning.
- Submit application before deadline if possible! Some schools/programs have rolling admissions.
- Follow up to confirm receipt of application, test scores and other needed documents.

#### After submission:

- Celebrate! No matter the outcome, applying to a Ph.D. program is certainly no easy task!
- Make sure to keep your recommendation writers informed on where you end up!

# **Getting into Graduate School**

The graduate school application process doesn't need to opaque. Here's generally applicable information and advice for getting in. I recommend starting the actual application process during the summer between your junior and senior year so you don't have to worry about trying to cram it all in between schoolwork, extracurricular activities, work, and the like.

## **General Application Information**

The following links have great information on the graduate school application process. Be mindful that, for many programs, there are interviews associated with the admission process. Make sure to pay attention to those parts of the following links.

Harvard Psychology's PhD Resources and Online Tips Page

Kate Nuss Blog

The Sokol-Hessner Lab

**PrepScholar** 

**Duke University** 

Terri Frasca Part 1

Terri Frasca Part 2

California State University Stanislaus

## **Graduate School Application Advice from Principal Investigators**

Professors often have the last word on who is admitted to their lab or even to their department. I recommend paying special attention to advice given to them on applying to graduate school.

Aly Lab MEMO Lab Carter Lab Stearns Lab Zaki Lab

#### Finding Ph.D. Positions

As a first pass, professors have information on whether they will or will not be accepting students on their lab websites. I also recommend checking academic Twitter (#AcademicTwitter) or directly emailing lab heads to inquire about positions. Do not apply to labs that directly say they are not taking on new students.

**ScholarshipDB** 

Psychology Grad School Search

How to email professors about research opportunities/Ph.D. positions Science Mag

UC Santa Cruz
UC Berkeley



Figure credit: GWIS @ Penn State.

# **Advice for Each Component of the Graduate Application**

Most applications require a personal statement, CV (stands for *curriculum vitae*, which is like an extended resume), and GRE score. They will also ask for letters of recommendation (usually 3). Make sure to give the individuals writing your letter as much time as possible; more than 1 month is preferrable. Separately, graduate school applications are often pricey (\$50-\$150 per school). You can reach out to the school you plan on applying to for fee waivers if you feel you need it.

#### **Personal Statement**

UC Berkeley
Purdue University
Columbia University
Drexel University

#### CV

Cornell University
University of Illinois
Wordvice

#### **GRE**

Most applications require a personal statement, CV, and GRE score (most just ask for the general GRE, but some ask for subject-specific test scores. These are two separate exams.). They will also ask for letters of recommendation (usually 3). Make sure to give the people writing your letters of recommendation as much advanced notice of deadlines as possible; more than 1 month is preferrable.

Separately, graduate school applications are often pricey (\$50-\$150 per school). You can reach out to the school you plan on applying to for fee waivers if you feel you need it.

Free GRE Preparation Resources
Prepadviser (list of free GRE prep resources)
Test-Guide.com (free GRE practice tests)

General Day-Of GRE Tips <u>PrepScholar</u> <u>CrunchPrep</u>

Letters of Recommendation
Getting Letters of Rec
How to Ask for a Letter



# Other Information I Wish I Had Known Before I Entered Grad School

Click <u>here</u> to read a useful thread on graduate school through before some of my personal commentary below:

On wanting to pursue a Ph.D.: You must be absolutely sure of what you generally want to study before you apply to graduate school. Your application will be stronger when there is passion behind your interest, and 4-6 years is too long to simply "put up with" a topic of minor or no interest. Take the time to figure out what you want. You will not be "behind" if you don't enter graduate school right after undergraduate graduation (the average Ph.D. student is 33 years old). In fact, many scholars highly recommend pursuing relevant full-time research assistantships, lab manager positions, post-baccalaureate positions, or internships for a few years before applying. These positions are excellent ways gain additional research experience, figure out what you definitely want to study, and make a bit of money before earning a graduate student stipend.

On where to apply: In many areas (psychology, for instance), you apply directly to work in a specific lab, not to a general department like in undergraduate. School prestige doesn't matter as much as the caliber of science of the lab you are applying to. Some of the best science in the world comes out of labs in smaller, lesser-known universities. Separately, it can be tough to have a work-life balance in graduate school. Prioritize a lab that understands mental health is a priority above everything else. Reach out to the graduate students or postdocs already in the lab to see what life is like before applying.

On funding: Most programs offer funding for Ph.D. students. If you get offered multiple positions, you can use the other offers to leverage for better pay. Seek out programs that pay decent wages. It is often low, but livable. Do NOT pay for graduate school in the life sciences. In some US-based programs where you are fully funded, you will not be allowed to take another paying job. You need to be mentally prepared to watch your friends with less education and easier jobs making double or more of your salary.

On day-to-day science: Science is extremely personally rewarding. But you don't get those 'aha!' moments every day. Most of your job will be analyzing data and writing (publications, grants, etc.). Early in your graduate school career you will still be taking classes and will be doing more tedious work that is still absolutely necessary to the scientific process, like stimuli development, recruitment, and the like. Most of the time, nobody will tell you exactly what you should be doing in lab. You have to be extremely self-motivated and organized. Use reference managers like Zotero and reminder programs like Trello or Super Productivity. Always remember comparison is the thief of joy. Every field moves at a different pace and impostor syndrome will rear its ugly head. Make sure you have hobbies you're devoted to at the end of the day.

On change: It is okay to change labs. It is okay to change research interests. It is okay to not want to change anything about your current situation. At the end of the day, it's your life and what you want to make of it.

On time: Academia has very few deadlines. Many of them are self-imposed. Time management also isn't just for when you're on the clock. Spend time on fulfilling activities. It may feel like you don't have the opportunity to hang out with your family or go to the doctor/gym/therapist because you have too much to do, but make sure you make it a point to spend time on life. Take a full day off at least week. Set email boundaries from day one (I don't send emails after 9pm unless there's an emergency). If you say you're too busy to do anything else but work, it will be a self-fulfilling prophecy.

On rejection and criticism: Academics tend to grow a tough skin. There is an expectation that there will be more manuscript, grant application, and job application rejections than acceptances. Everything you write will be reviewed and criticized, likely by several people and potentially several times. It is critical to work with people who provide constructive criticism—you know they are looking out for you and only want to help you improve.

On getting advice: Generally speaking, graduate students are happy to provide advice on the application process, grad school life, how they balance their personal affairs during schooling, etc. Since we've successfully been through the application process ourselves, we want to see others succeed and avoid hurdles and frustrations. At the very least, I recommend reaching out to the grads in the labs you intend to apply for to see how their experiences in their labs have been.

On managing post-Ph.D. life expectations: The academic job market is extremely competitive. You will likely need to take a post-doc (or two) before you land a tenure-track position. Many people leave academia, but not necessarily science altogether, prior to applying for tenure-track positions.

# **Tips That Will Help Once You Get to Grad School**

- Great general advice from Dorsa Amir
- Double the amount of time you think it will take to complete a task. Better to overdeliver than overstress because not enough time was allotted.
- On being a good graduate student
- Stay as organized as possible. Name every file with something specific. Use version control websites like Github.
- Common statistical knowledge is critical to success. Here's a handy cheat sheet by Jonas Lindeløv.
- Knowing keyboard shortcuts will save you a ton of time. I recommend committing these to memory.
- Knowing how to code (lots of free MATLAB/ R/ Python courses) is key.
- Graduate students often present their work in <u>scientific poster</u> format at academic conferences. <u>Here's</u> a poster-making tool from Biorender.
- Make an academic Twitter; scientists prefer Twitter to LinkedIn.
- Apply to as many grants as possible.
- For later in your career, <u>here's</u> some job talk materials.