



## **Q & A from the *Growing up in Science* “What I wish I had known about doing a PhD” panel (Aug 10, 2020)**

*This resource was created and curated by a group of volunteer graduate students, postdocs, and faculty members, many of whom are listed in the “Compiled by” section at the end of the document. We also thank those who contributed and opted to remain anonymous and those who contributed in real-time during the panel!*

*Please note that while PhD students share many common experiences, every individual’s journey is unique. Gaining insights from a number of different people - including but not limited to the insights shared here - can help paint a more complete picture of PhD life.*

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## Preparing for/applying to grad school

What are the things you should look for in a mentor?

- Read *How to Pick a Graduate Advisor* by the late Ben Barres: [https://www.cell.com/neuron/pdf/S0896-6273\(13\)00907-0.pdf](https://www.cell.com/neuron/pdf/S0896-6273(13)00907-0.pdf)
- SMT: Think about the type of environment in which you thrive - do you want a hands-on mentor or an environment with more autonomy? Do you want to take part in a large data collection effort that can yield rich data or have the opportunity to creatively design your own tasks/studies? Even the best mentors can't be everything to everyone, so it is crucial to think about what parameters are important to you and seek out a good fit.
- STS: I agree with SMT, and to assess the mentoring style of a faculty, I suggest talking to the graduate students in the lab about the mentoring style of the faculty member, and their expectations in terms of work, communication, and meeting (frequent vs. infrequent).
- VC: I agree with both SMT and STS. Take your time to understand which environment you want to work in and which kind of supervisor you want, even if it might not be easy at the beginning. A good thing is to ask directly to your future mentor for contacts of people who work in the lab (in case you cannot meet them in person) and/or for contacts of former members. Normally, people who don't work anymore in that specific lab tend to be more truthful about what they've experienced. Also, if a mentor doesn't want to share these contacts with you, it's a red flag for me.
- LML: A supportive mentor can be even more valuable than research fit. I would recommend reaching out to current/former grad students to get a sense of their experiences with the mentor.

For obtaining research experience ahead of time (before applying to a PhD), how early is too early to contact a lab? I understand that faculty are all quite busy! For example, if I'm interested in beginning as an RA in the Spring 2021 semester or Summer 2021, when would be a good time to begin reaching out?

- JJJ: IMO it's never too early - the worst case is the faculty member will ignore your email (and you can try again) or they will reply telling you to ask them later. If you're still uncertain about which areas to do research in, it can also be useful to chat early to figure out exactly what kind of research the lab is doing (you might have misconceptions or the lab might have changed directions from the papers you have been reading) and to narrow down your choices
  - SMT: If you don't hear back from an advisor it can be helpful to also email grad students. Sometimes grad students have independent projects and need motivated excited RAs to contribute. Grad students can then raise your interest directly with the PI who may remember receiving your email.

How early should I reach out to professors / mentors about applying to become a phd student in their lab? I am planning on applying to begin study in 2022. Is it too early to try to form connections?

- EB: I am a faculty member and people are beginning to email me now asking if my lab has openings for fall 2021. You can start reading about professors' work now. You can start asking their grad students what their life is like. Those are great to start now!
- STS: Middle summer before fall terms begin during your application year are the best time to reach out!
- LML: If the early time frame has already passed for you, certainly don't hesitate to reach out later on. I emailed professors a day or two *after* I submitted my application - introducing myself and asking them to keep an eye out for my application.

I am a recent Medical School graduate. I wish to go for a PhD in Neuroscience before applying for a residency. How do I approach applying for a PhD without any research experience in that particular field?

- VC: where I did my PhD I've seen people entering the program without any previous lab experience. It might take a bit longer at the beginning, but from my point of view it's doable. Also, a PhD is about learning so I think it's totally ok to learn everything from zero. Just choose the lab carefully to find a supportive environment and not a lab where everyone expects you to know everything already. For example, when I applied for my PhD, my supervisor told me that he was searching for someone passionate about the research topic and not someone who already knew every technique and with a lot of experience in the field.
- Also be sure to highlight any other research experiences that you have, regardless of the field. Neuroscience in particular is quite interdisciplinary and tends to attract people from many different backgrounds. But more generally speaking, you gain generalizable skills from the research experiences you do have (e.g. "thinking like a scientist," performing experiments, specific methods) so you can talk about those. If you don't have any research experience, echoing VC, you can talk about what made you decide you wanted to pursue this area of research and link to any experience (in medical school or outside your formal training) that was meaningful to you and shaped your trajectory.

Is it disadvantageous if the direction of research you pursued as a lab manager/research assistant/undergrad thesis student is different from what you want to pursue in grad school?

- JJJ: IMO, no, as mentioned in the panel, sometimes the kind of research you have done is restricted because of the types of research available at your

institution so it is understandable if you couldn't do exactly the same topics. As well, as mentioned, you are still a trainee at grad school - you don't need to have all skills before arriving.

- SMT: It can be compelling to talk about how your current research confirmed your desire to expand into a new area. Draw connections where you can.
- STS: People pivot from their undergraduate research often. One thing that can help strengthen your application is to focus on what you learned that is transferable (running participants, cleaning data, writing papers, etc.).
- VC: for sure not an issue, in my opinion. The more you go on with your studies/work, the more you might discover new areas you are interested in. Just highlight the positive sides of exploring different fields (you bring with you different skills, a broader view... and interdisciplinarity is always really important) instead of saying what you didn't like of the field you worked in and explain why you want to change the direction of research.

What resources did you use to research what sort of programs to do? Do you recommend any specific books or sites?

- aoc: Honestly, the best resources are often current academics! I talked to the PI of the lab I was working in at the time, more senior labmates (grad students and postdocs), my academic advisor (I applied straight out of undergrad), and a few professors at my university with shared interests. I told them what I was interested in studying and they suggested PIs, universities, and programs to look into. The caveat here is that you'll have to narrow down your interests first in order to have meaningful conversations, but it really pays off in terms of finding PIs and programs that best match your interests.
- VC: I mostly searched online. I knew I wanted to stay in Europe and I had a broad idea of the research topic (cancer research) so I started searching for PhD programs on that topic as well as for PIs working in that field (for example checking publications on PubMed). I found LinkedIn and Researchgate to be useful websites. There you can set keywords (for example, in my case, "PhD cancer") and you receive an email whenever an opening is posted.

can you explain what you mean when you say a "rotating program"?

- KN: In many programs (like in neuroscience), students "rotate" through 2 - 3 labs in the first year of their program prior to picking the one they want to do the bulk of their Ph.D. research in. In other non-rotating programs (like in many psychology programs), students apply and immediately join the one lab they plan to do their Ph.D. research in.
- aoc: Rotation programs are great if you aren't 100% sure of the exact research questions you want to pursue or the lab you want to join. Having said that, I entered a rotating program fairly certain of the lab I wanted to join and saved that rotation for last. I did end up joining that lab, but I really enjoyed rotations

because I gained valuable experience, new friends, and several important mentors along the way.

Do all PhD programs have matching process to pick an advisor/lab before applying?

- STS: Most have apprenticeship models, but not all.
- aoc: This isn't typically the case with rotating programs (see above) but it's generally helpful to reach out to potential advisors that you'd be interested in working with ahead of time to see if they'll be taking students, if there's a preferred program that you should apply through to work with them (often faculty will have multiple affiliations), and to get on people's radars. You'll want to make sure there are several people at that institution that you feel like you would be excited to work with.

How soon should you start to reach out to potential candidates that could write a recommendation when applying to different PhD programs?

- JJL: It depends on how confident you are in receiving strong recommendation letters - if you have one or two you are uncertain about (e.g. you don't have enough research supervisors to fill the "quota") I think you should email them ASAP, in case they say no, in which case you need to hurry and find alternatives!
- STS: Agree with JJL--The more time you give someone the better, and always ask if they can write you "a strong letter of recommendation." You also want to have a spreadsheet handy that lists what schools you are applying too, what the deadlines are, and who you want to work with there. That will definitely help the letter writers.
- VC: agree with JJL, reach out ASAP to find out who could write you a strong recommendation letter. Try to build connections early because people might be busy and you don't want to be excluded from a PhD you are interested in just because they forgot to send a recommendation letter for you. When I was searching for a PhD in Europe, in some cases they asked me for three letters so have at least three people for that. Also, if your supervisor is not willing to write you a letter for various reasons, don't worry, there will be for sure other people who can help you. The professor who was the supervisor of my Master's thesis was always too busy for these sorts of things so I got recommendation letters from another professor who I worked with as well as from the postdoc who was helping me with my project, and I still managed to get a PhD position.

What do you do when the number of programs that might interest you are overwhelming?

- A suggestion from a newly admitted student: It may be helpful to create a spreadsheet of all the programs that interest you and categorise them by important factor(s) such as field of research or location. Alternatively, after thinking about what your specific research interests are, you can create a list ranking each program based on how aligned they are with your interests. I find

just organising my thoughts in some way (with lists and spreadsheets) helps reduce that overwhelming feeling. Once you organise your thoughts, this list can help guide you in determining which professors/programs to begin to contact.

- STS: It can be overwhelming to apply to a lot of schools (and quite expensive) so make sure you stay organized, and think about what you really want out of a graduate program. If you are unsure about a university, you can try to reach out to the graduate students of the program and ask some questions to figure out if you should apply or not.
- VC: I agree with the comments above. Also, in my opinion, applying to everything without taking time to tailor the application to every specific position might be a waste of time. It's ok to have broad interests and it's ok not to focus only on a research niche when applying for a PhD, but take the time to write a strong application where you highlight why you want to pursue your PhD in that specific place. If your letter of motivation sounds more like a general one, that you could send to multiple PhD programs at the same time, it might be more difficult to be considered for that position.

How do we get a feel of the campus and environment of the school we are getting interviewed if we are being interviewed virtually due to COVID.

- KN: Ask to be put in contact with as many students in the program as possible, especially those who are in the lab(s) you are most interested in. Ask them questions about the atmosphere in the program and also their lives outside of the program. It won't be the same as visiting, though it's hard to get a feel for somewhere in a 1 - 2 day visit anyway.
- VC: if possible, ask also for contacts of people who worked in that specific place. It might be easier to get honest comments from people who don't work there anymore.

I have a lot of general ideas of what I want to study but I've never actually done a thesis - I've just done a lot of undergrad volunteering in various labs. When did you come up with your thesis and when did you feel it was finalized?

- EB: As an undergraduate thesis, most students take 9-12 months in direct consultation with a research mentor. I am a faculty member and work with students starting the summer before their senior year. We work both semesters and finish in May.
- VC: in my case, the PhD project was already decided by my supervisor, or at least he had a general idea. We then discussed it over time and decided the direction to take together. Becoming more and more independent during the PhD and taking the lead of my project was a process. It might be difficult to say that your project is finished because new research questions keep arising. But at some point you should have a story with some research questions you answered and then you can consider it finished.

- JLL: I had several meetings with my future PIs in which they discussed the ongoing research in their lab and provided suggestions for avenues of future research. I also talked to almost every lab member about what they were working on and watched a couple people perform their experiments. On this basis I decided on a project which matched my interests and the research topics within the lab, which also overlapped enough to receive more hands-on supervision by a senior postdoc. For my program we were then required to write a research proposal which my two PIs and postdoc mentor provided feedback on as to the feasibility. If you rotate in your lab, rotations will give you an idea of how long things can take in your area of interest so will help you shape a project with a realistic timeline (in the UK, PhDs are capped at 3-4 years). However note that the thesis is a constantly evolving process and I doubt anyone ended up following their proposal exactly, either due to chasing more interesting related questions or if their experiments didn't work out, etc. I think in the US you also have a thesis committee that will help you track progress on the way.

How flexible are PhD students? Are they bounded to do all their work at the location of their university?

- STS: Traditionally it is expected that you will live in the general area of your university so that you can attend classes, work in the lab if that's applicable, TA, etc. But since COVID, this might change.

have you had flexibility in terms of opportunities to do research in more than one lab?

- This is an excellent question to ask current graduate students in the programs you are interested in. This varies from one school and program and lab.
- SMT: ask if current students attend multiple lab meetings, do they have secondary mentors as part of the program, what opportunities are available for meeting PIs in other specializations?
- JLL: In rotations, yes. In the main PhD, it depends on your project - some of them are explicitly in collaboration with multiple (usually no more than two) labs, for example one lab that provides computational expertise and one that performs experiments. For practical reasons they're usually in the same institution but sometimes they can be across institutions. Usually you would only stick to research in one lab unless your project demands it. If you are interested in working in more than one lab, there are pros and cons, such as practical concerns of travelling if they are across institutions, especially in different cities/countries/continents! Even in the same institution, working in multiple labs can expose you to more opportunity but also could affect your ability to feel like you "belong", depending on the atmosphere in each lab. It very much depends on the project, the requirements, the PIs involved and the lab environments in question.

Also, I know I want to specialize in one area, but the professor I want to work with is in another specialization, does the different degree area affect the research I'm able to do later on?

- JJL: If you are applying to PhDs, not really. It definitely helps to do related research but if you have someone in mind that you really want to work with, and believe can give you a better research experience, it does not block you from working on a different topic later on.
- SMT: Second JJL's response. Also, often you will work on a different topic as extended training in a postdoctoral position (i.e., adding development or a new method). However, worth noting that most states in the US require you to have a clinical PhD if you want to be a practitioner (CA is an exception).

I have done unrelated research (not experimental / psychology based) since undergrad, should I write about that in my research statement / include it in my CV?

- JJL: I would definitely include it in your CV as you probably have enough space. In your statement, if you don't have much other research to talk about, sure, but I would frame it in a way that shows how the skills you learned in that research can be relevant for research in your future topic of choice.
- STS: Agree with JJL, and if you can draw connections to your new work in your personal statement to make it seem cohesive, that will be very helpful.
- LML: Definitely! I don't think it is expected that you would already know your content area of interest yet. Most important is to show that you have research experience, understand the research process and can carry out a research study (ideally from start to finish).

Is graduating from a liberal arts college with limited research opportunities a disadvantage in applying and completing a PhD?

- JJL: If this is your circumstance then I wouldn't stress about it - work with what you have and apply anyway - if you don't get in and are set on research, you could consider a research assistant position to gain more experience and apply again next year (or later). If you still have 2+ years left in your degree, you can apply to do a summer research experience at a different institution (in the US I think these are called UROP or REU).
- STS: I graduated with my bachelor's with very little research experience, and it hurt my odds at admission the first time I applied to graduate school. So I would try to get as much before you leave. If it's already too late and you are about to graduate, get what you can and try your best. For my own situation, I got a job doing research as a research assistant at an education non-profit so I could make money AND get experience. Three years later, I accumulated a ton of real-world experience that was application to my Ph.D. programs, and had a nice bank account to take with me to graduate school. There are many paths toward the Ph.D., but almost all of them require research experience.

How do I know if I'm ready to apply this year (my thesis year) versus last year? If I have the option to do 2 theses (if I do an extra year) should I wait?



- JLL: As mentioned, grad school is still a learning experience so you don't need to be perfectly prepared! I would ask for the opinion of faculty at your current department (but take their opinions with a pinch of salt as they might not have the best awareness of your proposed area of study if you are in a different field). It also depends also on your financial circumstances, if you can afford two rounds of application fees, you can just try this year and see what happens. If you are really uncertain about your chances, it's probably more worth it to apply for a research assistant (post-bacc) job and gain research experience that way instead of paying tuition for an extra year.

When we send follow-up emails should we reply to the old email? or start a new one?

- I would reply to the old email, so they can more easily remember who the email is from.
- JLL: Agreed. But don't overthink it!

How would you recommend finding mentors for more niche areas of study? Or is it better to find something close, but not exactly similar in order to keep your options broad? Especially if the topic is interdisciplinary

- SMT: One way can be to read literature you find interesting and look up the authors.
- STS: Agree with SMT, read the literature, but also talk to professors at your university who are in the field, they might recommend someone whose work has not come across your desk yet.

Is it possible or common to apply to a lab in which you already have been working as an undergrad/MA research assistant?

- STS: It is not uncommon to join the lab you worked in as an undergraduate, but the general feeling is that you should be expanding outwards to become more intellectually diverse.

## **Grades and test scores**

Undergrad GPA? Is there an achievable GPA which will give you magical powers during applications? What about non-expertise courses' grades?

- STS: There are quite a few universities that will ask you to report three different GPAs: Your cumulative GPA (so what we normally think of when we think of GPAs), your GPA after the first two years, and the GPA of your major courses. So often review committees will pay close attention to how you did overall as well as how you've done in your field. You definitely don't need a 4.0 to get into a top program (though it doesn't hurt, I had two Cs on my transcript and still was admitted), but most programs will want to see 3.5 and above. If you're in the 3.0-3.5 range they might take a closer look at your application, and look at the classes you were taking (maybe taking organic chemistry lowered your GPA a bit...) but if your GPA is lower than 3.0, this will likely be a red flag.

I would also be happy if you could mention the impact of undergrad GPA on PhD applications! What GPA would be considered too low?

- STS: If you have less than a 3.0 (a standard minimum for a lot of programs). Although, if your GPA is low because your first few years were difficult (or something else happened that is not reflective of your ability now) you want to write about that in your personal statement and explain why your GPA is so low.

How important is the GRE for grad applications? Do entry exams get weighted heavily for consideration?

If I get a really low score in one section of the GRE, will that rule be out for PhD admissions, even if I have a high GPA and other experiences?

- JLL: Afaik some programs have scrapped the GRE requirement. Please check your institution to see if this applies.
- LML: I had very low GRE scores. Don't let that discourage you! Admission committees are most likely to consider your application as a whole package. If GRE scores are on the lower side, try to highlight your strengths on other dimensions (e.g., research experience, GPA, etc.)

## Clinical programs

For Clinical Psychology grad programs, the number of applicants that are accepted is quite reduced, is a post bacc or lab manager position recommended if you only have two years of lab experience and one clinical internship?

- MC: For research heavy Clinical programs having research experience is definitely prioritized over having clinical experience. You should have a strong idea about why you want to do clinical work and/or experience working with a clinical population in some capacity.
- Having some sort of research experience for research-heavy programs is important and having ~2-3 years of experience before applying to a Ph.D. is common in Clinical Psychology. If you are interested in research-heavy programs, I would try to find ways to emphasize the components of the research process that you have used in your training to date, and I would think about how your clinical experiences inform your interest in research and leverage that in your thinking and applications. What did you see in your clinical experience that inspires you to research?
- Experience gained from doing research as an undergraduate student can be highly varied depending on the institution you went to, the lab you worked in, etc., so doing a post bacc or a lab manager position is extremely helpful for continued development of research skills and interests. It's rare (although not impossible) for students to go straight from undergrad to a clinical psychology Ph.D. program. One way to gauge the types of experiences (research or clinical oriented) you might need in order to be a competitive applicant to a particular program is to look at the CVs of current graduate students. If a P.I. does not have any current grad students who have not done a post bacc or lab manager position, it's more likely you would need to gain those experiences in order to be a more competitive applicant.

Do you have to have a PhD in clinical psychology in order to do research with clinical populations?

- KN: No. You can do research with clinical populations with a Ph.D. in experimental psychology or neuroscience, you just won't be able to *practice* as a clinician or *treat* patients.
- To build off KN's response, without a clinical psychology degree, it's unlikely one would get training in diagnostics (i.e., whether or not someone meets diagnostic criteria for an anxiety/mood disorder), which could limit research questions. Of course, collaboration with clinical psychologists or using self-report measures are examples of ways to conduct research with clinical populations without having a PhD in clinical psychology.

What are your thoughts on doing a MPH before applying to clinical phd or psyd programs?

- MC: It really depends on what individual goals are. Having an MPH will not necessarily help or hurt your application, and could arguably do either. Many PIs look for applicants who have demonstrated clear drive with regards to research, so it is possible a MPH could be seen as a yellow/red flag that someone is unfocused or unsure about what they want to do. Also, given that public health research can be very different from Clinical research, it would be important to show that any public health research experience can directly translate into skills that will be useful/transferable for Clinical research. On the flipside, if there is a clear link between public health and someone's Clinical research experience, having a Masters could demonstrate relevant expertise.
- I would think carefully about your goals in completing the MPH and determine if/how it furthers your career goals, both for yourself and for your applications. For yourself, I would think about why you are interested in completing an MPH and if an MPH is ultimately more in-line with your career goals than a Clinical Ph.D. is. MPH programs are shorter and generally less competitive, so if you can achieve your ultimate career goals with an MPH, it may be worthwhile to consider pursuing that instead of a Clinical Ph.D./Psy.D. If you do want to do both, for your application, it is important to be able to trace a clear line through your experiences that leads you to your future research interests. As mentioned above, there are likely to be PIs who would take this as an indicator that you are not ultimately interested in a career in clinical science, so it will be important in your application materials to explicitly state how your interest/experiences at your MPH lead you to a Ph.D. in Clinical Psychology. I will also note that there are clinical psychologists who find research homes in public health departments, so if you ultimately decide you are interested in Clinical Psychology, you can look at psychological researchers who are housed in public health programs or jointly-appointed and see if you can find PhD advisors whose research will allow you to more closely bridge your stated interests.
- Just want to emphasize that there are a lot of clinical psychologists whose interests are at the intersection of public health and clinical psychology! For the

reasons stated above, the decision to pursue an MPH really comes down to the individual's research interests and academic goals.

For clinical: what is the difference between that internship and post-doc?

- MC: The predoctoral Clinical internship is an APA requirement that positions someone to be eligible to take the Clinical licensure exam. It occurs before graduation (predoctoral status) and involves 1-2 years of focused Clinical work (40-60+ hrs/week of direct work with clients). Post-docs occur after graduation (postdoctoral) and can vary in their focus on research versus Clinical work.

I'm struggling with clinical psych vs non-clinical psych programs (i.e: experimental or behavioral psychology). I have a strong interest in neuroscience and would like to work with clinical populations, but I am not immediately interested in learning therapy. Do you have any advice for students torn between programs in clinical psych or other routes?

Thank you so much!

- SMT: Think about what you want out of clinical training. Not having a clinical PhD does not mean you are unable to conduct research with clinical populations (depending on the type and extent of psychopathology you want to work with). It is also important to remember that while a PhD duration is long, it is often only feasible to learn one or two big skills well (i.e., neuroscience and clinical together may be a lot if you don't already have experience with one).
- MC: I would echo SMT's comment above. The primary reason to pursue Clinical is if having expertise in Clinical Psychology is a main goal for your PhD. Clinical PhD programs require extra coursework and extra hours (500+ clinical hours to be competitive for internship), so you want to be sure that doing all that extra work will be consistent with your goals/expectations for what you will gain during your PhD.
- I agree with the above. Clinical training takes up a substantial portion of your time in a Clinical program and if you are not immediately interested in doing that, you will likely be unsatisfied with the amount of time you must devote to clinical training. You can look at PIs who do clinical research who also take students through the Neuroscience/Cognitive/etc. areas of their departments.

## **International students**

what an international student who is in masters should be careful about before considering to apply in Phd?

- It is possible that the courses you took during your masters may not transfer to the PhD program you are applying to, so I would double check that if it is important to you for the courses to transfer, you apply to programs where that is possible.

how much it can be tough for international student to settle in the university environment? and how all things he or she should be careful before applying?

- JJJ: You should be careful in figuring out exactly what your funding options are. IMO you must find funding, and do not try to self fund even if you don't get any scholarships (instead, maybe try again next year?). In the UK, international (non-EU) funding is extremely, extremely limited. Some funding is pretty low, others are very competitive. If the funding is low, you should determine whether you would be comfortable living on that amount. Look into what scholarships are available for students of your citizenship (e.g. fulbright, commonwealth, etc), such as those from your home country's government. These scholarships will usually have application deadlines a lot earlier than PhD deadlines so you should also be careful in checking these deadlines so you don't accidentally miss them!!
- Although settling into a new country is definitely a challenge, universities have dedicated International Student Offices which are a great resource for helping international students get comfortable with a new environment and community. These offices hold information sessions for students to provide important information (i.e., on taxes, on Visas, travel restrictions) and cultural events. One thing to consider is perhaps location of the graduate program, for example if it is in a large vs a small city, or how diverse the city is. If an international student community is not very large within a university, it can be helpful to have access to diverse communities that exist outside of the immediate university community.

## PhD vs MD

I am trying to decide between pursuing a PhD and an MD. I wanted to know what some of the major differences are if you guys have any knowledge on that?

I just wanted to know is there a major difference between a PhD and an MD? What are some limitations that a student who is trying to decide either pursuing graduate school or applying to medical school after undergraduate?

- JJJ: Yes, there is a major difference. A PhD sets you up to do academic research, which can take a variety of flavors, including research more oriented towards medical (clinical) related applications. You are usually independently coming up with topics of interest to pursue and even if you are doing clinically-relevant work, you will likely rarely see patients directly. You could be working in a hospital environment but in many cases you will not be. From experience with friends that switched from medicine to research and vice versa, it depends on your personal goals, such as (simplifying greatly), your level of preferred patient interaction and desire to see the fruits of your labor on a more short term tangible scale or with longer term blue sky projects, and desire for independence.
- At the broadest level, the vast majority of MDs are practicing medicine (i.e., treating patients), whereas the vast majority of PhDs are conducting research and not necessarily patient-facing (if at all).
- You can also look into MD/PhD (often referred to as "physician scientist") programs. These are often fully funded, but they are also often long programs. In practice, MD/PhDs often tend to either be more research or more patient care-oriented, but sometimes people can manage to do both.

## Choosing your referees

Who should we ask for recommendation letters? Should we limit ourselves to those within our field or focus on people who know us / our work habits better?

If I have worked since undergrad, should I ask my boss for a recommendation letter or only get letters from psychology researchers? Would it be okay to get a recommendation from a professor in a different discipline?

Who did you ask for recommendations? Is it better to get letters from people who know you very well in an unrelated field (i.e. an English BA) or letters exclusively within the research field you're applying to? Should I ask my industry boss to write a letter for me?

- JLL: I'm not sure about a field like English but I would say as long as the person can comment on your ability in a research capacity it's okay. It also depends on how many other referees you have, and whether any of them know you in a research capacity. If you have already one or two research supervisors, filling in extra recommendation letters with other people is fine (I'm not sure how many letters you need but for me it was 2-3 minimum). Industry boss I think would be good if they have seen you do research.
- SMT: If you're transitioning from another career it can be a nice addition to have a supervisor provide a letter of recommendation to show that you're leaving on good terms. Letter writers who can speak to your research abilities are the highest priority.
- Second SMT - ideally, pick letter writers who know you well and can highlight your strengths. Also ideally, they will know how you operate in a research setting, but if that's not possible, pick someone who can speak to your skills (e.g. writing, communication, organizational, etc.).

## Graduating in 3 years

Does it look bad to graduate undergrad in 3 years instead of 4?

Does it look bad if I am graduating undergrad in 3 years? Should I add another year just because professors will think I am too young? Or should I stay to add a second major and do another senior thesis ?

I'm in a similar boat! I ended up deciding to stay another year to take more stats classes, and keep working in labs.

that is what I am wondering. I don't feel I am missing anything by graduating early. I will complete my senior thesis this year either way. and I have been completing research. But if I wait I would be older, as I have been told it may look bad if I am 20 years old when I am applying. So I dont know if I want to do another year after this year. But I feel the only reason I would stay is because of pressure from others, not because I feel I am

missing anything. But if I wait a year, my research may be published and made it out of peer review by the time I apply, and would that be a good reason to wait

- JLL: FWIW UK undergrad degrees are 3 years by default. Anyway it all depends on whether you feel like a strong enough candidate now. Application fees aside, you can always apply now and see whether you want to take the offers you get. As we mentioned, publications are not necessary for getting in. If the only reason to stay is to gain more research experience, you probably should graduate and do a research assistant job instead of paying tuition. If there are classes you want to take, maybe you could consider staying (although you can also take classes in grad school). It really depends. If it's just about pressure from others, I would absolutely just graduate! As for age, as far as I know age is not disclosed in applications and can't be used as a factor (maybe it is in the US?). I was younger than UK average myself but age per se is not something that is generally shared so I don't think anyone could have judged me for being "too young". If it's about people judging you for a shorter degree, it's more about whether they feel your research experience has been sufficient, so let them judge you on that.
- LML: I certainly wouldn't let an early graduation hold you back. I graduated in 2 ½ years and used that underscore how motivated I was. In the end, I think many committees actually considered it a strength. If you feel ready and excited for grad school - go for it!

## Life outside the lab

Do PhD students often feel sad or depressed and how do you guys deal with it.

- STS: A lot of students try to manage their anxiety or depression by going to therapy, which is a completely normal experience in graduate school. But not every graduate student develops depression or anxiety in graduate school.
- HLS: One of the stressful parts of graduate school is that sometimes it feels like the work "never ends"--there aren't a lot of strict deadlines, so it can feel like there's always one more thing to do. To minimize this stress, set clear boundaries between your work day and non-work activities, and find a mentor who values these boundaries as well (you can learn a lot by asking current grad students). Prioritize your health by exercising, sleeping, and leaning on your social networks!
- JLL: A lot of PhD students do have anxiety and depression, which is often related to the circumstances around their PhD -- in many cases it can be a stressful process. However these issues are complex and interact with pre-existing factors. Like any other person in society, some will seek therapy/counselling and/or medication and/or engage in practice such as cognitive behavioral therapy (CBT). Having a support network and hobbies (including physical activities such as sports) that are unrelated to one's PhD are also helpful. Finally, as mentioned, taking care of one's health by maintaining good eating and sleeping habits is important both to prevent and mitigate some of this. As mentioned, it is also

essential to have an environment which supports you throughout some of the difficulties associated with PhDs, such as a supportive lab environment and supportive mentor, which can mitigate one's negative experiences if you have pre-existing conditions, or prevent experiences from becoming too negative in the first place. In contrast, an unsupportive environment can induce negative feelings and/or interact with pre-existing conditions in a catastrophic way. As research is an open-ended process, feelings of frustration and failed experiments/projects are common to almost every PhD, but your environment will make a big difference as to how these experiences will impact your mental health. If you have pre-existing conditions such as anxiety or depression, I would make extra sure to seek out a good mentor, good lab and indeed good department and city which complements your needs (e.g. living in a city if you like going to events, or living outside of the city if you like nature)

What budget app was that?

- MMG: YNAB- You Need A Budget
- I would also recommend Daily Budget (free) that tells you how much you can spend per day based on your income/recurring expenses.

How many hours do you work per week (on average)?

- SMT: This varies greatly by lab and individual. The best way to get a sense for the work climate in a particular lab is to ask grad students. Make sure you get a sense of what is expected from the PI in addition to the grad students' work schedule (these can differ). Most graduate students have flexibility, but it is a full time job.
- HLS: Agreed. You will also find that your time commitment might ebb and flow depending on the week or month (e.g., how many courses you're taking, if you have upcoming project/paper deadlines). The flexibility is a huge plus and allows you, oftentimes, to redistribute your time so that it fits with your life. But yes, it's still a full time job.
- KN: I try to work 40 hours per week, maintaining a somewhat regular 9 - 5ish schedule, but this is definitely not everyone's approach. You can get *a lot* done with 40 hours per week of focused work, but because there are often few set requirements and deadlines, it's easy to procrastinate and *feel* like you are working constantly without actually getting much done. Some weekends I feel like I'm working the entire weekend, but in reality, I'm just spending two days thinking about and putting off the 1 hour of work I actually need to do. As others have said, the flexibility of grad school is a huge benefit, but it can often be challenging to manage your own time in a healthy way.

## Part time vs full time Phd

Does anyone have experiences or knowledge to share about going through PhD programs part-time while working a full-time job?



Is it possible to do a PhD part-time or is it a full-time commitment? is it possible to work and attend classes or labs?

- STS: Almost all PhD programs are full-time.
- JLL: In the UK you have the option of doing a PhD part-time as PhDs in the UK have a “time limit”, which doubles the time you are given to complete the PhD (3 to 6 years). However I think it’s extremely rare to choose to do a PhD part-time purely for the reason of having more time to do research. Most choose it as their circumstances (work, family, funding) don’t allow otherwise. Some need to work, which will be a very difficult undertaking as it is difficult to keep your PhD work to only occupying half your time, although not impossible. Others need more time to complete their PhD based on their personal circumstances such as health reasons. If you have children, you also may choose to do your PhD part-time to have time for childcare. A slim minority self-fund and want to spread out the costs of their tuition (but I would strongly advise against self-funding).
- I’ve known some who have taken on some odd jobs such as babysitting and tutoring while completing their PhDs, but the PhD was still their primary commitment. Some programs will have constraints on whether or not you can take on other jobs, as your stipend is meant to cover costs of living.

## General questions

How has your work and learning changed since COVID-19? How do you think it will impact academia in the long term?

- EB: Here’s a lead <https://psyarxiv.com/6gjfm>
- MMG: Also: <https://osf.io/vewyq/>

Where can I find resources to learn R tailored for psychology students?

- KN: There are a ton of free, online resources that you can find just by googling. Here are a few to get you started: <https://psyteachr.github.io/msc-data-skills/>  
<https://bookdown.org/ndphillips/YaRrr/>

Current undergrad - what are careers that lend themselves to having a phd besides being a professor? what do you guys plan on doing upon completion of your PhD?

- JLL: Some more senior industry positions need a PhD, in the pharma/biotech and machine learning industries. However sometimes you can still work for these companies in a different capacity without a PhD, so you should still think about whether a PhD is necessary for your career goals.
- There are many different career paths you can pursue with a PhD. Often people tend to make it seem as though your choices are academia or industry, but there are tons of different options out there. Some career paths include scientific or academic writing, consulting, data science, non-academic research (e.g. user experience), grantsperson, and many more.

Do you know anyone who left academia during their PhD program? What is often the most cited reason?

- JLL: Sometimes people will leave due to unforeseen life circumstances such as with regards to the physical/mental health of themselves or their family. Sometimes they can also be pushed out by toxic environments in their lab and/or toxic supervisor relationships. As mentioned below (more common in CS programs) sometimes people change their mind as to the necessity of their PhD for their career goals and leave in pursuit of other, more direct opportunities in industry, e.g. if they have a startup and it takes off.
- STS: What JLL said, a lot of times it can be because of these reasons, and sometimes people realize that they did not like research as much as they thought they would (thus, the importance of getting research experience is also to know whether you like it or not).
- KN: Leaving is not always a bad thing! Sometimes people realize midway through that they would be happier doing something else. Even people who have extensive research experience prior to their Ph.D. may realize that self-directed research for 5 years isn't for them. I know people who have left to pursue other opportunities they thought they would enjoy more (data science, work that involves more direct service to other people).

How do you turn a poster into a paper?

- EB: I would advise talking with the grad student or faculty member who mentored you through the research and into the poster and tell that person you have an interest in taking the project further. Communicate you have the time (if you do), interest in learning, and will prioritize the work if they can mentor you through a paper. Good luck!
- SMT: have an honest discussion with whoever will be helping you through this process about the effort and time commitment required. Writing your first paper is a lot of work (and requires substantial input from other more senior contributors). It is important you are committed to the time it will take to complete.
- STS: Think about the story your data are telling you, then write an outline, and talk to your mentor.
- JLL: Agreed with the comments above. Also, if your mentor is comfortable with this (please ask them first! it is usually taboo to publish work without the consent of everyone involved), you can also “publish” your poster, on sites called figshare, or open science foundation (there may be others), which allows you to link to it on your CV (and website etc) and better allows other people to cite your work (it provides you with a “digital object identifier” or DOI). Also, there are “preprint servers” (common ones in our field are arxiv, biorxiv and psyarxiv) which allow you to publish a paper prior to peer review (with most people then pursuing peer review at “peer-reviewed” scientific journals). You should discuss with your mentor as to their expectations for whether the work will constitute enough to form a paper. There may be a middle ground in which you write an initial report as a “preprint” despite not formally pursuing publication, but this depends on your mentor’s opinions.

How difficult is it to make a transition from one field to another in the last year of undergrad. For example, from Computer Science major to PhD in Computational/Experimental Neuroscience, given the lack of research experience (due to lack of neuroscience programs/faculty in geographical proximity)?

- JLL: It depends how close you are to graduating. For being competitive to applying, if you have >1 year left, there are programs that let you do summer research in a different institution (e.g. Amgen, Caltech, CSHL, many others I think) which you could apply for next summer. Even now you could email profs from different institutions to ask if they would be willing to supervise you - with more people used to communicating virtually and compneuro being a field easy to wfh, this might be possible these days! There are also tutorials and lectures online you can follow (recently, neuromatch academy). If you're competitive enough to get in but just want to prepare, you can apply to summer schools for next summer (there are many in the area of computational neuroscience) -- most are technically open to undergraduates (I did two just after my undergrad).

Has anyone applied to the PhD twice? For instance, if someone applied without much experience or direction but has since gotten work experience and/or a master's, is it possible to apply again?

- JLL: Yes, you can apply again.
- STS: Yes and you will be so happy in the end that you did not get in when you were totally directionless... at least, I can speak for myself on that front :)
- HLS: Yes, and sometimes even just a year can make a huge difference in the strength of your application materials and your preparedness to start.

Is the application process going to change drastically because of covid-19?

What do you think this cycle will look like given covid-19? Interviewing online?

- KN: It's hard to say with any certainty, but it may be the case that most (or all) interviews are conducted via phone / skype. Some universities were already doing this pre-covid. It probably won't change the process drastically — often in psychology programs, the most important aspect of your interview is your 1-on-1 meeting with your prospective PI(s). This can happen fairly easily remotely. Hopefully, programs will also make it easy for you to connect with current students so you can ask questions about their experiences. If programs do not actively facilitate these connections for you, make sure you seek them out on your own. It's critical to talk to current students to find out if they are generally happy with their advisor, program, quality of life, etc.

Any recommendations on how to choose a concentration/focus when your interests, circumstance, and opportunities available don't align perfectly?

- STS: Do the work that is meaningful to you, and has opportunities available. A lot of people spend so much time trying to figure out the \*one\* thing that sparks their purpose in the universe, and they can waste a lot of time trying to find that one thing while opportunities to do meaningful work pass them by. If you feel like you need more time to get a better sense of what you want to do, I would wait to

apply to a graduate school and figure it out. But if you are unsure which of three different paths you'd like to go down, and you like them all, I would choose the one where you are most supported in your work. (A lot of this advice comes from Cal Newport and other's work on how following [your passion isn't always great advice](#))

- JLL: If your circumstances and available opportunities are beyond your control, of course you have to work around those. In that case I wouldn't worry about your situation, as in all likelihood things will work out fine! The PhD is a training program and in some sense your research topics and "achievements" are not so crucial (especially if they come at the expense of general life satisfaction!) as good mentorship/support. Also, you may find that your research interests change and you might like a research topic you thought you wouldn't, after trying it - or vice versa (this is pretty common!). If your opportunities are limited to less conventionally "prestigious" institutions, this could also be a good thing - having worked in less "renowned" labs as an undergraduate I suspect I received more mentorship than if I had worked with more busy PIs. And +1 to STS' comment about not stressing about finding your "one true passion"! There are many topics, once you start digging into it, that you will probably find give you meaning!

What about visits to other labs?

- JLL: Not sure exactly what this question refers to, but some institutions have the opportunity to be a visiting PhD student at a different institution or country. Sometimes these are worked out ad-hoc by you or your advisor based on collaborations. Usually they are organized on the basis of your project's needs (e.g. you want to learn a technique that no one at your institution knows, to bring it back to your lab and use in your project). Aside from this, some PhD students will present their research at different labs (usually following or just prior to a publication) at departmental seminars.

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