

CHOOSING YOUR RESEARCH MENTOR: STUDENT'S PERSPECTIVE

Student's Name: _____

Date: _____

Potential Advisor: _____

MOTIVATION

Students embarking on their graduate careers are motivated primarily by the research questions they wish to pursue. **While motivation to study one's research topic is important for a successful PhD, a good student-mentor relationship is equally important in creating a productive environment where the student will thrive.** Many students fail to fully evaluate what they seek in their mentors and expect out of their graduate experiences before selecting advisors. This can lead to negative experiences in graduate school. This document is designed to help entering students to (1) evaluate their priorities and determine what they want out of their graduate careers, (2) have candid conversations with potential advisors to ensure they have clear pictures of the research groups' cultures, and (3) make the advisor-student pairings as beneficial as possible to both parties.

The PhD is the longest and most challenging educational experience for most graduate students. As they mature into independent researchers, students at the University of Chicago are supervised by world-class researchers, and their PhD dissertations make significant contributions to their fields. Scholarship of this caliber demands high expectations of the students, e.g., in terms of work ethic, intellectual input and ability to overcome challenges. Though such demands of graduate research can be mentally exhausting, positive student-advisor relationships can mitigate the exhaustion and contribute to happy and productive careers. Students therefore expect thoughtful mentorship that takes into consideration their personal and professional goals.

This document was made for students by students, based on our own experiences and guidelines developed by other universities (see the Resource Guide at the end). We recommend first reading through each section and considering your current preferences and priorities, as well as future goals. Consider talking about these topics with current members of the groups you are interested in — they know their lab cultures better than anyone. Your research interests will be a key driver of the lab you select. **But, the goal of this document is to help you figure out what else you want and need, and to decide whether a given advisor and their group are also a good fit outside your specific research interests.** Use this guide to reflect on your goals and expectations, and discuss these with your potential advisor to make sure your and your advisor's expectations align.

Finally, be aware that your needs will almost inevitably evolve over time as your dissertation work continues, and that your future goals may well change. Be ready to return to this document for guidance in future conversations with your mentor, as you navigate these changes. Good luck!

YOUR FEEDBACK ON THE GUIDE

This guide is an initiative of the BSD Dean's Council. It was designed for students in the Biological Sciences Division at the University of Chicago by E. Leypunskiy, D. Harrison, H. Yoo and V. Prince, with input from the BSD Dean's Council and the Faculty Graduate Education Advisory Committee. Please direct feedback to uchicago.dctreasury@gmail.com.

NOTES

Before reading the rest of the guide, use this space to reflect on the goals you've set for your PhD and the requirements described in your program's handbook. After reading the guide, write down the topics you would like to discuss with your potential advisor. We urge you to focus on issues most important to you, whether or not they appear on the following pages. This guide is intended to help you start reflecting on your priorities and the information you will need to make the right decision regarding mentorship during your PhD.

RESEARCH

The primary goal of graduate training is to help students develop into independent researchers. Begin your interactions with a potential advisor by discussing the main research directions of the lab, research methods that are most often employed, and the advisor's expectations for a new student in terms of the student's prior research, technical, and computational background. Discuss what research topics and approaches most interest you. What is the scale of biology that most excites you (e.g. molecular, cellular, organismal, population)? Is there a specific research method that you would like to learn? These conversations should occur before you start a research rotation in the lab, but will continue as you start to explore whether that lab is the right place to complete your dissertation project. As you consider what that project might look like, discuss with your potential advisor whether you are comfortable taking on a high risk project. Importantly, consider what you and your potential advisor would do if, despite your best efforts, your research direction you have selected proves unproductive.

MENTORSHIP

A mutually beneficial relationship between the student and the mentor relies on transparency and compatibility. Consider how your mentor's views on the goals of graduate education and expectations on what comprises a complete PhD thesis align with your ambitions. Think about the relationship you hope to have with your PhD advisor. How does the advisor view his or her role as a mentor? What qualities do you hope to find in your mentor? What qualities does the advisor wish to see in his or her mentee? Will the advisor be your primary mentor for day-to-day lab training, or will you rely more on a senior researcher within the lab?

COLLABORATION

Intra- and interlab collaboration can lead to impactful science and is almost inevitable in interdisciplinary research. Successful collaborations require thorough planning and considerable communication, both of which are important skills for many careers after graduate school including independent academic research. Does the lab have a history of collaborations internal to the lab or externally with labs at the University? Do you want to work in a team-based environment where a group of students/postdocs work together on a project? If you want your own project, when and how do you decide to bring in a collaborator? When a conflict arises between you and your collaborator, who is responsible for resolving the conflict? How is the order of authorship determined?

RESEARCH PROGRESS AND FEEDBACK

Tracking your progress will help you stay focused on research and receive timely feedback to ensure your projects advance. Consider what forms of assessment work best for you and how you can use these tools to improve your performance. How often will you present your research progress and in what format (lab meeting, subgroup meeting, conferences)? Does the advisor expect progress reports? If so, in what format? Will you have opportunities for one-on-one meetings with the advisor and, if so, how frequently? Will these meetings be student-led or mentor-led? What does the mentor expect from the one-on-one meetings? Who is responsible for scheduling, setting agendas and distributing notes after meetings?

LABORATORY ENVIRONMENT

Your PhD will involve more than just you and your mentor. It is important to consider the type of laboratory environment that will help you be successful throughout your graduate school career. This may be an even more impactful factor on your graduate career than the thesis project that you pursue. Therefore, it is important to talk to current members of the lab and understand whether you can see yourself succeeding and enjoying your time as a part of that team. Do you enjoy a more collaborative, social environment, or do you prefer to work on my own? Are regular outings with the entire lab something you need to thrive and feel connected to your lab members? What type of relationship do you want to have with my fellow lab members: purely professional or super friendly?

COURSEWORK

As many faculty are appointees in multiple graduate programs with differing requirements, you should understand and be prepared to explain to your prospective advisor the course requirements of your program. Consider what remaining courses you plan to take, how well they align with your research goals in a given lab, and whether you'd benefit from taking elective courses beyond requirements. Understand and be ready to explain the advisory structure of your program in terms of course selection. Does the PhD advisor have recommendations for coursework you should complete before joining the lab? Will the PhD advisor be supportive if you want to take courses beyond the minimal requirements or enroll in research-intensive summer courses or workshops off campus that have the potential to improve your research? Will you be responsible for securing your own funding to attend such summer programs?

TEACHING

The specific timing of teaching requirements also varies by program, so you should understand, and be prepared to explain, the teaching requirements of your program to the prospective advisor. Consider how teaching fits into your career trajectory and, if you plan to teach beyond the requirements of your program, discuss your plan with your advisor. Does the advisor expect you to TA a course he or she teaches? Is there an expected timeline for completion of required TAships? Will you be encouraged to participate in pedagogy workshops or to TA beyond the minimal requirements if you wish?

INTERNSHIPS

If there are internships or other external opportunities (MyChoice events) that you want to take advantage of during your graduate school career, it is important to think about this early. Depending on the mentor, some may be more or less accepting of intensive commitments outside of the lab. If this is important to you, you will want to have the conversation regarding expectations and internships early.

FUNDING

Applying for and managing grant money is vital for a successful academic career. If you are a domestic student, does your graduate program support you on a training grant for one or two years? If you are an international student, make sure to discuss your specific funding circumstances with your prospective advisor. Does the advisor have enough funding for you once other sources come to an end? Are you expected to apply for fellowships? For which fellowships do students in the lab normally apply and what is the lab's success rate? How does the mentor train students in fellowship and grant writing?

CANDIDACY EXAMS AND THESIS REQUIREMENT

Discuss with the prospective advisor your program's criteria for advancement to candidacy (e.g., preliminary and qualifying exams) and thesis requirements. There may have been recent changes to timing or format, or the advisor may not have previously mentored students from your program. Will the mentor provide guidance for the exam and selection of your thesis committee? Who will be responsible for developing the thesis project? Will you have the opportunity to work on multiple projects in parallel in case your main project is not successful? Will you receive guidance from the advisor or the lab members in preparing for candidacy exams (e.g., research proposals or presentations) and writing your thesis? Considering program requirements, what would a completed thesis look like from this lab?

GRADUATION TIMELINE

Although you're just beginning your graduate career, being aware of key milestones early will help you stay on track. What is the average graduation time in the lab and for your graduate program? What expectations do you have for your time to degree? What are the advisor's criteria for a student to be ready to graduate? Because the thesis committee plays an important role in overseeing your progress towards graduation, discuss how you will select committee members whose expectations regarding graduation timelines align with yours and your advisor's.

PUBLICATIONS

Publications are vital to your academic career. You should expect to learn the key elements of the publication process from your advisor. Does your program have a publication requirement? How many papers should you expect – and do you want – to have by the end of graduate school? How many papers do other students in the lab typically author by graduation? Will the advisor or senior lab members provide guidance for planning and writing publications? Who generates the first draft of the paper? Does the lab's culture typically lead to co-authored collaborative papers? How and when

is authorship order determined in such collaborative projects? What are your and your advisor's expectations for the intellectual contributions and responsibilities that justify authorship? If the results of your research could be patentable, will your mentor advise you on how to protect your intellectual property?

PRESENTATIONS

Presentation of your work is an important component of the graduate experience. Will you be encouraged to attend and present at program-specific events and outside conferences? If so, at what stage in your career? Will the mentor help you develop presentations or posters and provide feedback at practice talks? Will you be expected to find your own external funding to attend conferences? What is the lab's policy on presenting unpublished data? What is the format of the lab's group meeting? Polished slides or raw data? Are all members of the lab required to attend the meeting? What is the frequency of presentations? What is expected of the presenter and the audience?

TIME COMMITMENTS AND WORK LIFE BALANCE

Consistent productivity throughout a 5-6 year PhD requires good time management and work-life balance to avoid burnout. Think about whether you need help developing good planning skills and detecting if you're stretched too thin. Are there strict expectations regarding working a certain number of hours or days per week in this advisor's lab? Are there expectations for vacation?

Although conducting research is our primary obligation, many students take on responsibilities outside of their primary thesis projects, both in and outside the lab. Such responsibilities are often part of being a good citizen of the University, and may also provide you with important professional development opportunities. Consider how much time other commitments require and how that will impact your research schedule. Will the prospective mentor's expectations for your work hours allow for non-research commitments you value such as outreach activities, participation in student government, recruitment, etc.? How much of your efforts in the lab will be spent on non-thesis projects? How will you be recognized in these collaborative projects? Will you be expected to share lab management roles, such as lab chores, animal care, plant care and tissue culture?

CAREER DEVELOPMENT

Graduate school is a stepping stone to a career that can take many forms. Consider what career paths interest you and discuss them with your prospective advisor. What career paths do lab alumni follow post-graduation? Will the advisor give you access to their extended network? Does the advisor help with job placement? What is the mentor's opinion of students taking courses aligned with their career ambitions offered through myCHOICE or outside the BSD (e.g., in leadership, pedagogy, writing, or business)? Are there expectations for timing of career exploration efforts, such as attending career development seminars and participating in part-time or summer internships? What is an appropriate amount of time to devote to professional development and career development? Will the advisor help the student develop their resume, CV and job applications?

TIPS FOR NAVIGATING DIFFICULT CONVERSATIONS

- Communication is key. Ensure that your mentor is someone who you can talk to, including about

difficult topics. Research is challenging and not every experiment will be a success. Establishing a foundation of good communication will enable you to navigate those challenging situations as they arise.

- Be honest with yourself and what your goals and expectations are.
- Some potential challenging conversations:
 - Tenure decisions (what happens if your mentor leaves the university)
 - Graduating and transitioning out of your projects
 - Work-life-balance

RESOURCE GUIDE

We provide this guide as a resource for you to consider. Below we also listed other resources that we believe will be useful in choosing mentors and tracking your development into an independent researcher. Keep in mind that people can be your resources too; talk to your peers, professors you trust, and/or other human resources available on campus (e.g. committee members, UChicagoGrad advisors, program administrators, etc.) about questions and issues you have. Learn to ask for help — this is an important skill that you need to succeed in any career you choose after graduate school.

“Ben Barres: How to Pick a Graduate Advisor.” (2014) *iBiology*. <https://goo.gl/w1BWjj>. “Compact Between Biomedical Graduate Students and Their Research Advisors.” (2008) *Association of American Medical Colleges*. <https://goo.gl/S4oxx2>.

“Expectations in Supervision.” *The University of Adelaide*. <https://goo.gl/1vd2Dc>.

“How to Get the Mentoring You Want: A Guide for Graduate Students.” *University of Michigan*. <https://goo.gl/cGMnCS>.

“IDP Forms and Documentation” (2018) *Stanford Biosciences*. <https://goo.gl/T8UFV2>. “Mentoring Agreement.” (2013) *University of Wisconsin-Madison*. <https://goo.gl/tEmLwv>.

“Yearly Planning Meetings: Individualized Development Plans Aren’t Just More Paperwork.” (2015) Vincent et al. *Mol. Cell*. <https://goo.gl/QtnHf3>.

“Six project-management tips for your PhD” (2019) Santiago-Lopez. *Nature*. <https://goo.gl/6pp41>