

## Mentoring Philosophy and Agreement

As a graduate student entering my lab, you are likely wondering what kind of mentor I will be. I've drafted this document to help demystify our working relationship. Mentorship is an evolving practice and I've included a link at the end if you have any questions or feedback about anything discussed here.

### 1. Fostering independence

My ultimate goal as your mentor is to mold you into an effective, independent researcher, to prepare you for your future career. This can't happen overnight - think of science as art, would an artist paint a masterpiece immediately? It is my job to train you to create masterpieces. Typically, students in a research project are thrust directly into the "creating" phase, without time to develop fundamentals. In our lab, I instead emphasize the importance of methodologically building your knowledge and skills.

Students will start by conducting a thorough literature review so they can explain the basic physical principles we are studying and the current state of the field, by e.g. creating a concept map. From this map, they would identify the literature gap. From discussion with senior students and myself, we will generate a plan for investigating or filling this gap, and write a proposal based on this idea. Finally, the student will be responsible for designing experiments, building a model, etc. to complete their project.

Of course, projects never go smoothly, and struggling is expected and completely normal. In our lab we value struggle as an important part of the research and learning process, but we will never leave you high and dry if you are struggling. We provide support in the form of resources, either educational or our own time, and expect students to learn from these resources and find their own to develop the essential skill of resourcefulness. This skill is critical for an independent researcher, so you will find our support will shift from tutoring/teaching at the beginning, to more coaching and cultivating curiosity as you progress in your program.

### 2. Aligning expectations

What is your vision for your future career? I will help you refine this vision, and provide the resources you need to achieve it. It doesn't have to be academia. When you start in the lab, we will discuss your goals and draft a professional development plan including both research and extracurricular activities to help you achieve your goals. I will provide support in several ways, depending on your interests, including networking, developing communication skills (writing and speaking), leadership skills, etc. Of course, your goals may change during our time together, so we will have (at least) semesterly check-ins about career plans, where I can offer advice or connections to help you explore different paths.

We will do our best to tie your future career plans to specific tasks or goals in the lab (e.g. students interested in industry research may focus on more applied projects). We will explicitly delineate tasks or goals before starting, but after starting work, the student may be unhappy or realize it is not what they expected, so we will continually update these expectations as the work progresses.

### 3. Communication

Scientists are professional nerds and professional communicators: we get excited about cool ideas and have to convince others how cool the idea is. Effective communication is one core skill and value that I hold deeply and hope to pass on.

In the lab, this manifests in weekly meetings to discuss research progress. I practice active listening to ensure I understand your work, point of view, or situation (e.g. by paraphrasing what you present), taking time to listen, process, and digest the information. When I provide advice, I strive to provide actionable feedback and clearly lay out my thought process, to help train you to do the same (e.g. "what would Shomik say about this?").

Beyond the lab, I will help you develop your communication skills, both writing and speaking. I provide prompt feedback on drafts and help refine your presentations for conferences both through 1:1 practice and in group meetings. My #1 communication rule is that it is always more effective to talk slowly and clearly explain your ideas than to try to show off how much you have accomplished.

#### 4. Inclusivity and ethics

I strive to make our lab a place where all students feel comfortable and a sense of belonging. To achieve this, I like to foster a sense of inclusion beyond typical identities. Unfortunately, the status quo is that certain groups are underrepresented in academia. While these groups could find belonging based on their identities, there are often limited opportunities for them to do so. For this reason, I encourage inclusivity beyond typical identities. I like to encourage students to find belonging based on other interests, like hobbies, music, sports, TV, etc.

Another way I promote belonging is by recognizing cultural differences. For example, some students may be reluctant to disagree with me depending on their upbringing, and I clarify that scientific debate and discussion is the fastest way to progress. We will discuss such communication and work preferences and expectations before you start in the lab.

An inclusive lab is a prerequisite to a healthy one. I aim to create a healthy lab environment to eliminate motivation for unethical behavior such as fudging data, taking credit for others' work, or plagiarizing. Such actions are not tolerated and accusations of such will be taken very seriously. A healthy lab environment includes separating results from self worth, acknowledging each lab member's contributions, and setting ambitious but achievable goals.

I welcome feedback through anonymous forms or 1:1 meetings on how I can improve my efforts to promote an inclusive and healthy lab environment.

#### 5. Logistics

Most of this document has been dedicated to philosophy, but I understand some students may want some concrete information about logistics in our lab. We typically have weekly 2-hour sub-group meetings of 3-4 students where each student presents research updates and receives feedback from others and myself. We have biweekly 2-hour group meetings where 1 student presents a longer presentation about their work (typically in preparation for a conference or committee meeting) and 1 student presents a paper or methods review. We have semesterly (or on request) 1:1 check-in meetings to discuss career goals and professional development. We have a yearly retreat where we discuss big-picture visions for the lab and have dedicated time for writing and peer review. I am active on email and Slack and will generally respond within 1 business day.

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I look forward to working with you!  
Here is the [form](#) for questions or feedback.