

Selecting the right PhD advisor: A guide

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WHAT'S AT STAKE?

CHOOSING a PhD advisor is a big decision. A good advisor will provide you with steady funding, teach you new skills, bring out your best, and coach you toward your future career. A poorly matched advisor may have unrealistic expectations, generate friction in the lab, leave you to support yourself with teaching assistantships, or delay graduation. Unfortunately, both you and your advisor usually have only one chance to pick correctly; switching is a big setback for you, and professors have little ability to “fire” students. This short guide, which discusses five aspects to consider when picking an advisor, is intended to help you make the right choice.

I. FUNDING

An advisor's foremost responsibility is to provide you with the funding and equipment you need to perform the research that forms the basis for your PhD. A teaching assistantship is a good experience for a semester or two, but your research productivity will be drastically reduced and your degree will drag on if you are forced to grade homework for three years. Look for an advisor who has a funded project in need of a student. More importantly, ask about funding history—has your potential advisor demonstrated with previous students that he or she can provide steady support for five years? Note that new, assistant professors won't have such a history, and are thus slightly riskier choices. Nevertheless, young professors are particularly hungry to chase down funding and establish their groups.

II. FIELD OF INTEREST

You will spend the next four to six years studying the minutia of the research topic that you and your advisor establish; make sure that it interests you. Give your potential advisor the opportunity to sell you on his or her research. He or she should make it exciting and relevant, just as he or she would to a funding body. Read the recent literature on the topic (both by your future group and by other groups), especially any review papers you find. Ask whether you will be doing experiments, simulation, or both.

III. FUTURE PROSPECTS

You probably aren't thinking about life after your PhD before you've even started, but your research group has a substantial impact on your future prospects. While few PhDs work on the same topic on which they wrote their dissertations, fewer still do their graduate research on circuits and subsequently work in microbiology. If you intend to enter industry, aim to gain *skills* during your PhD that you can use

afterwards. What can your advisor teach you, outside of the classroom? If you think you may want to pursue an academic career, focus on *publications* and *presentations*. Your advisor's publication record—to which you will soon contribute—and overall reputation in his or her field can give you a head start on your career. Graduates of renowned professors who, e.g., publish in *Science* and are editors of top journals, often themselves earn faculty positions at excellent universities.

IV. PROFESSIONAL RELATIONSHIP

To use a Criticism, you must be able to get on with your advisor. Make sure that you can communicate effectively with your future advisor, and that you are comfortable being vulnerable in his or her presence (e.g., when asking a “stupid” question). Seek an advisor who cares about your education and welfare, and encourages your success.

V. EXPECTATIONS: YOURS VS. YOUR ADVISOR'S

You and your advisor should share—at least after some haggling—similar expectations for your PhD tenure. If his or her students take over six years to graduate, on average, something is wrong. Find out how many papers you are expected to publish, if you must obtain a master's degree before earning your PhD, whether you will present at weekly meetings, and if you must perform other services (e.g., maintaining equipment or advising undergraduates). There is no norm here; just ensure that you understand and are comfortable with what is expected of you. Ask if students in the group are regularly sent to conferences to present their research; conferences are an important opportunity for you to meet experts in your field and establish collaborations.

THINGS TO DO BEFORE SAYING YES

The first time you meet with your potential advisor, ask for copies of his or her recent publications. Read up and ask questions the next time you meet. Attend at least one group meeting so you can evaluate the group dynamic. Talk to the professor's students individually, assess their competency (they will be your future colleagues), and ask what they do and don't like about their advisor and the group. If possible, contact graduates from the group as well, as they will have a broader perspective and can better answer “what would you do differently?” questions. Ask if a short trial period in the lab is possible. Remember, the professor is taking as much of a gamble on you as you are on him or her. It may seem embarrassing to try out a group for a month and then announce that it isn't right for you, but that's a lot better for everyone than five years of frustration.