

2 Applying for Graduate School

The Hard Truth About Applying to Grad Schools	9
Master's Degree versus Ph.D.	11
Apply to People not Programs; and Finding a Good Fit	12
Contacting Professors	14
The Graduate Application	16
Statement Letter	17
Graduate Record Exam (GRE)	19
Write a CV	20
Reference Letters	21
Get a Website/Cards	21
Recruitment Weekend	22
Summary	23

The Hard Truth About Applying to Grad Schools

You know you need a Ph.D. to get to where you want to be in life; do you have the grades and the background to get into a Ph.D. program? Entering a graduate program isn't like getting into college for a bachelor's degree. The admissions committee will look at your grades and standardized test scores, but these play a relatively minimal role in the selection of a graduate student.

Four target areas to help you self-evaluate your chances of getting into a graduate school include the following: (1) GPA—Typically you want to aim for at least a 3.4 undergraduate GPA, with an even higher GPA in classes that are in your major, at least if your major is the same subject for which you want to go to graduate school. Hopefully that is the case, but if your major was chemistry and you want to go to graduate school in biology, you might have to show that you have enough of a background to be a good biology graduate student. (2) Classwork—Although you can

take classes as a graduate student, you generally want to avoid having a heavy course load so that you can focus on your graduate research. For this reason, it is good to show that you have some graduate level courses on your CV and courses that generally increase your background knowledge in the subject you want to study. For instance, if you want to be an Evolutionary Biologist, you should definitely take undergrad classes like Evolution, but you should also see if you could get into seminar classes and reading groups in upper division/graduate courses that are offered. Ask your professors if they teach any seminars and if they think you could be added to the course. Joining reading groups and journal clubs with graduate students is great experience, but it will also look good on your application for graduate school. (3) GRE scores—The minimum score on your GRE (Graduate Record Examination) required for acceptance into graduate school varies widely depending on the institution you are applying to. If you get a score below the minimum “requirement,” that doesn’t necessarily mean you are out of the running. It also doesn’t mean that these scores don’t matter. Your GRE scores might not be evaluated in the way that you think. Because the GRE is a standardized test, it is the only category in which all candidates can be judged on a level playing field. If all else is equal between two candidates, then GRE scores might be used as a tiebreaker. In addition, GRE scores often determine who among the applicants will receive graduate scholarships (see more about GREs below). (4) Research experience—If you have no research experience you will have a hard time getting into graduate school. If you want to get into a Ph.D. program, you almost certainly need research experience and probably even a publication or two. The more research experience you have, the better. Without any research experience it will be difficult for graduate programs to evaluate how you will do as an independent researcher. Even if you have great GRE scores and a very high GPA, if you have no research experience, then your ability to perform research is unproven.

If you are lacking in one or more of the above four criteria, don’t fret too much; any of the above can be fixed. What is most important is your desire to become an academic. If you want it badly enough and you are willing to work to achieve your goal, then you will most certainly achieve that goal. It may seem like that goal is so far away that it isn’t worth trying or that it will take too long to get there, but you have to put things into perspective: Life is long; a few years of training and sacrifice won’t seem so bad once you’ve gone through it. You don’t want to be asking yourself whether you gave your dream your best shot once the opportunity has passed. Instead of spending the next 5–10 years or so getting a Ph.D. and doing a postdoc, you could take some time off and see what else is out there; but those years will still pass by, whether you are achieving your goals or not. You will have to ask yourself what you ultimately want to do and what sacrifices you are willing to make to get there.

Master's Degree versus Ph.D.

If you know you want to be a scientist or a career academic and you have the research background to skip a master's degree, then I would recommend doing just that. Some students fool themselves into thinking that they are not ready for a Ph.D., even though they have the right credentials. A Ph.D. thesis is essentially a lengthy master's (4–6 years, instead of 2–3 years). Some master's programs are more like extensions of a bachelor's degree, in that the student is just taking classes. Students with this kind of master's degree, one with little independent research, will have a hard time entering a research-oriented Ph.D. program. What Ph.D. admissions committees are looking for is a proven ability to do independent research and a match with a willing advisor.

Some students may have no choice but to pursue a master's degree. If you are unable to get into a Ph.D. program, then a master's degree is a great fallback and a way to gain some research experience. Many Ph.D. advisors will not take students unless they have a master's degree already. In some cases, a master's student can transition that degree into a Ph.D. at the same institution, rolling the efforts toward the lesser degree into the beginning efforts of a doctorate. This can generally be done by petitioning your advisory graduate committee into allowing for a more ambitious and lengthy project that would fulfill the requirements of a Ph.D. However, even with this switch, you will oftentimes still need to formally apply to the Ph.D. program.

All top-tier universities (i.e., research I universities) have a Ph.D. program, as do many mid-range to small universities. If there is a Ph.D. program at a university, then the master's students are typically treated as second-class citizens relative to those receiving a doctorate. Look at it from the advisor's perspective: The time to train a master's student is not that different from that of a Ph.D. student, perhaps 1–2 years of intense training; the difference is that the master's student will typically join a new lab elsewhere with the experience they just received. So from the advisor's view, it is worth investing in the Ph.D. student who will remain in the same lab in which they were trained. Master's students often have to fight to find teaching assistantships and other funding sources that are usually guaranteed in Ph.D. programs. At many schools, master's students still have to pay off their tuition just as they did with their bachelor's degree, whereas Ph.D. students are typically paid a stipend and have a tuition waiver. Master's students will often also be expected to take on the role of TA and take classes, all while trying to complete their own research. Many master's programs even require their students to take as much as twice as many classes as students in the Ph.D. program, even though the lesser degree usually takes half of the time. (This is often to make sure the master's program pays for itself: credits = \$.)

There are many negatives to a master's program relative to a Ph.D. program, but if you have no choice, then there are many benefits to pursuing a master's degree. A master's degree will certainly give you a leg up as a candidate for a Ph.D. program. A student applying for a Ph.D. with a master's degree, some publications, and independent research experience is much more sought after than an unproven undergraduate. However, this means you should complete a master's degree with a thesis option. If you are only taking classes, then your experience is just an extended bachelor's degree.

I have often found that master's students at universities without a Ph.D. program are better students than master's students at Ph.D.-granting institutions. At these schools that lack a Ph.D. program, undergraduates who want to continue on to graduate school, but lack enough research experience to move on, stay on at their undergraduate institutions and shift from a bachelor's to a master's program. There, they can be nurtured by familiar teachers in projects they often started as undergraduates. Many of these students flourish and graduate with a well-rounded project. At a Ph.D.-granting institution, master's students often flounder under the competition with Ph.D. candidates, who are given preferential treatment for the limited time and attention of advisors and funds.

Apply to People not Programs; and Finding a Good Fit

The approach to applying for graduate schools is not the same as applying for your undergraduate education. Everyone wants to be associated with great universities, such as Harvard, Oxford, or MIT, but the research path you choose may not exist at these institutions. You should fine-tune your search for graduate schools by searching for potential advisors. If you want to study plant physiology, you will be wasting your money by applying to a university that only has vertebrate biologists. You might see that Harvard has a great evolutionary biology program, but unless there is a professor there who matches your exact interests, then there is little chance you will get in. Someone at the institution you are applying to needs to select you as a student; the best chance of this happening is if they see that your research interests match theirs. You want to do a search of researchers in your general field of interest: developmental biology, systematics, etc. By the time you start applying for schools, you should have read papers by scientists you admire. E-mail these scientists and ask them if they have space in their lab for someone like you. The right and wrong ways of composing these introductory e-mails will be discussed later in this chapter.

A good fit with an advisor means a lot more than a high undergraduate GPA and high GRE scores combined. The number of people admitted into a graduate program is a small percentage of the applicants; unless someone is fighting for you, you'll have a hard time getting admitted.

So how do you find a good fit? If you have an interest in a particular subject, read some recently published articles and books on that subject. What portions do you find most interesting? Which ones can you imagine working on? Try to think of a project on that subject, and imagine several stages of analysis from narrow to broad. Do your best to think of a proposal for a Ph.D. or master's project on that subject. Study most closely articles written by people who you might be interested in working with. Check their websites and institutions, and when you feel comfortable about the subject, contact them. A good start to contacting people is saying that you've read their articles and that you are interested in working along a similar path.

Sometimes when looking for an advisor, you may find that the established folks are nearing retirement and not taking students. In that case, I would look at the former students of that professor; those students themselves may now be established faculty and perhaps more attentive advisors. The diversity of students is matched by the diversity of faculty. Some students need a lot of handholding and a lot of faculty are very hands-on; some students are very independent (these are generally seen as better students to have) and some faculty are very hands-off. A good fit is what you want; you should contact former and current students to solicit their opinions about a potential advisor. A bad fit in graduate school can seriously derail your career.

You should always take an opportunity to meet your potential advisor. A face-to-face meeting or, at the very least, a phone call or Skype conversation will help you feel each other out. The one thing you don't want to hear during these conversations is your potential advisor complaining about how annoying his students are and how little the students have done for him. The one thing they don't want to hear is a student complaining about his current situation and how hard it is to get along with certain people. The advisor wants to hear from a potential student with research interests similar to his own, and he wants to see how the student can apply the skills they have to tackle those common interests in a new way. Research faculty want students to infuse new ideas and excitement to a lab, adding a new perspective to old questions, or to add new questions and directions to the lab.

During an interview, ask what the advisor wants out of a student. You don't want to be a Ph.D. student who is little more than a lab technician for a PI, essentially following the command of that PI to carry out his research goals without your input. That kind of student will not learn the independence needed to become an academic. You want to be trained to one day be in a position to conduct your own work and come up with your own program of study. If you are just going to be running experiments anonymously in someone's lab, then you will not learn what it takes to be part of the scientific community. You want to join a lab where you will be nurtured and taught, where you can write your own papers and give presentations that are from your own ideas.

One other important thing to keep in mind when looking for the right graduate program is whether you will be earning enough to get by and whether you will have enough research funding. Graduate students get paid very little (\$18K to \$25K a year is typical); it is enough to survive, but you should make sure that you will be able to live somewhat comfortably, particularly if you have a family. Make sure your health insurance will be covered as well (it generally is). Sometimes you do have to make sacrifices to work with someone you really think will take you where you want to be, but this should not come at the cost of your health. You should also ask your potential advisor what kinds of funds are available to support graduate student research. There is little you can do as a graduate student without the funds to conduct research, so inquire about the kinds of internal (within university) funding sources available, or whether the advisor has funding. No matter how brilliant someone is as a scientist, if there is no money to conduct research, the research won't get done. The graduate advisor should also know of external sources from experience with previous graduate students; if they don't, they might be out of touch. If you know that you need funds for certain equipment to carry out your research, don't be afraid to bring this up during an interview. It won't just make you sound smart, but you will learn quickly how in touch your advisor will be with your needs and plans.

You should also ask about the required course load for graduate students. For some programs, students are required to take as many as two full years of classes; at others, no real classwork is required. The difference between these two can be the difference between a Ph.D. that can be earned in less than five years and one that takes more than seven years. Ask what the average time is to complete the degree for people in the program. If you think you can jump directly into research, go for a program that has fewer required courses. If you know you would like to conduct fieldwork for six months out of the year and can't take classes for a while, ask if that would be an issue. At some schools, many of the required credit hours can be taken as independent research hours. If you are a biology student and your program asks all Ph.D. candidates to take microeconomics and chemical engineering classes, you may want to rethink applying to that program. You don't want to be forced into courses that aren't training you in your field of study.

Contacting Professors

When inquiring about entering someone's lab, you should establish contact with your potential advisor to gauge his or her interest. When sending an e-mail, remember that the professor is a very busy person who gets dozens of e-mails a day from people asking for something. These advisors have to filter through dozens of e-mails from potential students every week. If you contact an academic you do not know, write as formal an e-mail

Box 2.1 An example of a bad introductory letter

Hello, I am interested in the PhD program in ichthyology. I received my bachelor's degree from XXXXX University. I graduated in 2008. I decided to take a short time off before acquiring my PhD. If you could please send me some information regarding the program at LSU I would appreciate it.

Thanks,
Space cadet

as possible. An example of a good letter has all the information that the potential advisor will need if he wishes to contact you again. This required information includes a CV and a summary statement of research goals.

An example of a bad letter I received recently is shown in Box 2.1. This letter tells me absolutely nothing about the person, except they went to university and they think it is easy to get into a Ph.D. program. It also tells me that they think I will have so much time on my hands to answer their ambiguous e-mail.

Compare this with a good letter (Box 2.2):

Box 2.2 An example of a good introductory letter

Dear Sir,

I am XXXXXX, a graduate student of XXXXX, presently completing a M.Sc. degree in Ichthyology at XXXXX University. I have read some of your papers and your website and I am greatly interested in continuing my education with you. I would like to carry out systematic studies on fishes. I have interests in working on a number of marine and freshwater groups.

Zoology has always been my best subject and I find greater pleasure working with animals and nature. I have recently completed a research project titled "The biogeographic history of fish assemblages on Madagascar". This draft manuscript is attached.

I have published two papers: "A taxonomic revision of XXXX" in Zootaxa (2008) and "A description of a new species of XXXX" in Fish Biology (2009). I have also been awarded the XXXX Memorial Scholarship. These two papers are also attached.

I have summarized my interests and qualifications to pursue a Ph.D. in my CV that you can find on-line at www.mywebsite.net.com. With my training and background as a zoology student, my experience as a researcher and a teacher, I am confident that I will be an excellent addition to your lab.

Yours sincerely,
Serious-about-school

The difference between these letters is night and day. I get a few of these a month; guess which type I focus on and which I ignore?

The Graduate Application

Now that you've decided on a course of study, and to whom you want to apply, you need to formally apply to the university's graduate program. Typically, I wouldn't recommend wasting your money applying to a particular university until a professor you contacted showed interest in accepting you into his lab. The first thing an admissions committee will look for is evidence of a connection between a candidate and a potential advisor. If a faculty member wants a particular candidate and that candidate wants to work with that faculty member and has the right credentials, then that candidate is typically given an offer.

The admissions committee at a top research institute may look at more than 100 applications at one time, so yours needs to stand out from the crowd. Even a great recommendation from a potential advisor isn't enough to insure that you will get accepted. You will also need good research experience, good recommendation letters, and relatively high GPA and GRE scores. To put you over the top, published papers, patents, presentations, and other evidence that you will be a good student are vital to getting into the program you want.

When the admissions committee is reviewing the applications, they look at the completed applications first. If there are some application packages missing recommendation letters or GRE scores, they will not be judged at the same time as the majority of applicants. Some committee members may feel that, if the candidate was unable to meet this deadline, then that is a good sign that the candidate would make a poor graduate student.

What usually keeps a package from being complete are recommendation letters. These are perhaps the most annoying things for a candidate to get. You will have to ask professors, some that you don't know that well, for letters, sometimes many letters (one for each application), on your behalf. Sometimes they forget or are tardy. The best way to avoid these situations is to ask for them to give you a signed and sealed letter that you can include in your application packet. This way you can remind them (i.e., badger) until you get the letter in hand. However, be aware that many programs now ask for these letters to be submitted on-line.

Don't ask a TA or a graduate student for a letter unless you are really desperate; a letter from a faculty member is always best. You don't get to read these letters, so make sure you get them from someone you trust to write a positive letter. Short letters are okay, but admissions committees are always scanning these for a negative word. Even so much as a "he sometimes has trouble working with others" or "she needs hands on mentoring" can kill an application. Typically, lecturers and graduate

students with less experience writing these letters will feel the need to write something negative, just so the letter doesn't sound overly positive.

Statement Letter

Perhaps the most important thing in your application package is your "letter of intent," or statement letter (see Box 2.3). This is your chance to tell the committee and your potential advisor what you would like to do and what your goals are in your own words. A statement letter that reads like a Ph.D. proposal plays much better than one that is an airy personal statement about why you always wanted to be a scientist. I am always surprised by how many applications start off with some variation of "I've wanted to study XXXX since I was five years old." The second most

Box 2.3 An example of a good application letter

Dear Admissions Committee,

I am very excited about being a graduate student in your department. I have contacted Professor X and found that she is a great fit for my research interests. My interests in *blah, blah, blah* closely match hers. I have done some work on this subject in the lab of Dr. XXX (see recommendation letter and CV). This work has resulted in a publication in *Science*.

I am excited about continuing research in the field of *blah, blah, blah*. It is my hope that one day I can become an academic: teaching and doing research on *bla, bla, bla*. I recently read some articles by Drs. X and Y and thought that their research on *blah, blah, blah* was very interesting and that their results would take this field in a new direction by [*something clever showing your understanding*].

I was delighted to find that your faculty includes Drs. G and K. I think these two excellent researchers would make great Ph.D. committee members for me because of their research interests in *yada, yada, yada*. I think they could greatly improve my research. I know my research experience is still limited, but I think I have the patience to learn the experimental techniques of *HHHH* and *SSSSS* relatively quickly and jump into independent research.

Please let me know if you require further information about my past projects or about me personally. My recommendation letters from Drs. A, B, and C are enclosed, as is my CV, a copy of my publication, and the remainder of my package. I hope that you see me as a strong candidate and can give me a chance to pursue my dream of studying *blah, blah, blah*. I hope I have the pleasure of meeting you during your recruitment weekend.

Sincerely,
The excellent recruit

common opening sentence is some variant of “When I was in the Amazon rainforest staring at a scarlet macaw last month all I could think about was how I would want to do this for a living.” These aren’t necessarily bad ways to start a letter, just hackneyed; however, if the rest of the letter is more personal statements and proclamations, instead of some assemblage of concrete goals and evidence of skills, it will be hard for the committee to gauge why you would make a good graduate student. Again, the best letters of intent read like a proposal for a research project. It is rare that a student can come in knowing exactly what he wants to do, but the more details you can provide, the better. A good approach for someone with limited experience is to mention methods you would like to learn in order to accomplish some scientific goals. Use journal article references in your statement to show that you know the literature and that you can write intelligently on a subject.

Play up any major research experience that you have. If you have a manuscript published (or in the works), mention the details of what you did and the interesting results you found. Despite all you may want to discuss in these letters, I recommend keeping them short, perhaps two to three pages. You can refer to your CV if you want to show the committee specifics about the range of work you have done.

Your personal statement is not a place for filler. No one needs to know about your family or how you once had a pet lizard, or if you survived a traumatic experience. These things only distract from your research experience and knowledge of a subject. Remember, the admissions committee wants to bring in people who have the best chances of succeeding in the Ph.D. program and who will go on to have successful careers.

You should name-drop some faculty that you think you would like to work with, mention that you contacted them and received some positive comments to make your statement letter stand out. If you mention faculty other than your main potential advisor, mention them as people that may be good members of your graduate evaluation committee because they share similar interests with you. This will show that you did your research. Name-dropping also helps the committee remind those people you’ve mentioned that there is an application they might be interested in reading, this will help build support for your application. Name-dropping too many people or people you don’t have a sincere interest in working with can count against you. The faculty you mention should be people you genuinely would work with; if you are naming names just for the sake of it, you will come across as unfocused.

Send a copy of your final draft application letter via e-mail to potential advisors and ask them to send you comments before you send in a finalized copy. (Make sure to check grammar and spelling!) Your potential advisor might be too busy to look through it, but don’t be discouraged. If you send the advisor this statement, you will give him some notes for writing

a letter of recommendation. Often, the admissions committee will require the professor you are interested in working with to write a letter to put in the application package. Typically, this letter is a positive statement that the advisor thinks highly of the applicant.

Don't wait until the last minute to submit your application. As I mentioned above, the admissions committee may not be able to review your application with the others if it is late. I would recommend starting to gather your GRE scores and application letters a year before you intend to apply to schools. You may not like your initial GRE score and may want to retake it, an option you will not have if you take the exam a month before the applications are due.

Keep track of your proposal's status. It isn't unheard of for an application to slip behind an administrator's desk, never to be seen again. Anything can happen in the great hurried bureaucracy of a university. It is your responsibility to make sure that your application was received and is being reviewed. Let your potential advisors know that you mailed in your application. It would be a good idea to also send a copy of your application directly to your potential advisor.

Graduate Record Exam (GRE)

This standard requirement is an unfortunate one. My personal thoughts are that a student's grade on this exam is a poor reflection of how that student will do in graduate school. I've seen students with near perfect scores drop out of graduate school, whereas others who had laughably low scores go on to outstanding careers. When I say laughable, I mean "your verbal score is so low, perhaps we should require you to take the TOEFL (Test of English as a Foreign Language) instead" kind of laughable. So what is the point of taking the GRE? Well, it is the only standardized portion of the graduate application and the only quantitative portion. For this reason, scholarships are often distributed to students with the highest GRE scores. The GRE should not be something that you blow off. It should be something that you study for and see as an opportunity, as you would perhaps an IQ test. There are many administrators and faculty who put great importance on this exam. The verbal portion of the exam in particular is one on which admissions committees focus. It is generally thought to be the portion of the test that students can't really study for; at least it is the section on which you can't greatly improve your score by "cramming." This verbal portion of the exam might tell a professor how much time he could end up spending on editing rough drafts of an applicant's manuscripts. In that way, a poor grade on the GRE may be a deal breaker.

Study for the GRE in the same way you would for any standardized test: Take a lot of practice tests. Become familiar with the kinds of questions

asked and your own strengths and weaknesses. In multiple-choice sections in which you are penalized for wrong answers, be sure to learn which parts of the exam you most often guess correctly and incorrectly. Be sure to take more chances guessing on the real exam on sections you generally guess correctly, while skipping those where you generally guess wrong. Make a note on your practice exams on questions that you guess and see how your grade would change overall. If you take practice exams, be sure to take recent versions; the GRE is a dynamic exam that is often changing. Public libraries are a great source for GRE prep books with practice exams, but it might be worth investing in a new one that someone hasn't marked up and that isn't outdated.

It is worth looking up tips on how the GRE exam is scored and how the adaptive exam changes based on the student's performance. How the exam is administered changes almost yearly. I recommend reading the Wikipedia page about the GRE (http://en.wikipedia.org/wiki/Graduate_Record_Examination) to learn more about how the exam is scored and to get tips on how to take the actual exam. For instance, if the exam is taken on computer, your final score for a section may be heavily biased by how well you do on the early questions relative to later questions. In this instance, it is worth taking your time early on, working to get the right answer in the first set of questions in each multiple-choice section, while perhaps speeding up the pace with later questions.

GRE scores are important in helping you obtain scholarships, so don't think they don't matter. A scholarship can insure that you don't have to teach to make a living as a graduate student, so you can focus on research and finish early. Some schools make you take GRE subject tests in addition to the regular exam. There are subject tests for biology, biochemistry, cell and molecular biology, chemistry, computer science, math, physics, psychology, and English literature. If you are applying to graduate school in any of these subjects, make sure you know what the programs require. If you are a physics major who wants to go to graduate school for psychology, you might consider taking the GRE in psychology even if it isn't required, to show the admissions committee that you have a strong enough background to succeed in their program. If you do poorly, you won't have to send in the score unless it is required.

Write a CV

If you don't have a Curriculum Vitae yet, start writing one. (Also, see the example CVs in Appendices 1 and 2 and the tips provided in Chapter 1.) You should have a personal CV that lists every major accomplishment, every conference, every experiment, and every hobby you have ever had. From the "Everything CV," you can fine-tune your actual application CVs, according to the program to which you are applying. For a graduate school

CV, you will want to put your name and contact information at the top, followed by any publications, research experience, conference presentations, grants, etc. (see example in Appendix 2). If you don't have any of those top four items, then you will have a hard time getting into graduate school. One good way to write your CV is to look at the CVs of the people you want to work with and their students (many of these can be found online). Use as many of the categories on their CVs in your own, but don't leave empty sections. Also include things like "Research Interests," where you can state some of the directions you would like your research to take. Keep these aspiration portions short (4 or 6 sentences); you don't want to emphasize your lack of experience.

Reference Letters

This portion of your graduate statements is largely out of your control, but if your references are negative, you will not get into a decent graduate school (see section on recommendation letters in Chapter 1). These letters are essentially character references. Most of what the admissions committee will do with these is skim them, looking for something negative. A negative comment like "he has a hard time learning new things" or "she has a hard time working with others" is a real blow to a candidate's chances. More seasoned researchers will never write anything negative in a student's recommendation letter, unless they really want to kill a student's chances. These researchers could be using their chance to write a "recommendation" letter for a poor student as a warning to others.

Work hard to get letters from people you know; this is why you volunteered all those days and got to know your professors.

Get a Website/Cards

In the age of Facebook and Google+, etc., you want to have a professional website that you can have as a place to post your CV and pictures of your work and experiences. This is an easy way for potential advisors to learn about you and your work. Having a business card also isn't a bad idea. I don't recommend leaving cards lying around on a table like a real-estate agent, but handing these out to people can help expand your reach in the community, particularly at scientific meetings and when visiting a department. These also can help build collaborations. If you have a name that is hard to spell or pronounce (like I do), giving someone a business card with your website that has a link to your CV is an excellent way to make yourself memorable. Don't just pass out the business card either; before you pass it to the person, write a little note on it, such as "talked about working together on Panama project." That way, when the person

empties his wallet of cards from several new acquaintances, yours won't end up in the trash with the other "who-was-this-again?" cards.

Be careful what you post on social networks like Facebook. Although we hate to admit it, a student's personal rants on politics, religion, or other causes may sway a decision either consciously or subconsciously. If you are going to post pictures from your drunken weekend in Cabo, then at least have the sense to set your privacy settings to restrict public views.

Recruitment Weekend

If you are lucky, and you are good, you will be invited to visit some of the institutions to which you applied. Some institutions bring in a student on their own, but increasingly popular is having a recruitment weekend for potential students. These recruitment weekends are typically fairly low-key events, during which prospective students are taken to see various sites around campus and the city, to see various labs, and to meet with faculty and students in mutual evaluation. These one-on-one meetings are very important, but so are the social meetings. (Don't be stupid, e.g., don't get drunk.) These recruitment weekends typically take place in February or March for a recruiting class for the fall semester.

The fall semester is typically when most students enter graduate school, and their applications are usually due at the end of the calendar year. This leaves a couple of months for the admissions committee to look over the applications and to narrow their choices down to the cream-of-the-crop plus some "almost-cream-of-the-croppers." The recruitment class is typically larger than the number of students the department is willing to accept. Depending on the school, some portion of the recruits will head elsewhere, and some portion will not make the cut. If a department is taking between 10 and 12 students, they might invite 15–20 students for a recruitment weekend. Typically, 70% of those invited are students that the department really wants, and unless something unforeseen happens, they are essentially guaranteed acceptance letters. This 70% are those who the department is really recruiting and trying hardest to impress. The other 30% are being examined to see whether they will make the cut. Many of the bottom 30% will also eventually get acceptance letters because of the attrition among the top tier (caused by these top students choosing to go to other schools). The very bottom 10% of the recruiting class are the ones that aren't quite making the cut but that can prove themselves as worthy during the recruitment weekend. No matter where you actually stand, you should prepare and conduct yourself as if you might be on the chopping block in that bottom 10%. Make no mistake: Everybody who is a recruit is still just a candidate and anyone can be cut. Depending on how many international students are accepted into the program (these students typically aren't invited to recruitment weekends because of the cost of flying them in), the

bottom 10% of the invited prospects could actually be the bottom 50% of the overall recruits. There may even be other people recruited to the same lab you want to join. Typically, PIs only take one student at a time, but junior faculty (pre-tenure) in particular may accept multiple recruits. Also, PIs with a good track record with students often are allowed multiple students in a single year. However, if you are on a recruitment visit and there is someone else applying to the same lab, you might be in competition for a single position. If this is the case, just be yourself, work hard at promoting your good side and experience, and conduct yourself properly. Under no circumstance, should you try to undermine the other recruit. First of all, it is wrong. Second of all, that person may end up as your labmate.

From the recruit's perspective, the visit should be a time for you get to feel out your new potential home for the next few years. You should ask questions about stipends, housing, and internal grants (grants available through the department and university). And, most importantly, this gives you the chance to check out potential advisors. If your advisor is aloof and not very attentive during your recruitment, do you think he will be hands-on during your graduate career? Talk to the other current graduate students, check out the facilities, and learn how many classes you need to take and how many classes you need to teach. If you have more than one offer, you should weigh your choices carefully. If one place has the advisor you want but you will need to take three years of classes that you aren't interested in, you may want to choose another option. Perhaps the better option is the school that lets you jump straight into research with your second favorite advisor. My recommendation would be to choose the advisor that fits you best with all other factors carrying less weight. Some students make the mistake of choosing the university with the biggest brand recognition. This is great for an undergraduate degree, but it doesn't work in graduate school. You are the brand, and your output is all that will matter. The ideal situation is one where you find the advisor you want in a competitive, well-known program where you can focus on research and getting your degree.

Summary

- If you have the academic background to skip a master's degree, skip it. No need to add extra steps to achieving your ultimate goal.
- If you need to get a master's because you lack the experience to enter a Ph.D. program, consider programs without doctoral programs in which master's students often excel. Schools with great Ph.D. programs don't always have great opportunities for master's students.
- If you have a GPA higher than 3.4, better than average GRE scores, some graduate classwork, and solid research experience (with a publication or two), you should be in good shape as an applicant to almost any graduate school.

- The most important criteria by which you will be judged by an admissions committee is your fit with a potential academic advisor.
- Seek out advisors who will be good fits based on your shared research interests; read the publications of these potential advisors and contact them in a professional manner.
- Get reference letters from established people in your field and from professors with whom you have worked. Letters from PIs are better than from graduate students and lecturers.
- Statement letters with concrete goals explained as if in a research proposal are much better than letters full of lofty claims and wishes.
- Get started on preparing your graduate application a year before you intend to apply so that you can retake GREs and gather additional reference letters if needed.