MOLECULAR BIOPHYSICS
GRADUATE PROGRAM
Florida State University

Advice for
First Year Graduate Students
# Friendly Advice Table of Contents

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thinking about Mentors &amp; Committees</td>
<td>3</td>
</tr>
<tr>
<td>About Rotations: Goals and Expectations</td>
<td>5</td>
</tr>
<tr>
<td>Advisor / Student Match</td>
<td>7</td>
</tr>
<tr>
<td>Advisor / Student Mismatch</td>
<td>8</td>
</tr>
<tr>
<td>Vacations</td>
<td>9</td>
</tr>
<tr>
<td>Traits and Skills You Need</td>
<td>10</td>
</tr>
<tr>
<td>Initiative</td>
<td>10</td>
</tr>
<tr>
<td>Tenacity</td>
<td>11</td>
</tr>
<tr>
<td>Flexibility</td>
<td>11</td>
</tr>
<tr>
<td>Interpersonal Skills</td>
<td>12</td>
</tr>
<tr>
<td>Organizational Skills</td>
<td>13</td>
</tr>
<tr>
<td>Communication Skills</td>
<td>14</td>
</tr>
<tr>
<td>Balance and Perspective</td>
<td>15</td>
</tr>
</tbody>
</table>

Produced by Lyn Kittle, July 2014

Thanks to the Ohio State University Biophysics Handbook for some of the ideas and language used in this booklet.

Thanks to Dr. Ronald Azuma for excerpts from “A Graduate Student Survival Guide”
“Being a graduate student is like becoming all of the Seven Dwarves. In the beginning you're Dopey and Bashful. In the middle, you are usually sick (Sneezy), tired (Sleepy), and irritable (Grumpy). But at the end, they call you Doc, and then you're Happy.” (R. Azuma)

Thinking about Mentors and Committees

Excerpts of comments by UNC (Chapel Hill) Computer Science Professor, Dr. Ronald Azuma - “A Graduate Student Survival Guide”

“The choice of an appropriate adviser is crucial to successfully completing the Ph.D. Your adviser must be someone who can cover your area of specialization and someone you can get along with. When I started graduate school, I thought the adviser - student relationship was supposed to be very close, both professionally and socially. In reality, the relationship is whatever the professor and the student choose to make of it. It can be close, with invited dinners at the professor's home, or it can be distant, e.g. meeting once per semester just to remind the professor that the student is still alive.

One basic question in choosing an adviser is whether to pick a junior (non-tenured) or a senior (tenured) professor. Non-tenured professors tend to travel less and are generally more available. It is difficult to get help from an adviser who is never in town. Non-tenured faculty have fewer advisees that you have to compete with to get time with the professor. They are more likely to be personally involved with your research -- writing code, spending time in the lab at midnight, etc. Non-tenured faculty must be energetic and hardworking if they want to be awarded tenure, and this work habit can rub off on their students.
However, tenured faculty have several advantages as well. They are usually the ones with most of the money and resources to support you. They do not have to compete with their students for publications and recognition. The advisee does not run the risk of having his or her adviser not getting tenure and leaving the university. Tenured faculty are more experienced with "how the game works" and thus may be better sources of guidance, personal contacts, jobs after graduation, etc.

I ended up with a non-tenured professor as my adviser, but also put several tenured professors on my committee, including some of the most senior ones in my specialty. In that way, I got the best of both worlds: the day-to-day attention from the primary adviser, combined with the resources and experience of the committee.

Professors develop reputations amongst graduate students. Some are known to graduate their Ph.D. students rapidly. Others are impossible to get hold of, so their students take forever to finish or leave without graduating. Some dictate what their advisees have to do, while others are accommodating of student interests. Ask around. What you learn may be revealing. And if circumstances change to make another professor a more appropriate match to your needs, don’t be afraid to switch if that is an overall win.

When picking a committee, you want to make sure they can cover all the areas of your thesis. You also want to make sure that it is likely that all the committee members will be available for meetings! Including too many professors who travel often will make it difficult to get all five or six together in one room for a three hour oral exam or proposal meeting. When scheduling such meetings, start by finding times when the difficult-to-reach professors are in town, and then add in the other committee members.”
About MOB Rotations: Goals and Expectations

- One of the goals of Rotations is to find a mentor in your area of interest who expects to have the ability to support you during your research training. Ask about funding expectations during your rotation interviews. Some faculty members may not be in a position to commit to a new student, even if they would like to do so. Circumstances in labs change year-to-year as students graduate creating openings, grants are funded or not, or a professor determines that he or she already has enough students. A lab that could take you last year may not be able to accept you this year, through no fault of your own. This is just the reality of graduate programs. Students may need to meet with many professors to find a laboratory in which their interests and funding opportunities coincide.

- Rotations allow you to explore research that is out of your comfort zone or different from what you thought you wanted to do when you applied to graduate school. Be open to considering a variety of labs for your future research.

- Students are also able to see how different laboratories operate, how the professors manage their staff and students, what the “personality” of the lab is like and what types of research or laboratory styles you enjoy. Some students prefer to work in large laboratories with many staff and students, while others do better in small labs, where the relationships and contact with the PI and others in the lab are more intimate.

- Rotations help a student learn new techniques, develop laboratory skills, and start actively participating in the process of research.
How much time should you be in the laboratory during rotations? The amount of time that you spend in the laboratory is not the number of hours of “MOB 5905-DIS Rotations” for which you registered. Consider yourself a temporary member of the laboratory. Participate in every kind of research experience that the lab can offer you.

While first year grad students are not required to come to campus at specific times each day and “clock in,” you should try to spend time in the laboratory when you are not in class; i.e., consider making it your home away from home and study there if you find you have nothing to participate in at that time.

Every time you walk into the laboratory you are being evaluated by faculty and advanced students. In addition, the times when you are not there, but could reasonably be expected to be participating in the rotation experience, are also noticed. If the culture of the laboratory is that they begin work at 8:00 a.m., be there at 8:00 a.m. if your class schedule allows. A successful scientific investigator has a strong work ethic. Consult with your rotation advisor so he or she knows your class schedule and when you can be expected to be available. Some advisors are very definite about the hours and times when they want you in the lab; others may just leave it up to you. Plan to greatly exceed their stated or implied expectations.

Rotation experiences vary depending on what the student makes of them. Faculty may not be as available to you as you would like due to other commitments. For example, if a grant application is due soon, time with you to troubleshoot your problems could be low on their priority list. This does not mean that you can be inactive. Other lab members may be able to help you. Ask other lab members how you can help them. Wash glassware, even when not asked. These things make important impressions. Read the recent publications coming out of the lab and any other papers the advisor suggests.
Seek answers if you don’t understand something. You aren’t supposed to know everything. An active laboratory notebook showing your results and your ideas demonstrates your growth in that laboratory. Share this with the faculty member when you get a chance.

Self-reliance, intellectual curiosity, a good work ethic, and willingness to be a team player in the lab are characteristics that faculty members are looking for. Your advisor may offer you a project to complete or you may create a small independent project if the advisor is in agreement. Attend all laboratory meetings that you can and actively participate and ask questions. Volunteer to present to the group if that is appropriate. You are being evaluated as to whether the professor thinks you would be a benefit to his or her lab and worth the long-term commitment. Even if this is not the lab you choose to pursue, you should remember that departments and programs are a small world. Your efforts will be noted and discussed. This faculty member could end up being on your committee and his or her first impression of you is important.

Thank the rotation advisor by email for allowing you to participate in his or her lab. At the end of all rotations, send another email to let the advisors know which lab you will be joining and thank them again.

**The Advisor/Student Match**

Your rotation experiences have been successful if you have found an advisor who takes responsibility for you by the beginning of the summer term of your first year. Students need to arrange to be in laboratories by that time.

Finding an advisor is somewhat like a courtship and a marriage; it requires both parties to be interested and committed, with realistic expectations that the relationship will be long-term and of benefit to both.
What happens if you have not found a suitable advisor after you have completed your original three rotations? First, let the Program Director know as soon as you think this is a problem. The director will have knowledge of other faculty for you to consider. Time for an optional fourth rotation is built in to the schedule. Ask the Program Director and several other MOB faculty members for suggestions based on your interests, skills, and commitment. This is never an easy process and you will have to work at it. Being passive will not lead to success, so if your match is not easily determined you will have to make a substantial effort to communicate with many people who can help guide you.

**When the Advisor/Student Relationship Does Not Work Out**

Sometimes things just don’t work out and the fit may not be right. However, sometimes it just takes some time for the student to settle into the lab environment and you should not expect that everything will be smooth sailing with your advisor. Give your choice a chance and keep open lines of communication with your advisor and the MOB Director and Coordinator. However, if the student and/or the advisor find that there is a serious problem, they should contact the MOB Program Director as soon as possible. The Director will evaluate the situation by interviewing both the student and advisor and make a determination of what to do next.

If it is determined that the student’s performance and commitment are clearly lacking, the MOB Committee may become involved and the student may be dismissed or put on probation. Advisors don’t want to continue to invest scarce resources on a student who isn’t giving his or her best effort in the laboratory.

If it is clear that the student has worked hard and with integrity, and that a different situation may be in the best interests of all involved, the Program will make every effort to help the student find another advisor.
Vacations

Graduate students are both students and employees. You are effectively on a 12-month contract. Once you join a lab, ask your advisor for his or her vacation policy. Be sure to communicate with your advisor well in advance about time off and when you want to take it. NEVER take off for even a few days without getting permission from your advisor/boss.

First year students should limit their time away from campus for purposes of vacation to a maximum of three weeks (15 working days) per year. This does not include sick days or family emergencies, etc., which fall under the short-term absences guidelines of the University. For the entirety of your graduate career you will not get breaks between semesters, at Spring Break or Summers that are traditional for undergraduate students. If you take time off during breaks this counts as using vacation time.

When you leave town, it is important to inform the Program Coordinator about your travel plans and provide a contact number so that you can be reached quickly if necessary.

Generally, you should use most or all of your vacation time as a first-year student before you join your new lab. Take time off at the Winter Break, for example. Saving your time for the summer when you begin to be paid by your new advisor is a bad idea. Your advisor will want you to spend time that summer getting involved in the lab and you will not get off on the right foot if you immediately take off 3 weeks as soon as they start paying you. When you join a lab you should think of it as starting a new job and you will negotiate time off with your advisor.

Outside Employment

Your work as a student/employee is your full-time job. Taking on other employment is not allowed.
Some Final Words of Wisdom
from the “Graduate Student Survival Guide” by UNC-Chapel Hill Computer Science Professor, Dr. Ronald Azuma

Initiative
The dissertation represents a focused, personal research effort where you take the lead on your own, unique project. If you expect that your adviser is going to hold your hands and tell you what to do every step of the way, you are missing the point of the dissertation. Ph.D. students must show initiative to successfully complete the dissertation. This does not mean that guidance from professors is unimportant, just that this guidance should be at a reasonably high level, not at a micromanaging level. If you never do any tasks except those that your professor specifically tells you to do, then you need to work on initiative.
Tenacity

Tenacity means sticking with things even when you get depressed or when things aren't going well. You don't need to be a genius to earn a Ph.D. (although it doesn't hurt). But nobody finishes a dissertation without being tenacious. A dissertation usually takes a few years to complete. This can be a culture shock to former undergraduates who have never worked on a project that lasted longer than one quarter or semester (at the end of which, whatever the state of the project, one declares victory and then goes home). No one can tell you in advance exactly how long the dissertation will take, so it's hard to see where the "end of the road" lies. You will encounter unexpected problems and obstacles that can add months or years to the project. It's very easy to become depressed and unmotivated about going on. If you are not tenacious about working on the dissertation, you won't finish.

Flexibility

Flexibility means taking advantage of opportunities and synergies, working around problems, and being willing to change plans as required. For example, you may not have as much access to a piece of laboratory equipment as you would like, or maybe access is suddenly cut off due to events beyond your control. What do you do? Can you find a replacement? Or reduce the time needed on that equipment? Or come in at odd hours when no normal person uses that equipment? Or redefine the direction of your project so that equipment is no longer required? Opportunities for synergy and serendipity do occur, but one has to be flexible enough to recognize them and take advantage of them. The difference between the highly effective graduate student and the average one is that the former recognizes those opportunities and takes advantage of them.
Interpersonal skills
To succeed in your research, you will need resources, both capital and personnel. Interpersonal skills are mandatory for acquiring those resources. If you are incapable of working with certain people or make them mad at you, you will not get those resources and will not complete your research.

For example, which group of people did I try my best to avoid offending? Was it my committee? No, because healthy disagreements and negotiations with your adviser and committee are crucial to graduating within a reasonable amount of time. Nor was it my fellow students, because I did not need help from most of them, and most of them did not need me. The critical group was the research and support staff. These include the research faculty and all the various support positions (the system administrators, network administrators, audio-visual experts, electronic services, optical and mechanical engineers, and especially the secretaries). I needed their help to get my research done, but they did not directly need me. Consequently, I made it a priority to establish and maintain good working relationships with them.

Cultivating interpersonal relationships is mostly about treating people with respect and determining their different working styles. Give credit where credit is due. Acknowledge and thank them for their help. Return favors. Respect their expertise, advice and time. Apologize if you are at fault. Realize that different people work in different ways and are motivated by different things -- the more you understand this diversity, the better you will be able to interact and motivate them to help you.
Organizational skills
Since academia is a type of business, you will have responsibilities that you must uphold. You will be asked to greet and talk with visitors, give demos, show up to meetings, get projects done on time, etc. If you are not well organized, you will have a difficult time meeting those obligations. A technically brilliant student will be greatly hampered if he or she exhibits an "absent minded" personality and develops a reputation for being disorganized.

Organize your tasks as if you were juggling them. Juggling several balls requires planning and skill. You must grab and toss each ball before it hits the ground. You can only toss one ball at a time, just as you can only work on one task at a time. The order in which you toss the balls is crucial, much as the order of working on tasks often determines whether or not you meet all your deadlines. Finally, once you start a task (grab a ball) you want to get enough done so you can ignore it for a while (throw it high enough in the air so it won't come down for a while). Otherwise you waste too much time in context switches between tasks.
Communications skills

Communication skills, both written and oral, are vital for making a good impression as a Ph.D. student and as a researcher. At a minimum, you have to defend your dissertation with an oral presentation. But you should also expect to write technical papers and reports, give presentations at conferences, and give demonstrations to groups of visitors. If you can write and speak well, you will earn recognition and distinguish yourself from the other graduate students. This is especially true when giving presentations in front of important visitors or at major conferences.

Conversely, if you cannot communicate well, then your career options after graduation will be limited. Professors spend most of their time communicating: teaching, fundraising, guiding graduate students, and documenting their results (through papers, videos, viewgraphs, etc.) In industry, we need people who can communicate well so they can work in teams, learn what businesses and customers need, present their results, raise funds, and transition to leadership roles in projects and personnel management. If you are technically brilliant but are incapable of communicating, then your results will be limited to what you can accomplish alone and your career growth will be limited, both in industry and academia.

Note: MOB students have the Students for Effective Communication in Science (SECS) meetings to help hone communication skills. We also have a 2 courses available called “Scientific Presentations and Posters” and “Scientific Writing” taught each Fall and Spring by Susan Hellstrom.
Balance and Perspective
There is more to life than graduate work. Keeping your health and your sanity intact are both vital to achieving the primary goal of getting out. Earning a Ph.D. is like running a marathon. You have to learn to pace yourself and take care of your body if you want to reach the finish line. Unfortunately, students often act like sprinters running a marathon. They are highly productive for a while, but then fall by the wayside because they aren't eating correctly, exercising, taking time out to recharge their batteries, etc. You maximize your long-term productivity by not ignoring those other aspects.

It's easy to lose perspective while in graduate school. You are surrounded by so many other smart, hardworking people that it is easy to feel inferior and lose self-esteem and confidence. But without an underlying confidence that you do have what it takes to complete a dissertation, it's too easy to drop out when the going gets tough instead of sticking it through. I found it useful to keep in touch with the "real world," to remind myself that the graduate student population is not representative of humanity in general and to keep my perspective.

You got into graduate school because you have already shown to your professors that you have potential and skills that are not typical among most college students, let alone most people -- don't forget that.