Duffy Lab Guidelines – preliminary draft – June 2009

How to be a successful graduate student

1. Work hard.
As a graduate student, you are young and just beginning your career. There is much to learn and accomplish. Working hard is a reflection of your energy, enthusiasm, and ambition. If, as a graduate student, you are working Monday-Friday from 9-5, then it is highly unlikely you will ever become a professor.

2. Be sociable (but not too sociable)
Make an effort to get to know your fellow students across the department. You can learn a lot from them, and friendships will make your graduate life more enjoyable. Also make an effort to get to know other faculty, staff, postdocs, etc. Graduate students who keep to themselves in their office are hurting themselves and missing a big part of the experience.

3. Teamwork
In the mineral physics research group, we will be most successful if we work together. Show an interest in the work being conducted by your labmates. Come and support them when they are giving presentations, posters, exams, etc. Ask questions of each other. Show each other what you are working on and take the time to teach each other skills. Talk regularly about science and experiments. Brainstorm about new things to do and new ways to do things. Read each others' papers and make suggestions to improve writing, clarity, and science.

4. Take initiative
Don't wait to be told what to do next. Come up with your own ideas. Look for new ways of doing things. Don't be afraid to be wrong.

5. Be curious.
Go to seminars across the department or even at other departments to broaden your perspective. Be aware of what events are going on around the department. Regularly look at the major journals in our field to find the latest published papers. Check the abstracts from the meetings that you are not able to attend. Volunteer to meet with visiting speakers. Read *Science* and *Nature* to be informed about the latest news and developments in the world of science. If you find something interesting, share it with your professor and others in the group.

6. Use Scientific Meetings Wisely
When you go to a meeting, make an effort to get to know not only other students and more advanced researchers as well. Attend post sessions not just for the free drink, but use it as an opportunity to make contacts and learn what other people are doing. If you spend all your time with fellow graduate students of the same ethnicity as you, then you are not making sufficient effort. However, if you end up socializing so much that you are missing the science, then you are going too far in the other direction. At the end of every

meeting, you should have a whole bunch on new insights, and ideas. If not, you have not used the meeting wisely or you attended a bad meeting.

7. Be organized

Keep a lab notebook. Keep computer files of all your projects. Make textfiles with notes to describe what is in each file so you can find things you did a long time ago. You are responsible for backing up all your data and files.

8. Have a good attitude

In anything you do in life, there a few simple things that can make a big difference: have a positive attitude, work hard, don't take yourself too seriously, and be grateful for the opportunities given to you.

9. Develop your skills

At the end of your graduate career, in addition to a thesis, you should have developed some skills that will serve you well for your future career. These include things like learning to write well and give effective presentations. They should also include lab skills involving various types of instrumentation, data analysis skills, and ability to write and modify computer programs. Some of these may not be directly connected to your particular project. For example, consider learning Java programming and make web-accessible tools for our group. Or, learn basic machining skills (talk to George about options here).

10. Work on your weaknesses

Everyone has weaknesses and gaps in their background. Graduate school gives you a good chance to address by working extra hard in a particular area, or by taking extra classes to make up for deficiencies in some aspect of your past education. If writing or giving presentations is your weakness, consider taking a class at Mercer Community College, for example.

How to Communicate Effectively with Your Advisor

Your advisor is owerworked: he is supervising several students and trying to keep track of about 10 projects at once, he is overburdened with grant writing, committees, administrative work, and teaching. He has a very poor memory and sometimes is lazy. So, to communicate effectively and save time for both of us, here's what you need to do:

General:

--Always includes the current date and page numbers on any documents. (powerpoint, word, pdf) etc. that you send to me. This is essential to keep track of the most recent versions of things and for easy referencing during discussions.

-- Choose an appropriate title for any document you send. For example, sending me an abstract called "abstract.doc" is irritating because it contains almost no identifying info. A better title may be something like: "abstr_mao_agu09_final.doc"

--Always send me a final version of any submitted abstract, manuscript, or document. Students often forget this, and I find that the last version I have is not the final one.

Email:

-- When you send me an email, make sure the subject line is a good description of the contents of the message. This makes it much easier to sort through archived messages. If the subject of the email changes in the course of an email conversation, change the subject line on the message as well.

--One thing I don't like is repeated email messages to me or groups of people to try to set up a meeting time. If you need to meet me, you can come to my office and arrange a time with me face-to-face, or just keep coming to my office until you find a time when I am free.

Meetings:

You should plan to have a regular meeting with me, ideally once a week. Come prepared to the meeting with plots and figures (labeled appropriately) that you can leave with me. Keep a record of what is discussed at meeting. If you need to change the time or miss a meeting – let me know in advance!

Papers:

-- Before you submit a draft of a paper, have at least one of your labmates or fellow graduate students read it and ask them to: flag typos, check grammar and spelling, identify parts that are unclear or poorly written, give suggestions for improving figure quality. I find it distracting to read papers that are poorly written and loaded with typos and have difficulty concentrating on the science. It will speed up the editing and revision process if you take care of these matters on your own before it gets to me.

-- Figures are a very important part of a paper. Learn how to make figures which communicate effectively (e.g. pay attention to labeling and figure captions). Carefully prepared figures will go a long way to getting your message across successfully.

-- When you read other people's papers, pay attention to stylistic details, how the paper is constructed, and the quality of the figures. Identify what works and doesn't work well, and you can adopt some of these strategies in constructing your own papers. The same comments go for talks as well!

--Errors in reference lists are one of my pet peeves. For better or worse, we are judged by citation counts and incorrect references do not get counted. When the reference list is riddled with errors, it leaves the impression of a careless and sloppy scientist. Make sure your references are properly formatted, consistently formatted, and completely accurate. Don't expect me to do this for you, but do expect me to get really irritated anytime you submit a poorly done reference list to me.

Basic Lab Rules and Etiquette

Keep the lab clean and organized. Don't leave your junk lying around. Put things back where they belong. If you don't know where something goes, ask someone.

Keep the lab stocked up. If you see that we are running out of supplies or missing something, replenish from the stockroom or contact me about what to do about it.

Everyone will be assigned chores and you are responsible for taking the initiative to see that these chores are accomplished.

Equipment manuals and documentation for lab equipment, supplies, computers, and samples are stored in one of the lab file cabinets. Everyone should make an effort to file documentation promptly and properly. Misplaced or lost manuals and documentation can make life difficult for future lab members.

After each synchrotron run, a synchrotron report needs to be completed

One final rule: Don't expect me to always follow the above rules – I'm too busy and set in my ways. Besides, I'm already a professor and you're not. You may surpass me some day, and when you do you can set your own rules.