How to Succeed in Your Rotation
Iris Lindberg; revised 2018

Before you start: choose your rotation laboratories wisely. Rotations offer the chance to learn techniques outside of your immediate area of interest as well as to test the working experience in different laboratories in your area of interest. In addition there are several non-scientific considerations in choosing a laboratory. Does your mentor have a history of productive research, as evidenced from the publication record (search PubMed)? Is the funding level good? (search NIHReporter). Have previous students and postdocs gone on to successful careers? Is the teaching style of the mentor compatible with your particular learning style and your expectations? What do the current and past students say about their experience in this lab? How long is the average graduation time in this laboratory? You have only three (or four, depending on the length of your rotations; this is something you should discuss with each faculty member before starting) chances to pick the laboratory you will work in for four to five years – so choosing rotations is a VERY important decision.

1. Most important item: be there. Professors do expect that you will be in the laboratory when you are not actually in class. While most will have some sympathy for exam deadlines, it is not possible to focus solely on your coursework during your rotation and expect to get anything out of it. If you cannot commit 15 hours a week to a rotation – and during the same daytime hours in which others are available to assist you- you will not learn much experimental science, or much about the lab.

2. Be proactive with your mentor. Some professors will assign you to a postdoc, others will work directly with you. **Make sure that you know what you are expected to do the day before you have to do it.** Write a starting protocol for your experiments and ask for approval and or suggestions. Aggressively seek out the information and the reagents you need to be able to do experiments ahead of time. Calculate, graph or plot your data promptly, and seek out your mentor to ask when you can discuss the results with them if you don't have regular meetings scheduled (if you do, do not miss them! Seek out your mentor). Do not wait for them to ask YOU about your experiments- you are supposed to be exhibiting enthusiasm for benchwork!

Whether you get positive or negative results, it is important that you carry out LOTS of experiments, because only in actually doing experiments can you learn experimental technique/neuroscience.

3. Ask lots and lots of questions. No one expects a beginning student to be able to understand all of the rationales for experiments and techniques; to design experiments right off the bat; and to know how to use all lab equipment. We would **much rather** you asked questions than to have you repeat a technique four times because you made incorrect assumptions about what to do or what reagent to use. You need to ask questions, and we expect you to ask questions. (On the other hand, asking how to perform a whole technique that you were already shown once or twice within the recent past gives the impression that you have not really paid attention- or taken any notes while

learning the technique.) **DON'T TAKE IRREVOCABLE STEPS**- throwing out any materials, thawing labile or irreplaceable or expensive reagents- without first checking with your lab supervisor!

4. Keep a good notebook. Always write why you did what you did, and after the experiment, **write about what happened and what you think about it**. It should be legible to others! Make sure you also take notes on where reagents you need are, and how to use the equipment. Use common sense with your notebook and around the lab- date and cap everything that goes into the freezer, be a good lab citizen in cleaning up after yourself, and make sure commonly used materials get replenished. You should write all of their calculations in the notebook since calculation errors are a common source of experimental failure. Do not keep a separate notebook for calculations, and do not print out protocols without modifying them on the fly for the daily differences which will inevitably appear (there is nothing more disappointing than not being able to repeat a successful experiment because no notes were taken on how it was done).

5. Try to impress. The choice of a laboratory is a mutual decision between you and your professor. Your professor is judging you (do I want to interact closely with this person for four years?), even while you are also judging whether or not you would be happy in that laboratory for four years. Even if you are pretty sure you don't want to stay in a given laboratory, that professor may well wind up being on your thesis committee. If you impress this person, you could have a letter of recommendation in 4 years that states "I certainly wish that XX had opted to stay in my laboratory for his thesis; I highly recommend him/her."

What are we professors looking for? Without exception, scientific curiosity and passion for research (some call this the "spark" or the "fire"). So, do some background reading without being asked. Watch what others in the lab are doing, and ask questions. Work hard (and long) at the bench so you can accomplish something during the rotation. **Think deeply** about what you are doing- what is new about it compared to previous work (both your own, and in the literature)? How can you improve or extend your previous results - each time you set up an experiment?