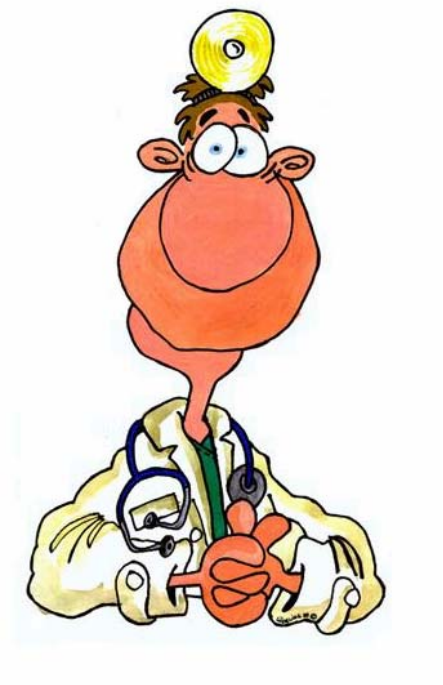
The Unofficial 2008 MD/PhD Student Handbook



Brought to you by the MSTP Student Council

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Welcome to the MD/PhD program at UB! As a first year student, it may seem overwhelming that you will be here at least 7 years! As the recent graduates can attest, it is a long rewarding journey that takes a bit of navigating through since you switch from a medical student to a graduate student and then back again to a medical student. This guide has been put together by the current students to help aid you through this rewarding journey. It is an additional resource that covers issues pertaining to training in the MD/PhD program and is meant to supplement the "Unofficial Student Handbook" provided to you during medical school orientation. Although this guide covers many issues encountered by past students, it surely hasn't covered them all, so please refer to upper class students for any additional questions or concerns you may have.

Medical School (1st and 2nd Year):

First and foremost when you start your first two years of medical school you are a medical student and thus should act like one. You should study, socialize, participate in activities, and fully immerse yourself in the medical school life the first two years. The only real differences are that you need to 1) attend the bi-monthly MSTP seminars and 2) during the summer after your first year you will need to do laboratory rotations in order to identify a lab for your PhD research. During these first two years you should be focused on doing well in classes and preparing yourself to do your best on Step 1 of the NBME.

How to identify a Lab:

It is useful to try to identify labs that you are interested in during the first and second semester of first year (so you are not scrambling for labs to rotate in when summer arrives). Talking to the senior students, both in the program and out of it, is one of the better ways to find a lab. That is, it's much better to talk with students and mentors face to face than to try to weed them through websites. There is also a searchable mentor database on the SMBS website, that will help identify mentors for short and long-term projects.

One thing that is important to look for in a mentor is personal compatibility. In addition, you should choose a laboratory based on your scientific interests and not based on your current favorite "flavor of the month" medical specialty. This is because your desired specialty may most likely change, perhaps more then a dozen times, during medical school.

Although many students choose to do their PhD in one of the basic science departments at the School of Medicine, there are some great opportunities down at Roswell Park Cancer Institute (Cancer Research) and Hauptman-Woodward Medical Research Institute (Structural Biology) that should not be overlooked. In addition, potential mentors have labs at the Center of Excellence in Bioinformatics and Life Science downtown at the Buffalo-Niagara Medical Campus.

Just remember, a good mentor is crucial to your success as a graduate student. To help you on this difficult decision, towards the end of this handbook there is a list of labs that current students have rotated through and the ones they have joined. Also, check out the list of students on the UB MSTP website, which lists their mentor and project description. You can use those students as a reference when choosing your lab(s). Also, ask the MSTP Director and the Senior Associate Dean for Research and Biomedical Education for suggestions. These people know reputations, previous mentorship experience, and current grant funding.

USMLE step 1:

Many students who have taken this eight hour "beast" of an exam have found that there are many different angles to attack it and be successful. During the spring semester of the second year, the faculty administers a practice USMLE. Just a forewarning, students should take the practice seriously but understand that it's not indicative of how individual students will do on the real thing. In addition to it being a scare tactic, the test is a good indicator of your current baseline knowledge. This goes without saying: there is no better substitute for doing well on this exam than by doing well in the courses! Board studying may fill in the details, but the foundation of your knowledge base will be formed in the classes and again, it's what the practice USMLE exam is testing. For studying, make a schedule and stick to it and do as many questions as you can. Finally, one piece of information that many students have found valuable is to plan on winding down your exam studying time a week before you take the exam. This is done in order to be rested and relaxed prior to your examination for optimal performance.

Graduate School (3rd-5th Year):

Clinical Experience during PhD years:

It is highly recommended that you have some kind of clinical experience during your PhD years. This will both keep you up to date on the medicine that you learn during the first two years of medical school and also help with the transition into the clinical years after you finish your PhD. In addition as a physician scientist you will be doing both clinical work and research so it is a good idea to get comfortable with doing both from the start of your career. A list of MD/PhD friendly clinicians that are willing to have you shadow them during your research years has been compiled. This list is available upon request.

Medical School (6th and 7th Year):

For one thing when returning to medical school after completing your PhD, you should be ready for a little culture shock. Everyone else already knows each other, and they've just taken the boards, whereas we're coming in not knowing anyone and by then we've forgotten all of those details we memorized for the boards. Be very friendly with everyone when you start, since it's good to know your new classmates, and don't expect to be a superstar on the first rotation because its hard trying to dig up all of that information you forgot. Also, if you're not friendly from the outset you may be labeled as an MD/PhD snob, since honestly people are already intimidated by us. We have a tendency to be older and wiser (and somewhat calmer) than our medical school classmates, so help them out when you can, and they'll help you make the adjustment. Also, a personal bias of mine is that everyone should start with OB/GYN coming from the research years. The hours are rough, but most of the info is stuff that even the regular medical students wouldn't know so it's more of an even playing field. Do not start with medicine or surgery, as they contain a lot of information that we may have forgotten. Family medicine would be really tough to start with, too. Other than the first rotation, the order shouldn't make a huge difference. Another problem we seem to encounter is that we haven't taken a standardized test in so long. So study hard and do a lot of questions before the first shelf. All the regular rules of being a medical student apply i.e.: showing up on time, being positive, helping the interns, etc. Don't leave yourself any research papers to write or additional experiments to do during third year, as it's just not possible with everything else you have to do. Also, do not fill up the 3rd year schedule with required electives if you want to do something that is not part of the required rotations (for example: Anesthesia).

Fourth year of medical school (that is the 7th year in total in the program) you will need to take Step 2 Clinical Skills (CS) and Clinical Knowledge (CK). Register very early for these exams in order to get your choice of date and location (like at the beginning of 3rd year). As an MD/PhD student you may need more time to study for Step 2 CK than your average MD student (usually studies for an average of 2 weeks) because after a few years in the lab you will probably have forgotten information from Step 1.

Additional Information:

Top 10 List of Advice
(As provided by one Upper Class MD/PhD Student)

1. When you're in medical school, you're a medical student. Same applies when you are a graduate student.
2. Despite what's told to you, your grades, class rank, USMLE DO MATTER! If you are interested in a competitive residency (ex: Dermatology at Harvard), having an MD/PhD with poor grades and USMLE score isn't going to cut it. Study hard!
3. Upper classmen are your best source of advice! Talk to them!
4. Get to know your MD/PhD classmates as you'll be stuck (for better or worse) with them for 7-8 years.
5. Be nice to the secretaries, you never know what favors they can do for you (or what difficulties they can cause to you).
6. When choosing a lab, its better to choose the mentor first, the science second. Having a strong technical support system in the lab is very important! (i.e. technicians, post-docs, people who know how to do stuff and speak English)
7. Do some rotations between 1st and 2nd year, but leave some time off to relax, spend with family, etc.
8. Take everything the administration says with a grain of salt. Do what's best for you in the long run.
9. Stay away (most of the time) from people who make you crazy or stress you out, but hang around with them (some of the time) to keep your competitive spirit going.
10. Most importantly, relax! You are going to be here a very long time.

Taxes on Stipend: This is a common issue. You should ask upper class students what they have done. Also it might not be a bad idea to consult a tax accountant. Here is a helpful website from the IRS: http://www.irs.gov/publications/p970/ch01.html

Searching for Funded Researchers:

Sponsored Programs Database Search for Researchers:

One good way to find researchers who are funded and thus could potentially take you into there lab as a PhD student is by searching through the Sponsored Programs Database. Below you will find brief instructions on how to search the Sponsored Programs database of current funded projects and proposals for future funding:

1) Go to the sponsored programs website (http://www.research.buffalo.edu/spa/)
2) Click on "Online Reports" near the top of the page

3) Log-in with your UB name and password
4) Choose whether you'd like to search proposals or awards. Proposals have been submitted for funding but have not yet been selected. (Awards are currently funded. You probably want to focus on awards for now, but proposals may give you an idea of where the lab wants to go.)
5) Choose how you want to filter the results. For any of the lists, you can select multiple entries by holding down the "CTRL" key and selecting. Here are the useful fields:
   a) School (remember, this is university-wide, so you can search the school of architecture, school of law, etc. I think you are better off leaving this blank.)
   b) Department (can be useful if you know you want to do cardiovascular research or something else that is department-specific area. You can also leave this blank.)
   c) Principal Investigator (very useful once you've narrowed down your list, or if you have an investigator in mind. Here you can check to see what projects your proposed mentor has that are funded etc. (Can also be left blank for your initial screening though.)
   d) Sponsor (meaning who provided the money for the grant. This is useful if you want to do, say, microbiology research: scroll down to the "N's" and highlight "Nat'l Ins. of Allergy & Infectious Dis.", and maybe also select "National Institutes of Health" etc. This is a good way to begin searching if you have a general area in mind but not a specific lab or even specific department. Stick to the National Institutes.)
   e) The next most useful search tool is "Title" where you can type in keywords, like "multiple sclerosis" and see who has funded projects with those words in the title.
6) For "Dates to Search On", choose "All Active Projects."
7) Depending on how many criteria you entered, you'll get anywhere from zero to several hundred results.

<u>CRISP Search for Researchers:</u>

CRISP (Computer Retrieval of Information on Scientific Projects) is a searchable database of federally funded biomedical research projects conducted at universities, hospitals, and other research institutions. This site will only return NIH funded grants.

1) Go to http://crisp.cit.nih.gov/
2) Click on Go to CRISP query form.
3) Enter PI name and click submit query

Laboratories that MD/PhD Students have rotated through and/or joined:

Here is a list of laboratories that current students have rotated through. An asterisk (*) next to a name means that the student joined that laboratory for their PhD research. If you are interested in any of these labs you might want to email the students that have rotated in the lab to get their opinion. This is by no means a complete list of researchers. Also inclusion on this list does not mean the laboratories are currently funded or are accepting students so make sure they are at least funded by searching them through SPS and/or CRISP (see above).

Department	Laboratory	Students who rotated in lab
Biochemistry		
	Michael Buck	Jason Rizzo*
	Techung Lee	Arsalan Shabbir*, David Zisa*
	Mark O'Brian	Megan Murray

	Gabriela Popescu	Alice Crane
	Satrajit Sinha	Brain Trummer
	Mulchand Patel	Paul Mitrani*
Engineering		
Chemical Engineering	Stelios Andreadis	Brain Trummer, David Zisa, Nick Liaw
Mechanical Engineering	Hui Meng	Max Mandelbaum*, Nick Liaw*
Chemical Engineering	Sriram Neelamegham	David Zisa, Nick Liaw
Microbiology & Immunology		
	Piero Bianco	Megan Murray
	Richard Bankert	Mike Nazareth*, Jen Barnas*, Rachael Turner, Allen Ho
	Nejat Egilmez	Rachael Turner*
	Steven Gill	Greg Canfield*, Allen Ho
	Anders Hakansson	Megan Murray
	John Hay	Ben Briggs*
	Paul Knight	Krishnan Chakravarthy*, Brian MacDonald*
	Alan Lesse	Greg Canfield, Alice Crane
	Timothy Murphy	Elizabeth Patchett*, Greg Canfield
	Laurie Read	Helen Nazareth, Jason Rizzo
	Thomas Russo	Helen Nazareth*, Brian MacDonald
Immunology @ RPCI		
	Sharon Evans	Jen Barnas, Rachael Turner
Pharmacology & Toxicology		
	James Olson	Alice Crane*
Ophthalmology	Jack Sullivan	Edwin Yau*
	Jerrold Winter	Arsalan Shabbir, David Lee*
Pharmaceutical Sciences		
	Robert Straubinger	Brain Trummer*
Physiology & Biophysics		
	Michael Morales	Chris DeSimone*

*student joined that lab

Useful Web Sites:

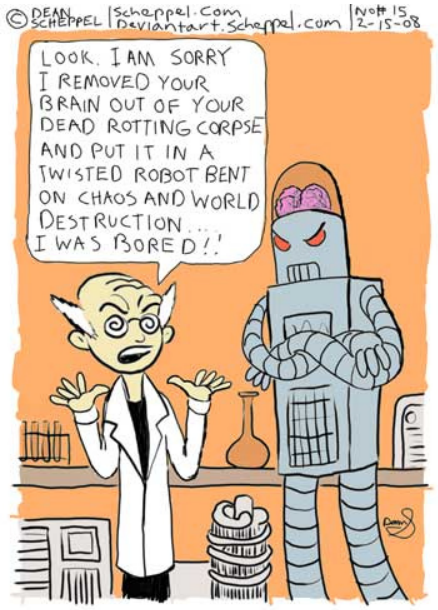
UB MD/PhD Website
http://www.smbs.buffalo.edu/rbe/mstp/

Online Resource created for the students by the students
http://www.MDPhDs.org

AAMC: Careers in Medical Research
http://www.aamc.org/students/considering/research.htm

M.D./Ph.D. Directors Association
http://www.aamc.org/research/dbr/mdphd/start.htm

Physician Scientist Residency Programs



http://www.physicianscientists.org/Training_Programs/Residency.html

American Physician Scientists Association
http://www.physicianscientists.org/index.html

State Specific Requirements for Completion of all 3 Steps
http://www.fsmb.org/usmle_requirementschart.html