

Graduate Student Research in the Pharmaceutical Sciences

This document lays out minimal research expectations for graduate students in the Pharmacological Sciences PhD program. If your advisor provides you with a different set of expectations, they supersede this one; otherwise this applies to you.

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Purpose: This document sets written expectations for students registering for research units for course credit and is intended to provide written expectations for completion of the course.

Graduate students working in the group are expected to exhibit professionalism, hard work, and diligence. Graduate research is, effectively, a type of apprenticeship, and we would like for you to get the most out of your time in the group which will require significant investments of your best time and effort. You should expect to spend up to 3-4 hours per week per unit on research for course credit, so (for example) a student registered for 12 research units might be expected to spend up to 36-48 hours per week on research for this course. Time you might spend on optional outside activities, such as professional development opportunities, etc., should not be considered as time counted towards this course credit, nor should any time spent on paid research via a graduate student researcher (GSR) position or similar. Additionally, time spent serving as a TA cannot be considered as time counted towards research/course credit. You should discuss time expectations with your research advisor/principal investigator each quarter as you begin your research for course credit.

Note that science is a research endeavor (and in some respects is different from most other things we do because of that, as [this article discusses](#)), meaning that it isn't really a "normal job" and has a considerable degree of unpredictability. Sometimes this will provide you considerable flexibility, and other times it will call for long hours. Research will require your best problem-solving skills, and your best intellectual effort, because you're tackling your own unique problems.

Remember that your advisor, while in some sense your boss, *is* an advisor. They won't have all the answers, and you can't follow instructions blindly and expect success. Your research needs to become your own, and you need to understand what you're doing and why. For early stage graduate students, you may need to follow instructions quite closely to avoid mistakes – but as time goes on and you develop into an expert in what you're doing, blindly following instructions will prevent you from developing the understanding you need, and will lead you into trouble. Remember, your project is *yours*, and it's your job to know the project, your area, and the field – and the goal is that you become the world's expert on it. You should never find yourself explaining, "I did it this way because my advisor told me to."

Occasionally you may be asked to serve as a teaching assistant; this is an important responsibility and must be done well. Research cannot be considered as taking priority over TA work. In particular, if you are serving as a TA, this position typically pays for your salary/stipend and benefits and allows you to continue doing your research, thus TA work must be treated with the priority any job should be.

Other research expectations include:

- Work responsibly and efficiently to complete your degree within 4-6 years
- Arrange to get the help you need to accomplish that, including:
 - Communicate effectively and regularly with mentor and committee members, coordinating meetings as needed to accomplish this (usually this means meeting with your committee at least yearly but often more like quarterly or twice a year)
 - Give regular updates on your progress and get regular input
 - Meet with your committee annually to go over your individual development plan (in addition to other meetings noted above)
 - Stay current with literature and master your discipline of research (including historical/fundamental knowledge of the field)
 - Find other contacts locally and elsewhere who can help you along your path
 - Take ownership of what you're doing (and know or find out which projects are yours to own)
- Take responsibility for timing and organization of your advancement, defense, and other key hurdles and milestones
- Come prepared to meetings (and have an agenda for those you initiate)
- Understand scientific ethics, and conduct ethical research. Report any suspected unethical behavior.
- Develop professional networks
- Contribute to research publications
- Participate in collaborative projects
- Attend (and ideally, present at) research conferences
- Be resourceful, and don't reinvent the wheel (read the manual, ask people in the lab, find other experts, ...)
- Keep good records of everything
- Make good use of your advisor's time
- Ask for help when you need it
- Be responsible/accountable (have a calendar and use it; keep a to-do list; back up your data; practice self-care)
- Remember (or record, or both) how to do things when shown
- Use group funds wisely, with permission
- Seek funding
- Mentor others, including undergraduates and more junior graduate students, especially as your expertise grows
- Attend and participate in seminars

- Handle conflict – with anyone, including your advisor, lab members, or collaborators – in a mature way, communicating early and often. Get help and input from a third party (such as the Grad Division counselor or your program’s Graduate Advisor) if needed, especially if you have conflict with your advisor.

Some specific rules for students in the lab are:

- Maintain careful records of experiments/calculations, data analysis and conclusions.
- Data may not be given to anyone outside the lab without permission of the PI. This includes verbal sharing of data; do not present your data in any professional setting without prior approval from the PI.
- Travel and time off require advance approval and notice, as they would for a normal job
- If you wish to travel to attend a conference or present your research, you need advance approval

Typically, the below are also true, but you should discuss specifics with your PI:

- Lab notebooks and electronic records are the property of the University. Students may not take notebooks out of the lab. Electronic records of data and analysis must be kept on lab computers.
- Equipment and reagents may not be given to anyone outside the lab without permission of the PI.
- Students must present a poster or talk to attend a conference. (If they really want to go and have nothing to present, they can pay themselves).
- Since availability of equipment may be variable, you may be asked to work evenings or weekends depending on the schedule