

# Things I Learned in Grad School (the Hard Way)

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1. To write a research paper, you need a question, an approach, and an answer. Ideally, the question is interesting, the approach innovative, and the answer robust. To get started, pick an area you find intriguing and try to come up with a decent question and a feasible approach. If you like the idea enough, then spend time turning that into a paper. See “Four Steps to an Applied Micro Paper” by Jesse M. Shapiro.
2. Be persistent and stay focused. Successful research requires sustained effort. For example, if a data partner does not respond, try writing another email. If a regression specification doesn’t work, see if there’s another strategy. Kill unworkable projects quickly by tackling the trickiest part first. But don’t give up until you know why the project won’t work.
3. Work at a sustainable pace. Sleep well. Eat well. Spend time with friends and family. Enjoy your evenings and weekends. Stay happy and don’t become too serious. Do not approach research like cramming for an exam. You will burn out.
4. If you feel stuck, take a break, do something else, and talk to other people. Research is not a straight line. Most research projects involve unexpected twists and turns. What you imagined on Day 1 or even Day 100 will likely be very different from your eventual paper. Don’t worry, someday you will look back and amaze at how many hurdles you overcame.
5. Write things down for clearer thinking, for record keeping, and for communication. Before I begin an analysis, I write down the methodology so that I can be clear-headed about what I’m about to do. When I complete a portion of the analysis, which may have taken a few hours or a few days or more, I write down a summary, including the questions, methods, and findings. I then file this away for future reference. These research notes are integral for structuring my thinking and for collaborating with others. Eventually, a paper will emerge from these notes.
6. Research is a team sport. This is obviously true if you are co-authoring. However, this is also true if you are working on a solo-authored paper. The ideas in your paper come from lots of other people. Feedback from other

researchers can dramatically improve your paper. Talk to other people and be generous in acknowledging help that you received from them.

7. Hone your communication skills. To be effective as a researcher, you need to communicate your work to other people, including your collaborators as well as people outside your team. For this reason, writing and presentation skills are key. Make your papers and talks clear and enjoyable. Provide simple, precise, and memorable takeaways.
8. Drop your ego. For much of graduate school, my ego wanted badly to be a good researcher and was terrified of failure and of looking bad. Every critique from my peers and advisors felt like a personal assault. Every failed attempt felt like the end of the world. This made doing research very miserable. Please don't do this to yourself! Research is hard, its outcomes are mostly out of your control, it is very common to get stuck, and you are a beginner. You have to be very forgiving to yourself so that you stay happy and healthy. On some days, the research gods will be available to you. On other days, they will not. It's not personal. And it's not really up to you. Instead of being driven by your ego, try to be driven by love and curiosity.
9. Don't be afraid to march to your own drumbeat. Everyone has a different set of strengths and interests. They may not fit easily with what your environment asks of you. I struggled with feelings of not fitting in for most of graduate school. Things started to feel much better when I stopped trying to be someone else and became more comfortable in my own skin.
10. Be kind. We are all, to varying degrees, struggling to get through our days. I wish I had been more aware of this and was less harsh to both myself and others.
11. Research gets easier over time. Thesis-writing can feel so difficult that almost every PhD student gets discouraged and contemplates quitting at some point. This is entirely normal. With experience you will grow in confidence and ability. This takes time, so be patient and practice self-compassion.