A Tale of Graduate School: Part 1—Being a Graduate Student
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Graduate school is not easy, but then no one ever said it was. It should challenge a person in several different ways and teach many things aside from the advanced coursework and learning within a research project. A graduate degree should also help you learn about yourself, including how to think critically, deal with success and failure, handle criticism, work under pressure, and stand up for your work. In the sense of moving forward in a career, I could argue that this is even more important than the technical knowledge and experience you receive in graduate school.

In preparing for this article, I reflected on both my experiences as a graduate student and as a faculty member advising graduate students. I think, sometimes, students don’t recognize that their professor went through the same things that they are currently going through and think that we have lost our perspective (or our minds—I’m not sure). While I cannot speak to all circumstances, I believe many of us have tried to remember our experiences in graduate school in dealing with our students.

As a new school year begins, I thought I would try to share some insights from both sides. In this issue, I will talk about the student side of the graduate school experience, and in the next issue, I will talk about the faculty side. Not everyone will agree with me, and if you don’t, I would invite you to share your thoughts and ideas for inclusion in a future Tales from the Pits article (dferris@sciencesocieties.org). I open this invitation to everyone; faculty and students as well as employers who have their tales to tell regarding what they look for when hiring their employees.

There’s one important point that I would like to make before going much further since I will cite the hard work associated with graduate school along with the numerous positives: Graduate school has to be the right decision for you. You have to want to do it, and you have to make the commitment to it, or it won’t work out. I was the first person in my entire family to attend college and earn a bachelor’s degree, so moving on to a master’s and then to the Ph.D. was, I think, proof to them that I was pretty much crazy. Being blue collar, they couldn’t understand why I didn’t get a “real” job after four years of school and start paying off my student loans like everyone else, so I didn’t exactly have a cheering section where my family was concerned. In the end, graduate school was exactly the right decision for me, and while I lost some things, I gained more than I ever thought I would.

What Does it Mean to Be a Grad Student?
So what does it mean to be a graduate student? Well, you won’t necessarily be able to call your life your own, which is very different from the days as an undergrad. Relationships tend to take a beating, especially if your significant other isn’t in or hasn’t been to grad school. Harder yet is the situation where there is a family to think about. However, your fellow grad students who are all in the same boat as you will become family. Many of these people will become your best friends—people you can count on to keep you company late at night in the lab, seriously listen to your research hypotheses (and understand them), and not yawn when you excitedly talk about a new reference you found.

Grad school comes with long hours of hard work both in coursework to keep your GPA high and in getting research done that doesn’t always go the way you would like. Depending on what your research project entails, you may be on the road for days/weeks on end (not always a bad thing) or you could be in the lab at all hours of the day and night. I have experienced both. I remember working on my master’s degree in soil physics at the University of Minnesota. The program is located in the basement of Borlaug Hall, so I never got to see day-
When I moved on to my Ph.D., I was thrilled to have a field research project and was excited to be back working outdoors. It didn’t take me long to realize, however, that field work comes with its own set of issues unlike the controlled environment of the lab. Working in northern Minnesota in glacial till brought the unforgettable experiences of long hours battling the stones and rocks to auger holes to insert wells and piezometers while waging a constant battle with deer flies, mosquitoes, ticks, and whatever other pest happened to be present at any given time. I had to deal with porcupines that insisted on eating the wooden boxes that housed my research equipment, deer hunters who weren’t thrilled with me moving through “their” area, and wolf packs leaving behind their fresh deer kills. Don’t get me wrong, I loved the wildlife and being outdoors, and my research bog was beautiful unto itself. Northern Minnesota is gorgeous no matter what season you are there—who could ask for a better office?

One thing that helped me get through the frustrations was to get to know other students and their research; this made me realize that we were all dealing with frustrations, and by sharing them, we were able to help each other out. This was especially true during my Ph.D. when I was at the Marcell Experimental Forest in northern Minnesota. There was a group of students using the facility, and we helped each other out on our projects. For example, there was a person from the University of North Dakota who was working on black bears and helped me with soils work and some of the heavy lifting in the bog that I was working in. To pay him back, I helped him with some of his research, which included crawling through the woods on my hands and knees collecting bear scat so that he could document the diet of black bears in the area. I learned about radio-collaring and tracking black bears, along with their diets and habits. It had nothing to do with my work on subsurface flow patterns between uplands and peatlands, but it was a great diversion from my research problems, and I learned a lot. The best part was that it was an experience that came back to help me during my days in environmental consulting.

Life as a grad student can get especially difficult (or should I say interesting) when the thesis/dissertation writing begins. By that time, most students, having completed their research, would just like to be done with the project. Writing the literature review, running statistics day after day, and putting it all together in a concise and meaningful way that will satisfy your committee and a peer review can only stay exciting for so long. I recall submitting drafts of my thesis to my master’s degree adviser. He would suggest that I change something, so I would make the change and resubmit it, and he would change it back. Over time, with changes back and forth several times, I was ready to tear my hair out. (I have asked my students to tell me if I do that to them.) It is hard to stay focused at the end, especially if you are looking forward to finding a job and are busy interviewing. Keep in mind, however, that it is important that you finish. This is especially true in a Ph.D. program where many people leave with an ABD (all but dissertation) and then find it extremely hard to focus on finishing their dissertation. I went through this and wouldn’t suggest that route for anyone. For me, it was a financial decision having just gone through a divorce and basically needing a job to pay the bills, but it took me six years of long nights after working a consultant’s long day to complete my dissertation. I will be forever glad that I did, but it was hard.

My Advice to Students
Here’s some advice I have for students:

- Remember to breathe. Things do actually tend to work themselves out. When research doesn’t give you the answer that you thought it was going to, it still teaches you something and provides information that you didn’t have before; and that is useful. Alternatively, if you made a mistake, then learn from it. And last, don’t be so afraid of making a mistake that it constrains your ability to do research.

- Make sure you do have some type of life outside of academia. It is important to be able to take a break once in a while to keep your perspective. I played on a softball team in the summers with other grad students, and it was a much welcome break from the books. We even won once in a while.

- When you select your committee members, don’t obsess on getting the “easy” faculty. You really do want your committee to push you and ask the probing questions. It will make you better in the end.

- When you put your program of study together, don’t opt for all of the easier courses to just “get through them.” Figure out where you are going and what you might need for both your research and your future career plans. Getting the information through coursework while still in school sets the stage for continued learning once you are in your career.

- Get interested in the other research going on around you; you never know when it might come in handy. Those friends you make in grad school will always be a part of your career network no matter where you scatter to across the globe. Take the time to make those connections.
• Work on your communication skills, both written and spoken. I cannot stress enough how important this is! If you cannot communicate your ideas or explain how something works, not only in science speak but also to the lay person or colleagues from other disciplines, you won’t get far.

• Make as many connections as you can while in school and then don’t be afraid to pick up the phone or contact them once you are out of school. I think a lot of people coming out of grad school think that they have to (or should) know all the answers. The truth is you don’t, and you won’t. No one is going to think less of you because you reached out and asked a question or for help on a project. And... next week someone will be calling you for your expertise.

• Do not alienate your adviser no matter how much they frustrate you. They will be a great resource for many things for a long time. I have remained friends with my advisers along with many of the faculty from my grad school days, and they have become great friends too.

• Everyone’s graduate school experience is different depending on where you are and who you are. Make the most of it.

My Ph.D. adviser gave me a great piece of advice one day when I was complaining about my research project and everything that was going wrong or taking longer than expected. It was advice that I disregarded at the time, thinking he didn’t know what he was talking about, but it came back to me later as one of the most important things he said to me, and I wish I would have paid more attention to it at the time. He said, ”Graduate school is a time in your life when you have the most freedom to learn. Once you’re out working, you lose the opportunity to focus on one project or research idea and learn in an atmosphere that is virtually unrestricted by time and other priorities and issues in life. You will long for the freedom you had in graduate school once you leave.” I have thought about that statement many times over the years; it’s very true.

Last, for some good comic relief that you can relate to, I would suggest checking out Ph.D. Comics (www.phdcomics.com/comics.php), if you haven’t already done so. It targets the wonderful world of being a graduate student and is appropriate whether you are at the master’s or Ph.D. level.

Oh, and I would be remiss if I didn’t thank my advisers from my graduate career. I would sincerely like to thank Dr. Satish Gupta (University of Minnesota–Soil Physics) and Dr. Ken Brooks (University of Minnesota–Forest Hydrology) for putting up with me and teaching me not only the academics, but also about life and growing up as part of my master’s and Ph.D. programs, respectively.

Do you have a tale you’d like to share—good or bad—about life as a soil scientist or an experience you’ve had in the field? If so, email it to Dawn Ferris at dferris@sciencesocieties.org. You may remain anonymous if you like.