By **Andrew Gaudet**

A grad school survival guide

Since becoming a postdoc, I've mentored several incoming graduate students. In doing so, I've reflected on my own scientific experiences studying spinal cord injury repair. I've compiled a short tutorial aimed at making the road to a Ph.D. less bumpy, with a focus on the day-to-day tasks that fill a graduate student's life, common hazards to avoid, and useful shortcuts you can take. These tips will help you build and maintain momentum and keep your projects moving forward. Think of it as a practical survival guide for graduate students.

Craft good questions. Don't just show up and do the work in front of you. Read about it, think about it, talk about it with other scientists, and plan it out. Hard questions and deep thinking lead to new and better ideas. Revisit and revise your questions as new results come in.

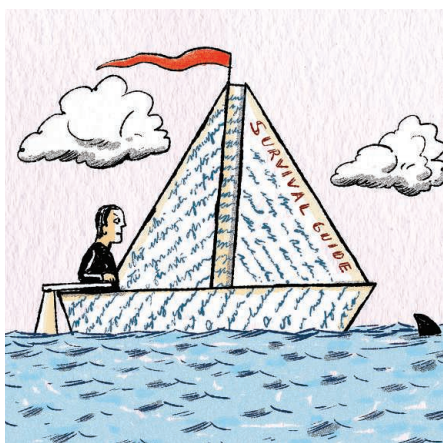
Ask for help. Ask that grizzled old postdoc for advice on experimental design, or ask the lab technician for assistance with PCR. To troubleshoot my cell migration assays, I sought the advice of a postdoc in a different lab. Along the way I learned a lot about cell culture techniques, published a paper in a respectable journal, and finished my Ph.D. You don't get extra points for doing it on your own.

Respect and appreciate your lab mates. If you often work with undergraduates or technicians, take them to lunch to show your appreciation. If someone helps you even a little, acknowledge them generously in your presentations.

Have at least two projects. If you have downtime on one, you can focus on another and keep your momentum. During my postdoc at Ohio State University, a certain protein expressed after spinal cord injury looked promising at first but didn't lead anywhere. Fortunately, a second molecule turned out to be important not only in spinal cord injury but also in obesity and depression. By spreading energy among multiple projects, you increase the chances of discovering something novel and exciting.

Sleep on it. If a lab mate or mentor irritates you, write down your thoughts (discreetly and securely), but don't respond right away. Sleeping on it will clear your head and allow you to compose a balanced, respectful response the next day—if you decide to reply at all.

If you need guidance from your mentor, set up a meeting. Unless she prefers to keep things informal, schedule a time to seek direction.



"Along the route to a Ph.D., rough seas can be navigated or avoided entirely."

Learn when to be obsessive. Many protocols have parts that must be performed in a specific manner and other parts that are more flexible. If you know each step's function, you know which steps you can do quickly and which will reward your obsessive attention to detail.

Start with the task you are least excited about, and do it right away. Midway through graduate school, I was arriving at work around 10 a.m. and then reading e-mail, news, and *PHD Comics* before thinking about my first task. Yes, I was procrastinating. Sometimes a simple task—checking animals or changing cell culture media—hung over my head all day; I didn't want to do it, so it blocked everything else. So finish small, short-term tasks first thing in the morning, before you check your e-mail. You'll find the rest of your day goes better with that out of the way. For more daunting, longer term tasks, plan them out and take the first steps as soon as you can.

Balance bouts of focused work with short breaks. Intermittent breaks are invigorating and help you maintain focus for the entire day.

Get organized. Online calendars can ensure that you never miss an important meeting, experiment, or workshop. Cloud-based aggregators (e.g., Evernote) allow you to access practical information such as details for ordering supplies, locations of samples in the lab, and ideas for future experiments.

Along the route to a Ph.D., rough seas can be navigated or avoided entirely. It takes many small successes, achieved day by day, to reach your long-term goals. So stay focused. ■

Andrew Gaudet is a postdoc at the University of Colorado, Boulder. Send your story to SciCareerEditor@aaas.org. For more on life and careers, visit sciencecareers.org.