## Musings of a Graduate Student

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## Finding Your Way through the Smog: Musings of a Graduate Student

When I entered graduate school, one of the things I quickly learned was how different the trajectory of my 'schooling' would be than that of my peers in other programs. Sure, I had required courses as a first year Ph.D. student, but beyond that point, life as a Ph.D. candidate takes a much more independent and unpredictable course than that of students in other professional schools. There is no set timeline of when you will graduate, and this can be as daunting as it is freeing. We all have that one family member who makes it a point of asking you "when will you graduate", and "why can't you just hurry up and wrap things up one year sooner?" For better or worse, your dedication to seeing your thesis project to completion is one of the key determinants in how your graduate career will play out. But even the most motivated and passionate student will bear inevitable pitfalls. This is often where the graduate student life turns most bleak. From staring into the black hole of a confocal microscope objective, only to find a constellation of debris and high background looking back at you, to seeing your labmate's project flourish while yours sinks in a sea of antibody diluent, there are moments where being on this path can be incredibly isolating. What tends to make it that much more difficult, is the feeling that you are in this on your own. In a sense it's what you signed up for – training to be an independent scientist who can troubleshoot a project and carry it through to completion. Graduate school tends to have a "suck it up" attitude, where a lot of times the pressure of producing data in order to move forward can be debilitating. From seeing classmates burn out from overworking themselves, to others who have found themselves stuck so deep in the impenetrable smog of a frustrating project that they can't motivate themselves to be productive – graduate school can have a harsh way of teaching its lessons. But if there's one aspect of graduate school life that has carried me through so far, its been knowing when to turn to others, not only for help, but for camaraderie at the bench. Knowing that you are not alone, as cliché as it may sound, can be a life raft when it seems like there is no progress to be made. A graduate student's journey to thesis defense doesn't happen in isolation, and building a sense of community is an aspect that shouldn't be overlooked. There is an emotional side to science that mostly goes unacknowledged. We are trained to take a rational and objective approach to our work, but when the irrational, subjective and ultimately human side gets in the way of that, the culture of science often doesn't lend itself to be a very nurturing place. In a field that promotes scientific collaboration, it's important to realize that communicating your scientific struggles with your peers can be just as instrumental in helping to move forward, as is finally troubleshooting that next protocol. We come together to forge new ideas and discuss potential projects, but also utilizing our scientific network as a support system to share successes and failures, is its own collaboration that should be encouraged more. From my

own experience, implementing an 'unofficially official' daily lab coffee break has been pivotal in providing an environment to bounce ideas off each other, get new perspectives on an experiment and just commiserate in the roller-coaster of graduate school life. Other times, it simply just reminds me of how advantageous it is to be spending these formative years of my life in a niche surrounded by intellect and inspiration. The extra dose of caffeine doesn't hurt either!

As I near the completion of my Ph.D. training, I find myself reflecting on how I have gotten through some of the more trying times of my graduate career. A piece of advice I was given before I started was to have an outlet of some sort while in graduate school. I have tried to maintain this as best as I can, even when it seems like there is no room for life outside of the lab. It has proven to be a saving grace for getting through some of the more difficult times during graduate school. From taking up dance classes, or learning a new instrument, or just surrounding yourself with a network of people who are supportive of your endeavors - giving your mind a break from research can often be what you need to recharge, refocus, and honestly, just stay sane. Knowing that the smog is inevitable, but that it won't be a permanent state of despair if I can take a step outside of my own headspace, is something I try to constantly remind myself. The further along in my scientific career path I proceed, I am sure similar frustrations will present themselves, but the coping strategies I take to tackle the graduate school "cloud" now, will lay the foundation for sanity throughout my journey.



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