



CREDIT: HAL MAYFORTH

How not to apply to grad school

By Adam Ruben | Apr. 23, 2015, 11:15 AM

My old bedroom closet in my parents' house is a tribute to the follies of youth, boasting a fraction of a self-authored Choose Your Own Adventure book, an elaborate hermit crab maze, and the result of a severely misguided attempt to make my own shoes. But among the weird projects and pointless schemes (yes, I recorded and graphed exactly how quickly my hermit crab traversed the maze, and I did this exactly twice before becoming bored with it), I recently discovered a 20-year-old file related to my college applications. And damn, was it well organized.

Every school had its own section, beginning with a chart of what was due when. How many recommendation letters and from whom? How many essay topics and with what word limits? Drafts in progress; brochures; and no fewer than seven thick, dog-eared college guides—I may not have authored a peer-reviewed paper about the hermit crab maze (“The Effects of Human Adolescent Exuberance on Unfortunate *Coenobita clypeatus*”), but when it came to applying to college, I was deliberate and thorough.

“ I remember hurriedly filling out a paper copy of one school’s application, even though most of the process had moved online, just so I could complete it during a long bus ride and mail it at a rest stop. Somehow this did not get me into Harvard. ”

Compare that to my graduate school applications 4 years later.

I was a senior in college, juggling the demands of course work, lab work, and—there’s no easy way to say this—marching band. I knew I wanted to pursue a Ph.D. in some kind of molecular biology, or maybe bioengineering, but without the time to make a massive file box—or, let’s be honest, my mother to encourage me to make a massive file box—I did a much sloppier job. I remember hurriedly filling out a paper copy of one school’s application, even though most of the process had moved online, just so I could complete it during a long bus ride and mail it at a rest stop. Somehow this did not get me into Harvard.

Applying to college is a delicate, complicated procedure that can be mastered, but for most of us, applying to grad school is like, “Wait—shoot—uh-oh!” For the benefit of all of you applying to science graduate programs, I’m going to confess my mistakes in the hopes that you can avoid following in my footsteps—footsteps which, you’ll note, are not encased in self-made shoes.

I had no plan for choosing which departments to apply to. Was bioengineering different from biomedical engineering? Why were molecular biology and biochemistry a single department at some schools but two departments at others? What the hell was biophysics? And if a school had two identical departments at different campuses—for example, the Department of Molecular Biology at the medical school and the Department of Molecular Biology at the main campus—how were those different?

So, instead of choosing based on actual information, I chose based on website prettiness. At Washington University in St. Louis, for example, I applied to the Department of Molecular Genetics. Why? Because it had cooler animated GIFs of a rotating DNA double helix than the other schools. And I don’t even really like genetics.

I used my essay to espouse my philosophy of life. Somehow, this didn’t seem pretentious at the time. But it absolutely was. I talked about what the world’s most pressing scientific problems were, in the opinion of my 20-year-old self who was still learning what tequila did, and how I would solve them. I probably used the term “moral obligation,” and there’s a good chance I italicized it. (I can’t know for sure, because the remnants of those essays are stuck on the hard drive of a Dell Pentium desktop that last successfully turned on during the early days of Operation Iraqi Freedom.) In other words, I wrote like someone who knew he wanted to do Important Things but couldn’t be bothered to pin down exactly what they were.

I devoted a good 3 minutes to learning what each lab did. Many schools asked me to list professors whose labs I’d like to join and why. Again, Google to the rescue (or maybe it was [AltaVista](#) back then). I glanced at each professor’s Web page and then picked the ones with the fewest obscure abbreviations.

I listed accolades that, it should have been immediately apparent, weren’t overly impressive. I can picture the admissions committee now: “Oh, really? In the marching band, you were both the drum major *and* the drill master? Clearly we ought to explore options for paying you a double stipend.”

I sucked up. I said I would feel “honored” and “privileged” to work in their department, and while this may have been true, it made me sound like exactly what I was: a clueless undergrad. Of course arrogance is worse, but it never helps to declare that you occupy a lower stratum.

I listed every lab technique I had ever performed, regardless of whether I had performed it more than once. There’s a big difference between someone who does a yeast two-hybrid screen as part of Lab Exercise #8 and someone who does it regularly. I had hoped to obfuscate that difference. During the interviews, that obfuscation could have been detected pretty easily: “Uh, yeast two-hybrid screen? I don’t remember the protocol, but I can tell you it was worth 25 points.”

I sought a recommendation from a professor who barely knew me. He was nice enough to write *something*, though I have no idea what. Probably: “Adam is a student in my seminar class. We have only had four sessions of this class so far, and no assignments were due. It’s quite possible that he has a goatee. Therefore, I strongly recommend Adam to pursue a Ph.D. in your esteemed department.”

I took the GRE Biochemistry, Cell and Molecular Biology subject test. That’s it. Taking the test was the whole mistake, because this test was a *freaking beast*. Here’s a sample question:

A protein you’ve never heard of binds most strongly to which of the following?

- a. *This ligand you've never heard of*
- b. *This other ligand you've never heard of*
- c. *Is this one even a ligand?*
- d. *Oh, good, you've heard of this ligand, but that doesn't help*
- e. *Make sure you have a safety school*

Despite these mistakes, and even though I was rejected from several of my top-choice programs, I still managed to land a few interviews. Hooray! It was time to truly research these departments in depth, right?

Nope. It was time to do a few more experiments with tequila (conclusion: It's just bad all around) and enjoy some reimbursed campus visits. So let's add one more mistake:

I assessed each campus based on "how it felt." That seemed right at the time, but it really wasn't. During the recruitment weekends, I appreciated the quality of the free food and the niceness of the junior faculty, but I completely neglected the most important question: Is there a lab in which I'm likely to enjoy spending more than 10,000 hours?

So how did I eventually select my graduate program? I carefully considered what each department had to offer, debated which would serve me best in my career, and then committed to a school geographically close to my girlfriend. Then we broke up.

All in all, my choice didn't end disastrously. The biggest downside, I now know, was that I was a translational scientist who joined a basic science department, and that led to some disappointment:

ME: Hey, your research is cool. What would you say is its practical use?

THEM: Practical use? Ha ha ha ha ha! What are you, a grant application?

And while it's always good for a translational scientist to have some grounding in basic science, I never really liked the "We're researching this because it's there" department seminars.

Despite the missteps, I have the Ph.D. now, and no one at my current job ever asks why I chose one graduate program or another. I may have screwed up the graduate admissions process 14 years ago, but these things have a way of mattering less as time progresses—if you thrive wherever you end up.

So if you're applying to grad school, learn from my carelessness. Research the programs and the people who work there as thoroughly as possible. Focus on the science. Don't write like an undergrad, but don't write like you think you're a Nobel laureate, either. Cultivate relationships that can inspire genuine recommendation letters.

And if you must speak of your involvement in marching band, let it work itself organically into conversation. ("So you say the professors in your department are generally sharp but pay no attention to dynamics? That reminds me of a certain trombone section")

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