Microbe Mentor

Advice for Graduate School Applications

The decision to attend graduate school has huge implications on any young microbiologist. It can determine lifelong colleagues and friends, impact future research directions, and build business opportunities. It is no wonder, then, that the ultimate goal of any applicant is to find a university, program, and ultimately an advisor, that will satisfy the student’s current and future needs. Once the applicant has identified where he or she would like to spend the next few years of their lives, either as a Master’s student or a Ph.D. candidate, the next challenge is to convince this university/program/advisor to accept the responsibility of taking on this new student. Similar to that of a job, this application process can be very competitive.

Knowing this, one person asked Microbe Mentor, “What can students do to make graduate school applications stand out?” In other words, if you could give one or two pieces of advice to somebody preparing themselves to apply to graduate school, what would that advice be? Microbe Mentor reached out to three distinguished faculty members for their advice on this topic. Here’s what they had to say:

In regard to the application, Michael McInerney of the University of Oklahoma suggested that the applicant “tailor the application so that it is specific to the institution and a particular laboratory/faculty member if possible.” McInerney admitted that, “when I look at applications, I ask why is this person applying to the University of Oklahoma, and if the person indicates interest in my laboratory, why are they interested in working with me? They should show some knowledge about the areas of interest in the department and why the applicant is interested in these areas. I understand that students may not know exactly what they want to study. I did not know exactly what I wanted to do (when I started), but I was interested in microbiology and tried to emphasize my interest in learning more about microbiology. We want to make sure that we can meet the applicant’s interests.”

Graduate training in the microbial sciences emphasizes achievements in the laboratory as well as in the classroom, so having experience in the lab and an appreciation for the sort of commitment required to succeed there is widely viewed as a critical element to the applicant’s background. Therefore, McInerney also suggested that applicants “emphasize any laboratory or other experiences that allowed them to work independently. M.S. students and undergraduate students that did research projects should describe what research they did. Undergraduates that did not do research projects can describe experiences that they had in laboratory or other courses that allowed them to work independently. I would highlight the challenges that they faced and how they overcame them. The challenges could be technical, e.g., a difficult assay that needed optimization, or personal, developing the confidence that they can work on their own or persevere and keep going when the work does not turn out as expected. I would emphasize their ability to solve problems, overcome challenges, and work independently.”

Finally, McInerney said, “I would discuss anything that sets them (the applicant) apart from other students. Maybe they took more mathematics than required for their degree or volunteered in a laboratory, etc. Also, any leadership positions that they had should be mentioned. The application should bring out the excitement that the person has for microbiology, why they are interested in a particular topic, and what they plan to do in the future when they are done. Success in graduate school requires motivation and perseverance. These traits should also be brought out in the application.”

Elizabeth Edwards of the University of Toronto advised that “for a graduate student to be successful, . . . first and foremost there has to be keen passion for knowledge, and a belief that this quest for knowledge and deep understanding will make the world a better place. For a grad school application to be successful, this passion needs to
be evident.” She followed with, “Passion can be manifested in many different ways, but it has to be real, driven by some motivation to work for a better future, fueled by personal experiences and prior work. But it can’t be naive either. There has to be understanding of existing constraints, recognition of the tough slog ahead, and of the importance of listening to and learning from others and building knowledge in partnerships. I like to hear a student’s story, and then get some independent corroboration of the story and their abilities. In reality, a bit of relevant experience in undergrad, say in a lab, or a similar testing ground, is a huge bonus.”

Edwards stressed that a successful “candidate needs to demonstrate a record of ability or a few proven relevant skills, and then bingo, they jump to the top of the pile.” In addition, “there also has to be a good “fit” between the grad program, the supervisor, and the student - an alignment of interests and ethics.”

Lily Young of Rutgers University continued with these themes. In her opinion, when it comes to a graduate school application, demonstrating “experience in a lab is, of course, an important factor. It may or may not be a paid position; it may or may not be an independent research project; it may have been in the summer or during the semester. Some students have more opportunities than others to do research as an undergrad. Regardless, any kind of lab experience is helpful as it teaches routine, how to handle chemicals and reagents, how to organize an experiment, the preparation that is required before an experiment is carried out, how to clean up after a procedure, how to repeat and repeat and repeat and repeat, how there can be a lot of tedium, but once the data comes in and looks good, the excitement and satisfaction that is experienced.”

Young also suggested that applicants “show passion for the material. When putting together an application for grad school, more important than straight As or high GREs is a personal statement that shows passion for the subject. Show commitment and purpose. What did you do during the summers? Did you volunteer for a good cause, did you volunteer for a professor to gain experience, did you have to work in order to help cover [the] cost of college? All that shows character.”

In summary, these experienced faculty and mentors feel that a graduate school application should be seen as an opportunity to demonstrate:

- Technical laboratory skills
- Independent research skills
- Communication skills
- Passion for knowledge and the subject matter
- The ability to overcome challenges
- Perseverance and commitment
- Teamwork
- Alignment between the students’ interests and the university, program, and faculty strengths
- Why the applicant is special, unique, and worth the investment that the graduate program and faculty will be committing to

If these items are clearly outlined in a graduate school application, an applicant’s chances of being noticed and positively reviewed are significantly increased.

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