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Guide to Eco-Evo PhD Application

Stanford Biology seeks PhD students who are creative scientists with a passion for research.

The Biology Department is a group of labs with wide-ranging research interests, and is part of the broader Biosciences community at Stanford. The Biology PhD program has three tracks: (i) Cellular and Molecular Biology (CMOB), (ii) Ecology and Evolution (Eco-Evo), and (iii) Hopkins Marine Station. Applicants are required to have a US Bachelor’s degree or foreign equivalent, and typically have prior research experience.

Pursuing a PhD involves conducting independent research under the mentorship of a faculty mentor for 4-6 years. This involves studying the existing work in the field, formulating research questions, working towards answering these questions using a variety of different techniques, and communicating novel findings through papers and presentations at seminars and conferences. Stanford Biology students are funded for the entire period of their study. Career trajectories following a PhD vary widely and include academic science, industry science, science writing, policy development, and conservation.

The Ecology and Evolution division of the Biology department evaluates applicant every year through applications submitted through Stanford Biosciences. Applicants are evaluated primarily on academic work and research experience. Below are guidelines and tips that are intended to support prospective students through the application process:

How to Apply to Graduate School:

1) Understand your research interests by pursuing research experiences in areas that you find stimulating, reading the existing literature, and talking with people in the field. Understanding your research interests will help you evaluate which programs and research groups are a good fit for you, writing your application, and eventually develop your body of work as a graduate student. Looking at recent papers, talks, or seminars that you have enjoyed and reflect on your previous research experiences can be particularly helpful.

2) Learn about different labs and programs. Creating a list of research groups you are interested in is the first step in the application process. This can be done by looking up authors on papers that you have enjoyed and asking trusted advisors in the field about which programs and people they would recommend. Look at the websites of the labs that you are interested in, as well as the programs that they are affiliated with. Think about the key ideas that have gotten you excited about science, and about what you might need and value in a mentor-mentee relationship.

3) Reach out to scientists of interest by contacting them through email. In ecology and evolution it is an “unwritten rule” that you should reach out to professors you’re potentially interested in working with before grad school applications go in, sometime during the preceding summer or fall. A concise, informative email of about two paragraphs will do.
   a) Introduce yourself, tell them briefly about your background and academic interests.
   b) Explain why you’re interested in their work, and ask them if they would be interested in talking with you about your potential interest in their graduate program.
   c) If you have any relevant experience or expertise (such as previous labs you have worked in, summer research programs, publications or honors theses) it is important to mention these but note that none of these are required!
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d) You can attach a CV, formatted to highlight your academic and research experience, including any research presentations or papers.
e) If you do not receive a response within two weeks, you may write a short, polite follow up email.

4) **Have a conversation** with faculty that express interest, typically via phone or Zoom so that you can get to know each other. You should expect to talk about your research experience, academic interests, and how they would fit into their research group. It is important at this stage to know a bit about what research is done in the lab (look at their website and recent papers) and to have a few research interests ready to discuss.

This conversation is very important for establishing whether you and the prospective advisor and lab are good fits for each other, and for getting a glimpse into what it would be like to work together. In Ecology and Evolution this typically occurs **before** the official applications are submitted. This conversation is a good opportunity for you to ask prospective advisors about their research, mentorship style, and their department. It is also useful to ask members of the lab (current or former graduate students and post-docs) about their experiences in the groups. Inevitably, some people won’t respond, or won’t express interest, or it just won’t seem like the right fit after steps 1-4. This is part of the process of finding the right fit and is completely normal!

5) **Apply** to the Stanford Biology program once you have identified some programs and potential advisors that do seem like a good fit. The Stanford Biology application has several components:

a) **Personal Statement:** Tell us about you, your research interests, and your career goals. Here are some questions to consider – they do not all have to be included in your statement:
   i) How does who you are shape your goals and interests? These statements are a chance to get to know you as a person and as a developing scientist, so it is okay to talk about personal experiences, challenges, opportunities, and accomplishments, but remember that this is a professional statement, so you may want to steer clear of childhood stories (which can be trite), unless they are really central to your identity and goals.
   ii) How have your previous experiences shaped your academic path? If you have previous research experience, summarize the biological questions that you have asked, how you have sought to answer them, and what you took away from the experience, and how it connects to your overarching research interests? It is useful to touch upon all of your research/academic experiences and connect them to your current research interests and goals. Mention and discuss any publication of your work, completed or planned.
   iii) What excites you and motivates you about scientific research?
   iv) What type of research do you see yourself doing in our department? It is useful to mention the specific research groups that you are interested in at Stanford.
   v) What are your long-term career goals, and how does getting your PhD fit into them?

It is often useful to show your statement to trusted advisors and colleagues to ask for feedback and comments, and to look at effective statements from, for instance from recently accepted students.

b) **Transcripts** from your previous academic work (note that Master’s degrees are not required in ecology and evolution, and many students go straight from undergraduate into PhD programs). While grades are an important part of the application, your previous research experience will vastly outweigh your grades in most professors’ consideration. Stanford Biology no longer
requires the GRE. Note that Stanford Biosciences requires the TOEFL exam for applicants whose first language is not English.

c) 3-4 letters of recommendation. Ideally, these are letters from people who know you well in an academic or research context, and can write positively about your experiences, attributes, and preparation for grad school. Most letters of recommendation will come from professors, though in some cases it may be appropriate to get a letter from a boss or mentor from a professional setting. Give your letter writers plenty of time to write and submit your letter. It can often be useful to send them a copy of your most up to date CV and/or personal statement for context.

d) Short answer questions: the three short answer questions give you an opportunity to expand upon your application.

i) Significant research project: this is a summary of your most major research experience. It is important to include the questions that you answered through this project rather than a list of techniques that you learned. This also allows committee members to efficiently access your most significant research experience.

ii) Contributing to the Stanford community: discuss any unique experiences and circumstances that will enrich Stanford’s educational environment, and any outreach efforts aimed at increasing equal representation in the sciences or academic community.

iii) Describe an interesting biology or biomedical problem: this could be a question that you find fascinating. While this can be a question you are currently interested in answering, it does not have to be.

6) Interview Stanford Biology invites prospective students for an on-campus interview (at least, during non-pandemic times) to visit the prospective advisor(s) and meet other professors and students in the program. [Note: for the 2021-2022 admissions season the interviews will be virtual and admitted students will have a campus visit.] This is your chance to get to know the advisor and their lab members and to see what the environment is like in that program. While this step can feel intimidating, remember that it is an opportunity to talk science and meet interesting people—both the people in the program and the other interviewees, who are likely to become your peers and colleagues down the road. The best way to prepare is to familiarize yourself with the research in your prospective lab by reading some of their recent papers (you can also search for preprints on bioRxiv or medRxiv, which post unpublished manuscripts that are not yet published in a journal). Look at the program website to get an overview of the research topics in other labs in the program, and on faculty that will be interviewing you. Just as importantly, this is your chance to assess how well the program and advisor fit you! Ask lots of questions to faculty and other grad students (especially the ones in your prospective lab) about what life is like in the program, including mentorship style, funding, teaching requirements, student culture and community, and any other concerns you may have. Stanford Biosciences PhD programs are fully funded positions that cover your tuition and fees and give you a stipend to cover your living expenses.

7) Choose a program! Shortly after the interviews, the admissions committee will decide whether or not to offer you a PhD position. If you receive an offer, it can be helpful to have follow-up conversations to ask further questions. Programs are often in the painful position of having many more fantastic applicants than they have space for and have to make really difficult decisions. Try not to let it hurt your confidence if you don’t get into all the programs you wanted, and remember that even getting interviews is a major accomplishment.