Santana Lab – Mentoring Philosophy

Describe a lesson you learned from your own graduate or postdoc training that you apply as a PI.
I greatly valued the opportunity that my own mentors gave me to be independent in my research interests and approaches, while being available to provide advice so my plans wouldn't fail miserably. I encourage my students to pursue the research topics that they are passionate about and to develop their own questions, while also advising them to maximize the possibilities of success. Being an integrative biology lab, it is often the case that part of a student's dissertation will fall well outside my expertise, so I encourage and help my students to connect with relevant colleagues outside the lab to seek mentorship, which in turn also helps them expand their professional network.

How would you describe a successful graduate student?
A successful graduate student is an independent researcher; they have gained a deep and broad understanding of their field, are able to identify critical gaps and the most interesting questions within it and propose potential approaches to address them. They are excited and passionate about their research. They are also aware and critical of inequalities in science.

Please provide a brief description of how the stipend and research costs for PhD students in your lab are typically funded.
Students in my lab are generally funded through a combination of research and teaching assistantships. Research assistantships may come from federal grants that require students to assist in a particular research project, or from endowments that belong to the Mammalogy Department at the Burke Museum. Student research costs are funded through current grants (if the student's research falls within the theme of the grant) or through the student's own Departmental or extramural grants.

What is the process for your PhD students to develop research projects (i.e., to what extent do they arrive to the lab with an idea versus coming up with ideas after joining your group)?
Most of my students develop ideas for their research projects during their first year after joining the lab, although we do discuss potential projects before they apply to our graduate program. During their first year, I encourage my students to take on a small research project (e.g., a portion of an ongoing project in the lab) so that they can start learning tools relevant to our field, become more confident in their research skills, and develop ideas for their dissertation. As our work is largely interdisciplinary, tutorials, rotations, and discussions involving other faculty members are also important for the development of my students' research projects.

How often do you meet with your graduate students?

The frequency of meetings with my graduate students varies across students, throughout the year, and across years during their PhD. This can range from once a week (e.g., during regular quarters) to once or twice per quarter (e.g., in the summer when they are away doing fieldwork), depending on how often we need to communicate about research progress, obstacles, etc.

Have you trained graduate students who now work outside of R1 academic institutions? If so, please describe differences (if any) in your approach to their training.

Two of my recent PhD graduates expressed their interest in careers outside of R1 academic institutions (teaching and applied wildlife research) about halfway through their PhDs, and we worked together to ensure that they would gain additional skills necessary for those career paths. For example, one of these students included a biology education research faculty member in her committee and sought out TAing opportunities that would complement her teaching portfolio. I helped the second student make connections with colleagues at various institutions (e.g., Zoos, USFW) to seek out advice on necessary skills and how to navigate that job market.

What qualities do you look for when recruiting a new student into your lab?

Curiosity, creativity, maturity, resiliency, motivation, previous research experience, and a well-thought-out justification to conduct a PhD and join our lab.

Do members of your lab regularly participate in outreach or public science education efforts? If so, please describe some of these efforts, including the role(s) of your lab members.

As part of the Burke Museum, the members of my lab regularly engage in public outreach activities targeting University and K-12 students, and the general public. These include creating and presenting mini-exhibits showcasing their own research, participating in fundraising events, leading tables at large family events (e.g., “Meet the Mammals”, attended by over 1,000 people each year), visiting schools to talk about their research, creating educational materials showcasing research process and products for classroom or public use (e.g., Burke boxes, augmented reality materials, etc.).