TEACHING STATEMENT - ANONYMOUS

I.Teaching background and philosophy

I believe in the transformative power of science and education. I feel privileged that, as a member of the higher education community, I am at an ideal position to help enhance the levels of scientific literacy in the US. I am committed to that as one of the primary goals of my professional career. My development as a teacher has taken place in two very different universities, XXX and XXX. At XXX, a large public university serving students with extremely varied socioeconomic backgrounds, I was a T.A. for introductory biology labs for about 10 semesters, and served for a year as a full-time lab teaching associate. At XXX, a selective university with overall bright and highly motivated students, I have taught organismal labs (Ornithology and Entomology), and am currently teaching an introductory lecture course. **These diverse teaching experiences have led to three principles that shape my philosophy and strategies as a teacher: the respect principle, self-regulated learning, and the inclusive potential of organismal labs.**

The Respect Principle (McGlynn 2020) means recognizing and adjusting for the diverse backgrounds and expectations students bring to the classroom. At XXX, this included both wealthy students from exclusive private schools and first-gen students from underfunded public schools. These disparities were incredibly evident, and I've learned that students can't be treated as a homogenous group. Above all, I seek to treat each student as a whole, complicated, unique human being. I regularly check in with struggling students, offering help and showing interest in their academic and extra-academic lives. I have observed that these one-on-one conversations make underprivileged or first-gen students feel more comfortable, encouraging them to speak up or seek help—essentially, they make underprivileged students feel *seen*. One student shared that this approach led him to attend office hours for the first time ever in their life, calling it "a complete eye-opener."

Another key aspect of this philosophy is trust. Many students seem to assume instructors distrust them, but I seek to build trust instead. There will always be liars and cheaters and there is little we can do about those, but they make up a tiny minority of students. I build my course policies and teaching philosophy around, not for, dishonest students. For instance, I don't ask for documentation for absences or delays, because obtaining documentation can itself be a burden for some students. I also create flexible assessment systems, like allowing students to drop several low quiz scores, so they can manage unforeseen circumstances without even having to disclose personal issues. My approach is to always err on the side of empathy rather than strictness. One student's feedback during the tumultuous first semester under the COVID-19 pandemic reflected this: "I was blessed with a very amazing TA, Rafael Marcondes. My TA sent out weekly emails with overall feedback and what to expect for the week. He was extremely understanding when I was having a very bad week. I accidentally submitted the wrong lab TWICE, and he understood that it was a simple mistake due to a lot going on. I believe he communicated very well with us. My TA is an angel."

The second pillar of my teaching is self-regulated learning (Nilson 2013). I started studying self-regulated learning after I observed the low levels of engagement often displayed by students in freshman labs, even though labs—inherently a form of active learning—are expected to be engaging to students. Self-regulated learning is a strategy that seeks to instill in students the habit of planning, thinking about, and adjusting their own learning strategies. I have adopted multiple techniques of self-regulated learning, and I have noticed they are generally well-received by students. For example, I use simple techniques like adding questions at the end of quizzes, asking, "Are you happy with your performance?" and "What will you do to improve?" These encourage reflection without testing, and students receive credit just for responding. Research also shows learning improves when shared. To foster collaboration, I encourage students to form weekly study groups, having them sign up with day, time, and location. I don't enforce it, but I check in to see if students find these groups helpful. During the pandemic, I kept students engaged with weekly emails outlining expectations and encouraging reflection, resulting in few dropouts and sustained engagement in online labs.

Finally, I take special pride in teaching organismal courses with field components, such as Ornithology and Entomology, which are a tried and tested way to increase minoritized students' sense of belonging and retention in EEB. Minoritized students enrolling in field courses report significant self-efficacy gains in such skills as species identification, oral communication and experimental design—all crucial for a career in EEB. They also exhibit higher GPAs at graduation and increased interest in pursuing graduate school in EEB compared to students that never enrolled in a field course. Thus, to improve EEB field courses at XXX, I applied for and received a Brown Teaching Grant entitled "Acquisition of binoculars to enhance diversity, equity and inclusivity through field courses in ecology and evolutionary biology", in the value of $1,276.25. **I would be thrilled to continue teaching and**

enhancing organismal labs such as ornithology, entomology and others at XXX, where they would benefit from NYC's outstanding system of urban parks.

II. Other teaching interests

Beyond the organismal courses mentioned above, I would be thrilled to teach many others, including but not limited to:

Introduction Lab to Organismal and Evolutionary Biology. To teach this lab I would follow the same strategies I've developed in my Ornithology and Entomology labs: place students to get in direct contact with organisms in their natural environment, use and contribute to community science initiatives such as iNaturalist and eBird, and engage with basic concepts via evolutionary analyses of their data in R.

Genomics and computational biology. Genomics are an important part of my research program, and skills in computational biology are highly transferrable and in high demand from students. Nevertheless, I have observed a very low level of computational literacy in my experience teaching freshmen, which presents a severe barrier for learning more advanced computational skills. Therefore, I would be interested in developing a course, or a series of courses, aimed, in this order, at: (1) instilling basic computational skills useful for science majors, such as navigating file systems, installing applications and performing literature searchers, (2) advanced computing skills, such as using the command line, scripting, and accessing High Performance Computing clusters, and (3) basic acquisition and manipulation of genomic data, including the structure of FASTA, SAM and VCF files and how to download them from public repositories.
I am a heavy and adept user of the R programming language, which is applicable at a wide variety of academic and professional settings. It is also relatively user-friendly for beginners, with multiple facilitating online tools, such as swirlstats.com and education.rstudio.com. I would be interested in using R to introduce students to programming, either as part of my Evolutionary Biology class, or as a standalone class. If introduced to students early in their college careers, R skills could also be applied in other courses, such as in basic Ecology, Physiology and Genetics.

Diversity of Life. During my undergraduate training in Brazil, I had a series of outstanding courses giving an overview of the diversity of life, always using phylogeny as an organizer and conceptual unifier. I have fond memories of those courses, and they have played a major role in instilling in me the sense of wonder that drives my career. I would love to have the opportunity to teach a course in that vein, employing similar same strategies as those I have described for an Evolution class.

Evolutionary Biology. My primary identification as a researcher is as an evolutionary biologist, and teaching an undergraduate-level evolution class is one of my greatest professional ambitions. I often daydream about how best to teach evolution in a way that makes justice to it as the grand unifying theory of evolution while also conveying its endless wonder that is my own greatest source of professional motivation.
If given the opportunity, I would teach evolution focusing on concepts and examples. Ernst Mayr (1982) observed that one of the main aspects that distinguishes evolutionary biology from other sciences such as physics or chemistry is that it is mostly based on concepts rather than on laws. I agree. The learning goals for each week of my evolution class would be to understand and explain one or a small number of concepts. For example, the first few might be "Hardy-Weinberg Equilibrium", "genetic drift" and "natural selection". Towards the end of the course, we would get to more complex concepts that build on previous ones, such as "macroevolution"—one of my own areas of research expertise. To ensure maximum learning of those concepts, I would rely on a variety of strategies, including readings, lectures, active learning, and self-regulated learning tactics as described above. To inspire wonder and investigative thinking, I might consider starting each week with a short video from a nature documentary and using it to build the concept that explains the organisms' behavior or characteristics observed in that video. This is akin to Hubbard et al.'s (2017) activity where students watch a video displaying brood parasitic behavior and are asked to develop hypotheses and predictions based on it. I successfully used that activity to teach principles of the scientific method at XXX. Finally, as far as grading and assessment, evolution is particularly conducive to thinking in the higher levels of Bloom's taxonomy. Writing multiple choice questions at those levels is difficult, but I developed good experience with that as TA, especially during the COVID-19 pandemic when all assessments became internet-based. In addition to weekly quizzes and one or two exams, I would have at least one writing assignment. One idea I would like to experiment with for that assignment is to ask students to

write a short professional biography of any practicing evolutionary biologist of their choosing, as long as that biologist belongs to an underrepresented demographic, such as women, persons of color, or members of the LGBTQ+ community.

III. Samples of student feedback

BIOS 330 - Insect Biology Lab – XXX University

Perfect instructor for the class. Very knowledgeable about the material and pointed us in the right direction for everything we did. Somewhat hands-off, in a good way, to allow us to do our own things until we needed help. Really helpful instructor who created a very laid-back atmosphere.
12/18/2023 07:12 P.M. Report a Concern

Rafa is a great instructor. He was always clear about what he expected out of his students and was reliable if any of us ever needed help. He does a great job explaining what we needed to do and overall did a great job organizing the insect biology lab course. If you have a chance to take a course with him, definitely take it.
12/15/2023 12:12 P.M. Report a Concern

Rafa is incredible and really makes an effort to connect with his students. He shared his love for insects with us every day and was always a huge help in collecting, pinning, and IDing insects. You can tell he really loves teaching, and it's infectious. He's also hilarious and has lots of stories about Brazil and being an ornithologist and entomologist.
12/14/2023 02:12 P.M. Report a Concern

Absolutely love this professor. Incredibly kind, enthusiastic, and willing to help. Hands down one of my favorite instructors I've had so far at Rice.
12/01/2023 10:12 A.M. Report a Concern

By far the most fun course I've taken. It's very straightforward with a focus on the point of the class without unnecessary padding. It's not super structured because it doesn't need to be. This makes it pretty fun, in a way that actually makes you more focused on the assignment. It's incredibly informative about methods for capturing, identifying, pinning, and presenting the insects. The entire class is dedicated to creating an insect collection and writing a paper about the diversity and collection afterward. It's an amazing class and I highly recommend it if you have any interest in insects.
12/18/2023 07:12 P.M. Report a Concern

Goated class. Definitely recommend taking the Insect Biology Lab. A bulk of the grade is an insect collection, which is awesome. Wish I could take it again.
12/15/2023 12:12 P.M. Report a Concern

I love bugs. 10/10, would recommend.
12/14/2023 05:12 P.M. Report a Concern

As someone who has loved insects since childhood, I adored this class. I had so much fun learning more about hexapods and curating my insect collections, and now I walk around trying to visually ID every bug I see...
12/14/2023 02:12 P.M. Report a Concern

This lab was the highlight of my semester. You learn how to collect and pin a scientific insect collection and it's tons of fun. You will make friends in the course as well.
12/13/2023 09:12 P.M. Report a Concern

BIOS 337 - Bird Field Biology Lab – XXX University

Rafa is so much fun, he's so personable and fosters a really chill, open classroom environment. His enthusiasm about birds really comes through, and you'll learn a lot from him!
04/21/2023 03:04 P.M. Report a Concern

Was a new professor this semester, and aside from assigning a lot of work and some scheduling issues (which are most likely due to this), he was funny, very knowledgeable, brought up broader issues in ecology and evolutionary biology, and was very excited about birds which made the class more engaging.
04/27/2023 05:04 P.M. Report a Concern

BIOL 1208 - Biology for Science Majors I– XXX University – (from ratemyprofessor.com)

QUALITY 5.0

DIFFICULTY 3.0

BIOL1208 **Nov 6th, 2021**

For Credit: **Yes** Attendance: **Mandatory** Would Take Again: **Yes** Grade: **A** Textbook: **Yes**

Rafael is passionate about what he does. He is really helpful when you have questions. He loves when you ask questions! He hates when you fail an assignment despite all the help offered. He is entertaining sometimes, and very blunt. Have a question about birds? He's your guy. DON'T play on your phone or your computer in class when he's talking!

ACCESSIBLE OUTSIDE CLASS HILARIOUS

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