TANYA M. LAMA, PhD
tanya.m.lama@gmail.com | (203) 824-9286 | https://tanyalama.github.io/

Teaching Philosophy

I work towards two goals as an educator: to foster an **inclusive learning environment** and to build **critical thinking skills**. Most students will not go on to become scientists, but all students benefit from becoming scientifically literate. Regardless of their major, STEM education prepares students to understand scientific concepts and employ the thought processes required for personal decision making and participation in civic affairs. I use experiential and active-learning techniques that boost engagement and create a community in the classroom. My techniques and values are interwoven, providing the foundation for my approach to teaching and mentorship. Feedback and pedagogical training via the NIH IRACDA program (an initiative for the development of underrepresented teacher-scholars) have shaped my evidence-based approach, which encompasses these fundamental concepts:

Inclusive Education: Inclusive education has positive effects on the achievement and social wellbeing of *all* students[1]. My classes create a sense of community and maximize accessibility in line with institutional commitments to inclusive excellence. For example, I build opportunities for connection into my BIO336 Genomics course because students are most engaged when they feel they belong to a community of learners. At the beginning of the course, I provide a questionnaire asking students what they hope to learn and incorporate as many student interests as possible. For example, environmental conservation is on the minds of many of our students and evaluations indicate they appreciate studying topics that are meaningful to them. For instance, *"This is the first time I heard of conservation genetics research and it filled every single box of interest that I have within biology."* Another way I foster a sense of belonging is through diverse representation in my curricular materials. I counteract preconceptions about who can be a scientist by integrating the work of contemporary, minoritized scholars into my syllabus. My Scientist Spotlight assignment requires students to write a critical reflection about the biography and work of a scholar and has been shown to increase retention in STEM[2]. I know that sharing my own identity resonates with the students. Following an invited seminar at UC Stanislaus one student wrote; *"I just wanted to mention, you are the first Latina scientist I have ever been in present of, and seeing you encourages me to continue my education."*

Critical Thinking: I follow the teacher-scholar model, whereby I bring my own scholarship into the classroom and teach students how to "think like a scientist". I aim to develop critical thinking skills that are at the heart of scientific inquiry and essential to every student whether or not they pursue a career in STEM. Wherever possible, I incorporate active-learning techniques that encourage higher-order thinking and require cooperation, such as think-pair-share. I use a Universal Design for Learning approach for my courses, which include closed-captioning for recorded lectures and multiple means of engagement with course content. Experiential learning maximizes engagement for students with all learning styles and is my preferred path to content mastery in genomics. For example, I challenge students to apply knowledge and skills with assigned problem sets and guided bioinformatic analyses in BIO336 Genomics. My broad expertise in evolutionary, ecological, and functional genomics would be an asset for the establishment of a course-based undergraduate research experience (CURE) with coordinated lecture, lab and field activities.

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Teaching & Mentoring Experience

My primary function in the classroom is to facilitate, rather than lecture. In my conservation focused first-year seminar at UMass Amherst, we opened each class with a written reflection on assigned prep materials (e.g., popular science content) and closed with a partnered or team-based learning activity. In my end of semester reviews, it was evident that students enjoyed this format and suggested *"more discussion-based work."* However, one section struggled to engage with the material and one another, and my best attempts to facilitate fell flat. I had students rank-choice their preferred group roles (e.g., presenter) and organized them into teams of four that participated as a unit for the rest of the semester. This did wonders for class discussions, but only in the groups where the foursome regularly attended. This was a valuable lesson in taking student feedback and re-working the structure of a team learning activity to meet their needs. I have also made adjustments to my course policies such as flexibility in deadlines and attendance which can accommodate students with extenuating circumstances.

In my role as an NSF Postdoctoral Research Fellow, I have trained undergraduate- and graduate-level students in evolutionary and conservation genomics. My research is inherently multidisciplinary and presents opportunities for student engagement in field, lab, and bioinformatic tasks. For example, in 2021 I taught an NSF REU undergraduate student the basics of computing in R and on the command line. They analyzed a genetic dataset to reconstruct Iberian lynx *(Lynx pardinus)* pedigrees, which ultimately informed best-pair matches in a captive breeding and reintroduction program. In the same year, four PhD students joined me on a field expedition to collect aging data on greater mouse-eared bats *(Myotis myotis)* and I co-authored a publication on best lab practices for DNA preservation. My mentees describe me as *"empathetic, patient and always cool"* and *"immensely supportive."* Mentorship in my research program includes conversations about my students' strengths and career goals as I encourage them to align who they are with a career path that will be purposeful and fulfilling.

Teaching Interests

I am excited to engage students in courses related to wildlife conservation, landscape ecology, genetics, human dimensions of wildlife and conservation policy. Given the applied nature of my research, I am uniquely qualified to teach courses such as Conservation in Practice, which blends research and policy with real-life implications for the management of vulnerable wildlife populations. I am a versatile educator and would also be well-equipped to teach advanced quantitative classes such as Ecological Data Science as needed.

1. Hehir, Thomas, et al. "A Summary of the Evidence on Inclusive Education." *Abt Associates* (2016).
2. Schinske, Jeffrey N., et al. "Scientist spotlight homework assignments shift students' stereotypes of scientists and enhance science identity in a diverse introductory science class." *CBE—Life Sciences Education* 15.3 (2016):47.