University of Massachusetts Amherst

College of Natural Sciences
Department of Environmental Conservation
Dr. Jess McLaughlin (they/them)
Postdoctoral Scholar, Molecular Ecology Laboratory

Dear committee:

I am incredibly excited to submit my application for the position of Assistant Professor of Genetics and Genomics in the Department of Biological Sciences at the University of Alaska Anchorage. As a broadly trained evolutionary ecologist, my work focuses on understanding the **fundamental drivers of diversity in vertebrates,** with a specific focus on speciation in tropical birds, embracing a range of genomic technologies to answer a wide range of questions. The core of my work focuses on a simple yet important theme: why do we observe the evolutionary outcomes we would predict in some groups of organisms, but not others? I explore these questions in multiple systems, but in all, **I focus on involving students in the research process.** Ever since my time as a student at University of Alaska Fairbanks (BSc 2014, MSc 2017), I have wanted to be a part of preparing the next generation of Alaskan scientists face the challenges of a changing world.

The cornerstone of my research is the use of **comparative genomics** to understand the drivers of speciation and diversification. Much of my work focuses on how aspects of an organism's ecology– its diet, its foraging behavior– interact with its demographic history and geographic context to shape the evolutionary outcomes of isolation and secondary contact. My primary study system has been the birds of lowland Panama, where I characterized a large amount of previously undescribed genetic diversity in the resident breeding landbirds and found that hybrid zone width is best predicted by diet in ten species undergoing secondary contact. As a faculty member, I will use this as the basis for further work in Panama. I have **actively collaborated with undergraduate researchers** in this work, and five of my twelve published papers include current or former undergraduate researchers as authors, in addition to a preprint currently in revision. I am also interested in developing a local research program, which can serve as the basis of both course-based and independent study research opportunities for students.

One of my favorite parts of being a scientist is **training the next generation of scientists**, both in the classroom and through research opportunities. I started mentoring undergraduate researchers as an MSc student at UAF, and including undergrads in my work has remained a priority for me in all of my work since. In my recent-started postdoctoral position at University of Massachusetts Amherst, one of the projects I am developing is a metagenomic study of marine zooplankton at the Gloucester Marine Station. Not only will this project serve as the base for an important long-term dataset, but it will also be the core of a new marine ecology field course for undergraduates. Our ultimate goal is to develop an Oxford Nanopore protocol that can be based at the station, allowing undergrads to participate in both the field and laboratory components. I am interested in building similar programs based on this technology in my future courses, and I envision developing a similar project based in

This fall, I also started a position as an **Associate Faculty instructor at Mission College**, a community college in Santa Clara, CA. I teach two sections of Introduction to Biology to an incredibly diverse group of students, from dual-enrolled high schoolers to returning students in their fifties and sixties, including a high proportion of immigrant and ESL students. This course is taught entirely online, and I am responsible for all aspects of syllabus and assignment development, course delivery, and course management. Every aspect of my course design is based around accessibility, inclusion, and equity, including using exclusively free and online textbooks

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and materials, developing un-exam assignments to allow for students to use modalities other than testing to demonstrate their learning, and featuring weekly Scientist Spotlights, where I interview and/or profile a scientist working in a related field, all of whom come from historically excluded groups in STEM. This builds on my considerable teaching assistant experience as a graduate student, in which I taught labs for Introductory Zoology, Principles of Genetics, and Principles of Evolution, and fully developed the lab materials as well as helped deliver lectures for Ornithology. I am particularly excited by the opportunity to teach Principles of Genetics, and I am also comfortable teaching introductory ecology, organismal (especially vertebrate) biology, bioinformatics, conservation genetics, intersections of biology and society, and natural history, with a particular interest in experiential learning courses in these topics. I am especially excited to offer independent study and capstone opportunities, as part of UAA's strong undergraduate research emphasis, and to advise MSc students.

One of my core values is **building a more equitable and just future of STEM.** I have been heavily involved in advocacy and outreach focusing on inclusion and equity in STEM, with a particular focus (given my own experiences) on LGBTQ+ and specifically transgender inclusion. I am always seeking opportunities to learn and grow in this area, though, and this fall I've been part of Mission College's 2023 Community of Praxis cohort. In this program, I am completing 30 hours of additional training that culminates in an independent project to increase inclusion and equity in my classroom materials. This is in addition to my previous participation in the Racially-Just, Inclusive, and Open STEM (RIOS) collective, consulting for HHMI educational materials while also learning about equitable pedagogy. I am excited to continue this work while supporting UAA's work with Alaska Native communities, highlighting Indigenous knowledge in both my teaching and research.

As a scientist, I'm guided by the core value that anyone who wants to be a scientist should have the opportunity and support to do so. I'm incredibly excited by the prospect of returning to the state and university system that has played such a pivotal role in shaping my journey as a scientist, and I greatly hope that UAA can be the home of the next phase of my career.

Thank you for your consideration, and I look forward to hearing from you!

Sincerely,

Jess McLaughlin, PhD