

Clara Rehmann

Ph.D. Candidate

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Education

Ph.D. Ecology and Evolutionary Biology

University of Oregon *Eugene, Oregon*

September 2021 - present

Bachelor of Science Biology

University of Oregon *Eugene, Oregon*

University of California, Los Angeles *Los Angeles, California*

June 2020

September 2018 - June 2020

September 2017 - June 2018

Research experience

Spatial dynamics of selective sweeps

September 2022 - present

Advisor: Dr. Andrew Kern, *University of Oregon*

Simulation-based research for PhD dissertation investigating the effects of spatial population structure on selective sweeps.

Machine learning inference of location from genetic data

June 2020 - present

Advisor: Dr. Andrew Kern, *University of Oregon*

Simulation-based research investigating the impact of spatially-biased training data on machine learning inference of location from genetic data.

Cross-species analysis of transcription expression

March 2022 - June 2022

Advisor: Dr. William Cresko, *University of Oregon*

Rotation project assessing the effects of cross-species scRNA-seq integration methods on analysis outcomes.

Modeling high-order epistasis in populations

September 2021 - December 2021

Advisor: Dr. Michael Harms, *University of Oregon*

Rotation project simulating population-level evolutionary trajectories across fitness landscapes.

Bacterial-host evolutionary conflict

April 2020 - June 2021

Advisor: Dr. Matthew Barber, *University of Oregon*

Computational and experimental work investigating coevolutionary dynamics between the primate immune system and bacteria.

Fitness effects of inaccurate translation

September 2017 - June 2018

Advisor: Dr. Beth Lazazzera, *University of California, Los Angeles*

Experimental work investigating impacts of the loss of aminoacyl-tRNA synthetase editing on *E. coli* fitness

Teaching Experience

Evolutionary Genetics Journal Club

Fall 2024

Instructor *Department of Biology, University of Oregon*

Organized and facilitated weekly meetings about current publications.

Evolutionary Biology

Fall 2023

Guest Lecturer *Department of Biology, University of Oregon*

Lectured on integrating evolutionary forces.

Computational Genetics

Spring 2023

Guest Lecturer *Department of Biology, University of Oregon*

Lectured on principal component analysis and data visualization.

Evolutionary Biology

Fall 2022

Guest Lecturer *Department of Biology, University of Oregon*

Lectured on genotypic and phenotypic variation.

General Biology IV: Mechanisms

Spring 2022

Graduate Employee *Department of Biology, University of Oregon*

Lead and instructed students during wet and dry lab activities, graded assignments and assisted in curriculum development.

Immunology and Infectious Disease

Winter 2022

Graduate Employee *Department of Biology, University of Oregon*

Developed discussion material, lead and instructed students during discussions, and graded assignments.

Evolutionary Biology

Fall 2021

Graduate Employee *Department of Biology, University of Oregon*

Lead student discussions of publications in evolutionary biology, and graded assignments.

Marine Biology

Winter 2020

Biology Undergraduate Lab Assistant *Department of Biology, University of Oregon*

Assisted in instruction of students during wet lab activities.

General Biology IV: Mechanisms

Summer 2019

Biology Tutor for Undergraduates *Department of Biology, University of Oregon*

Assisted in instruction of students during lectures and wet and dry lab activities

Conferences and Meetings

Genetic Epidemiology of Malaria

September 2024

Wellcome Sanger Institute, *Hinxton, United Kingdom*

Poster: In space no one can hear you sweep: A novel signal of selective sweeps in continuous geographic space

SMBE

July 2024

Society for Molecular Biology and Evolution, *Puerto Vallarta, Jalisco, Mexico*

Talk: In space no one can hear you sweep: A novel signal of selective sweeps in continuous geographic space

The Allied Genomics Conference

March 2024

Genetics Society of America, *National Harbor, Maryland, USA*

Poster: In space no one can hear you sweep: Dynamics and outcomes of selective sweeps in continuous geographic space

SMBE

July 2023

Society for Molecular Biology and Evolution, *Ferrara, Italy*

Poster: Location, location, location: Evaluating evidence for co-geography in the *Anopheles Plasmodium* host-parasite system

EVO-WIBO

April 2023

American Society of Naturalists, *Port Townsend, Washington, USA*

Poster: Location, location, location: Dissecting errors in machine learning prediction of geography

Population, Evolutionary, and Quantitative Genetics

June 2022

Genetics Society of America, *Asilomar, California, USA*

Poster: Location, location, location: Dissecting errors in machine learning prediction of geography

Probabilistic Modeling in Genomics

April 2021

Cold Spring Harbor Laboratories, *virtual*

Poster: Location, location, location: Dissecting errors in machine learning prediction of geography

Publications

Rehmann CR, Ralph PL, Kern AD. Evaluating evidence for co-geography in the *Anopheles Plasmodium* host-parasite system. *G3 Genes—Genomes—Genetics*, Volume 14, Issue 3, March 2024, jkae008, DOI: 10.1093/g3journal/jkae008

Preprints:

Chevy E, Miseon J, Caudill V, Champer S, Haller B, **Rehmann CR**, Smith CS, Tittes S, Messer P, Kern AD, Ramachandran S, Ralph PL. Population genetics meets ecology: a guide to individual-based simulations in continuous landscapes. DOI: 10.1101/2024.07.24.604988

In prep:

Rehmann CR, Ralph PL, Kern AD. A novel signal of selective sweeps in continuous geographic space.

Outreach and Community Involvement

Women in Graduate Science

Fall 2021 - present

President

Academic Year 2024 - 2025

Conducting and aiding in organization of WGS meetings and events; collaborating with the Graduate School, UO Foundation, and Associated Students of the UO; promoting the mission of WGS.

Public Relations Chair

Academic Year 2023 - 2024

Communicating with WGS members; advertising WGS events to the on- and off-campus community.

Social Co-chair

Academic Year 2022 - 2023

Planning and organizing social events for WGS members and the local community.

Mad Duck Outreach

Winter 2023 - present

Helping facilitate on-campus science activities for middle school students.

Graduate Evolutionary Biology and Ecology Students

Fall 2021 - present

SPECIE2S chair

Academic year 2023 - 2024

Organizing and facilitating weekly writing groups and peer feedback sessions.

Seminar committee

Academic Year 2022 - 2023; 2023 - 2024

Helping plan and organize an annual free public seminar on current topics in biology.

Genetics Society of America Member

Winter 2022 - present

American Society of Naturalists

Winter 2023 - present

Society for Molecular Biology and Evolution

Spring 2023 - present

Invited Talks

Malaria Genomics Journal Club

24 September 2024

Malaria Genomic Epidemiology Network, *virtual*

Location, location, location: Evaluating evidence for co-geography in the Anopheles Plasmodium host-parasite system

Lighthouse Lightning Talks

2 February 2024

Verena Viral Emergence Research Institute, *virtual*

Location, location, location: Evaluating evidence for co-geography in the Anopheles Plasmodium host-parasite system