

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 - Spring 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

Biology of Genomes

May 2025

Cold Spring Harbor Laboratory, *Cold Spring Harbor, New York, USA*

Poster: In space no one can hear you sweep: Leveraging geographic data to identify beneficial alleles in *Anopheles gambiae*

EVO-WIBO

April 2025

American Society of Naturalists, *Blaine, Washington, USA*

Poster: In space no one can hear you sweep: Leveraging geographic data to identify beneficial alleles in *Anopheles gambiae*

Genetic Epidemiology of Malaria

September 2024

Wellcome Sanger Institute, *Hinxton, United Kingdom*

Poster: In space no one can hear you sweep: Dynamics and outcomes 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 CT, Small ST, Ralph PL, Kern AD. Sweeps in space: Leveraging geographic data to identify beneficial alleles in *Anopheles gambiae*. *Molecular Biology and Evolution*, Volume 42, Issue 6, June 2025, msaf141. DOI: 10.1093/molbev/msaf141

Chevy E, Miseon J, Caudill V, Champer S, Haller B, **Rehmann CT**, 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. *Ecology and Evolution*, Volume 15, Issue 4, March 2025, DOI: 10.1002/ece3.71098

Rehmann CT, 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, DOI: 10.1093/g3journal/jkae008

Preprints:

In press at MBE: Gower G, Pope NS, Rodrigues MF, Tittes S, Tran LN, Alam O, Cavassim MIA, Fields PD, Haller BC, Huang X, Jeffrey B, Korfmann K, Kyriazis CC, Min J, Rebello I,

Rehmann CT, Small ST, Smith CCR, Tsambos G, Wong Y, Zhang Y, Huber CD, Gorjanc G, Ragsdale AP, Gronau I, Gutenkunst RN, Kelleher J, Lohmueller KE, Schrider DR, Ralph PL, Kern AD. Accessible, realistic genome simulation with selection using stdpopsim. Preprint, Mar. 2025. DOI:10.1101/2025.03.23.644823

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

Public Relations & Website Organizer

Academic Year 2025 - 2026

Advertising GrEBES events to the on- and off-campus community; designing and maintaining organization website.

SPECIE2S chair

Academic year 2023 - 2024

Organizing and facilitating weekly writing groups and peer feedback sessions.

Seminar committee

Academic Year 2022 - 2023; 2023 - 2024; 2024 - 2025

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