

Clara Rehmann

Ph.D. Candidate

Institute of Ecology and Evolution, University of Oregon

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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

PhD Student

September 2022 - present

Advisor: Dr. Andrew Kern, *Institute of Ecology & Evolution, University of Oregon*

Developing and applying geographically-informed population genetics methods with a focus on *Anopheles gambiae*. Projects include correcting for spatial bias in machine learning inference of location from genetic data, constructing open-source resources for population genetic simulation and analysis, and using novel space-based methods to identify positively-selected variants.

Rotation Student

March 2022 - June 2022

Advisor: Dr. William Cresko, *Institute of Ecology & Evolution, University of Oregon*

Assessed the impact of varying cross-species scRNA-seq integration methods on analysis outcomes in order to improve identification of developing facial structures in Syngnathids.

Rotation Student

September 2021 - December 2021

Advisor: Dr. Michael Harms, *Institute of Molecular Biology, University of Oregon*

Investigated population-level effects on possible evolutionary trajectories across a fitness landscape with high-order epistasis using individual-based simulation.

Scientific Programmer

June 2020 - June 2021

Advisor: Dr. Andrew Kern, *Institute of Ecology & Evolution, University of Oregon*

Developed Python plotting tools for machine learning methods and assessed the impact of biased dispersal on machine learning inference of location from genetic data.

Research Assistant

April 2020 - June 2021

Advisors: Dr. Matthew Barber, Dr. Kristin Kohler, *Institute of Ecology & Evolution, University of Oregon*

Used computational and experimental methods to investigate coevolutionary dynamics between primate lysozyme and bacterial lysozyme inhibitors.

Undergraduate Researcher

September 2017 - June 2018

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

Experimental work investigating impacts of inaccurate translation caused by 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

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

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. *Molecular Biology and Evolution*, msaf236, September 2025. DOI:10.1093/molbev/msaf236

Presentations

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*

Malaria Genomics Journal Club

24 September 2024

Malaria Genomic Epidemiology Network, *virtual*

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

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

Lighthouse Lightning Talks

2 February 2024

Verena Viral Emergence Research Institute, *virtual*

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

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

Outreach and Community Involvement

Women in Graduate Science

Fall 2021 - present

Webmaster

Academic Year 2025 - 2026

Updating the WGS website and social media pages; promoting WGS events and sharing information from associated organizations.

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