

Roo (Louise) Weed

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Education

Graduate

The University of Chicago, August 2021 – Present, PhD Candidate in Biophysical Sciences

Undergraduate

Middlebury College, Vermont Feb 2015 - Feb 2019, BA in Physics with a minor in Art History, Summa Cum Laude, 3.8 GPA

Middlebury Museum Studies in Oxford, Summer 2018

Middlebury Schools Abroad, Madrid, Spring 2017

Awards and Funding

Brien O'Brien and Mary Hasten Scholarship Fund, Granted Spring 2024

Project title: Enumeration of cells and virus-like particles in a coastal green sulfur bacterial bloom

Advisor: Dr. S. Emil Ruff, Marine Biological Laboratory, Woods Hole, MA

\$2,114 for research costs

DAAD Graduate Research Fellowship, Granted Spring 2024

Project title: Systematic analysis of environmental influence on phage infection outcomes

Advisor: Dr. Judith Klatt, Phillips-Universität Marburg, Marburg, Germany

\$15,600 Stipend, \$460 Research

Graduated Summa Cum Laude, 2019

Vermont Space Grant Recipient 2016

College Scholar, Spring 2015-Fall 2018

Publications

Academic

Yunker, I. T., Molnar, N., Scorza, K., Weed, R., Light, S. H., & Pfister, C. A. (2024). **Bacteria on the foundational kelp in kelp forest ecosystems: Insights from culturing, whole genome sequencing and metabolic assays.** *Environmental Microbiology Reports*, 16(3), e13270.

<https://doi.org/10.1111/1758-2229.13270>

Non-Academic

Contributing author at micro-bites.org, 2024-present, [Author profile](#)

Shedding Light on Lampenflora, Illinois Science Council, August 15th, 2022, [Link](#)

Research Experience

Viral ecology and defense along environmental gradients in the shallow hydrothermal vents of Paliochori Bay, 2024-present, Phillips Universität Marburg, Germany

As part of my PhD research, I am leveraging natural and manufactured temperature and energy gradients to explore viral infection outcomes and anti-phage defense strategies under different environmental conditions. This project is funded by a yearlong DAAD fellowship.

Viral ecology and defense in a green sulfur bacterial bloom, 2023-Present, Marine Biological Laboratory, Woods Hole, MA

As part of my PhD research, I am investigating how Green Sulfur Bacteria in a dense and nearly clonal bloom avoid population collapse due to phage predation—possibly by leveraging abundant anti-phage defense systems.

Diel cycling and viral infection in a coastal microbial mat, Aug 2022-present, Woods Hole, MA

As part of my PhD research, I am co-leading a cross-institutional project with Dr. Cathy Pfister funded by the UChicago's Microbiome Center. With this work, I aim to understand the diel dynamics of coastal microbial mats with an emphasis on drivers of viral infection dynamics using 'omic approaches.

Middlebury College Mittleman Observatory, Winter 2019, Astronomy Data Specialist, Middlebury, VT

Analysis of cataclysmic variable star light curves.

Senior Project, Fall 2019, Middlebury College, Middlebury, VT

Conducted my senior work titled Configuring a Raman Spectrometer for Art Historical Research. The project was an interdisciplinary exploration, using Raman spectroscopy to analyze artwork from the Middlebury College Museum of Art.

NASA Goddard Spaceflight Center, Summer 2017, Electronic Engineering Intern, Greenbelt, MD

Did research into potential methods for reliably contacting the platinum thin-film of a micro-heater. Operated a wire bonding machine and tested the reliability of the bonds by measuring the fusing voltage.

Wesleyan Van Vleck Observatory, Summer 2016, Astrophysics Research Intern, Middletown, CT

Accumulated 10.8 hours worth of observations on the galaxy NGC6946 using Wesleyan's 24" telescope. Processed, combined, and analyzed the images in an effort to resolve the faint features around the edge of the galaxy.

Oral Presentations

Beacon Project Update, Beacon Project Meeting, University of Chicago, Chicago, IL, Fall 2023

Diel Cycling of Phage Infection in a Sedimentary Microbial Mat, TMC 2023: Microbiome Research Symposium, University of Chicago, Chicago, IL, Spring 2023

Diel Cycling of Phage Infection in a Sedimentary Microbial Mat, Invited speaker at the University of California Santa Barbara, CA, Spring 2023

Show me the money: A new display for ancient Greek and Roman Coins, Rieff Intern Public Lecture, Middlebury, VT, Winter 2019

Resolving faint galactic features using combined observations, KNAC Conference, Middletown, CT, Summer 2016

Posters

Anti-phage defense supports persistence of an anoxygenic phototrophic Chlorobi bloom, QLife Bio Summer School, Institute Curie, Paris, France, Summer 2024

Anti-phage defense supports persistence of an anoxygenic phototrophic Chlorobi bloom, TMC 2023: Microbiome Research Symposium, University of Chicago, Chicago, IL, Spring 2024

Designing Dual Holographic Optical Tweezers Controlled by a Neural Network, Biophysical Society Meeting, Winter 2022

Raman spectroscopy for Art-Historical research, Senior Project poster presentation, Middlebury, VT, Winter 2019

Reliably contacting platinum thin-film, NASA Interns poster session, Greenbelt, MD, Summer 2017

Teaching and Mentorship

Microbiomes Across Environments TA, MBL September Courses, Marine Biological Laboratory, Woods Hole, MA, September 2024

Delivered two course lectures and helped University of Chicago undergraduate students design and conduct independent research projects. Provided mentorship during lab and field components of the course.

The Microbiome Center Workshop Leader, Title: Integrating Multi 'Omics, University of Chicago, Chicago, IL, Spring 2024

Lead a workshop for about 40 attendees aimed at integrating multiple forms of 'omics data in R.

Biodiversity Guest Speaker, Title: Introduction to Microbial Diversity, Marine Biological Laboratory, Woods Hole, MA, Spring 2024

Invited to lecture for the MBL's Biodiversity spring course for college students.

Microbes Across Environments Guest Speaker, Title: The Beacon Project: diel cycling of viral infection in a salt marsh, Marine Biological Laboratory, Woods Hole, MA, Summer 2023

Invited to lecture for the MBL's Microbes Across Environments September course for college students.

Physics TA, Spring 2016-Fall 2019, Middlebury College, Middlebury, VT

My responsibilities included grading and running tutoring sessions. I was a TA for Newtonian Physics, Electricity and Magnetism, and Introduction to the Universe.

Math tutor, Fall 2015-Fall 2019, Middlebury College, Middlebury, VT

Ran group tutoring sessions as well as one on one tutoring in Calculus one and two and Linear Algebra.

Outreach

Falmouth Academy Science and Engineering Fair, Judge, Spring 2024, Falmouth, MA

Falmouth Public Schools STEAM Fair, Judge, Spring 2024, Falmouth, MA

Earth Science Day Workshops for high school students, Microbial Oceanography Workshop, Spring 2023, Chicago, IL

Homewood Science Center, Lesson in Wetland Microbiology, Fall 2022, Homewood, IL

South Side Science Fair, Aquatic Microbiology Booth, Fall 2022, Chicago, IL

Professional Development

QLife Summer School: Quantitative Phage-Host Dynamics Across Scales, July 8th-12th 2024, EPS, Paris, France (travel grant awarded)

Ohio State University Viromics Workshop, October 2023, Columbus, OH (travel grant awarded)

SEA Educational Scientific Cruise, SSV Corwith Cramer, May 2023, Woods Hole, MA

Additional Skills and Activities

Languages: English, Spanish • Advanced Open Water PADI SCUBA certified • Volunteer at Neighbors Community Garden • Foster for the Anti-Cruelty Society