Sarah Teichman

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Education

University of Washington, Seattle, WA
Ph.D. Statistics, December 2024

- Research topic: Statistical methods development for problems in microbiome science.
- Advisor: Amy Willis
- Coursework: Statistical inference, stochastic modeling, spatial statistics, statistical computing, regression analysis

Amherst College, Amherst, MA
B.A. Statistics (magna cum laude), May 2018

- Coursework: Probability, mathematical statistics, statistical machine learning, measure theory, data structures, algorithms

Research Experience

University of Washington, Seattle, WA
Research Scientist, January 2025–Present

- Advisor: Amy Willis
- Statistical methods development with applications in microbiome science.

University of Washington, Seattle, WA
Research Assistant, June 2020–December 2024

- Advisor: Amy Willis
- Statistical methods development with applications in microbiome science.

University of Washington, Seattle, WA
Research Assistant, March 2019–August 2020

- Advisor: Tyler McCormick
- Statistical model development to study wage heterogeneity

Amherst College Department of Statistics, Amherst, MA
Statistics Honors Thesis, September 2017–May 2018

- Advisor: Amy Wagaman
- Modeled the effect of edge weightings on community detection in social networks

Institute for Pure and Applied Mathematics, Hong Kong
Research in Industrial Programs for Students Research Assistant, June 2017–August 2017

- Implemented and compared reinforcement learning methods to play a video game

Sandia National Laboratories, Livermore, CA
Summer Undergraduate Laboratory Intern, June 2016–August 2016

- Investigated model selection for construction of surrogate models of chemical processes

Amherst College, Amherst, MA
Undergraduate Research Fellow, June 2016–August 2016

- Mathematically modeled decision making with data from a psychology experiment

1. **Sarah Teichman**, Michael D Lee, and Amy Willis (2023) "Analyzing microbial evolution through gene and genome level phylogenies." *Biostatistics*.
2. Pauline Trinh, **Sarah Teichman**, Marilyn C Roberts, Peter M Rabinowitz, and Amy D Willis (in press) "A cross-sectional comparison of gut metagenomes between dairy workers and community controls." *BMC Genomics*.

1. David S Clausen, **Sarah Teichman**, and Amy D Willis "Estimating Fold Changes from Partially Observed Outcomes with Applications in Microbial Metagenomics."

1. **Sarah Teichman**, Michael D Lee, and Amy Willis. "Visualizing Gene Trees to Investigate Gene and Genome Level Evolution." In *E*NAR Spring Meeting, Houston, TX, March 2022.

1. **Sarah Teichman**, Rachel Heath, and Tyler McCormick. "Decomposing Wage Variance in Low-Resource Settings." In *J*oint Statistical Meetings, virtual, August 2020. (Poster presentation)

Sarah Teichman, Michael D Lee, and Amy Willis. "Analyzing microbial evolution through gene and genome level phylogenies." *Microbiome Virtual International Forum*, Virtual (December 2023).

Sarah Teichman, Michael D Lee, and Amy Willis. "A Visualization Tool for Gene Trees and its Applications to Microbial Phylogenomics." *CMiST Microbiome Club*, University of Washington, Seattle, WA (June 2021).

1. **groves.** R package implementing gene-level phylogeny visualization method. Package and tutorials available on Github.
2. **fastEmu.** R package implementing fast differential abundance tests for large sets of features. Package and tutorials available on Github.

Marine Biological Laboratory, Woods Hole, MA
Teaching Assistant, July 2022, July 2023, July 2024, July 2025

- Strategies and Techniques for Analyzing Microbial Population Structures (STAMPS)
- Taught statistical and computational methods to practitioners of molecular microbial ecology and genomics

University of Washington, Seattle, WA
Predoctoral instructor, Winter 2022, Spring 2022

- Statistics 302: Statistical Computing
- Topics: programming fundamentals, data manipulation and visualization, computation for statistical inference and prediction, debugging, version control and git

University of Washington, Seattle, WA
Predoctoral instructor, Summer 2021

- Statistics 303: Introduction to the ethics of algorithmic decision making
- Co-developed curriculum and course materials.
- Topics: ethical concerns in a statistical analysis, statistical bias fairness, facial recognition, privacy

University of Washington, Seattle, WA

Teaching Assistant, Fall 2018, Winter 2018, Spring 2019, Winter 2021

- Statistics 221: Statistical Concepts & Methods for the Social Sciences
- Statistics 311: Elements of Statistical Methods

Amherst College, Amherst, MA

Statistics Fellow, May 2015–May 2018

- Held weekly drop-in sessions available to students in all statistics classes
- Planned and led R tutorials open to the Five College community
- Teaching assistant for Statistics 135: Introduction to Statistics via Modeling
- Teaching Assistant for Statistics 231: Data Science

MENTORSHIP   **University of Washington**, Seattle, WA

Statistics Undergraduate Directed Reading Program, January 2020–Present

- Winter 2022, Huong Ngo, Multivariate Data Analysis
- Spring 2021, Liwen Peng, Ethics of Algorithmic Decision Making
- Winter 2021, Lindsey Gao, Multivariate Data Analysis
- Fall 2020, Yufei Xia, Statistical Inference for Phylogenetic Trees
- Winter 2020, Josiah Thulin, Introduction to Networks

Amherst College, Amherst, MA

Amherst Women in Science Mentorship Program, January 2017–May 2018

- Mentor to three students

HONORS AND AWARDS

2023	Best Selected Talk
	(Microbiome Virtual International Forum, Session 24)
2018	Blalock Fellowship
	(Center for Statistics and Social Sciences, University of Washington)
2018	Top Scholar Award
	(Department of Statistics, University of Washington)
2018	Five College Statistics Award
	(Department of Statistics, Amherst College)

SKILLS   **Advanced:** R, LaTeX

Basic: Bash, Python, MATLAB, Java, Stan, Slurm

SERVICE

- Statistics camp for high school students with UW GEAR UP organizer (2022)
- UW StatCom consultant (2022)
- UW Statistics Department PhD student peer mentor (2021–2023)
- StatsPhD.com graduate student panel organizer (2021–2022)
- UW Statistics Department Graduate Student Representative (2020–2021)
- UW Statistics Department Admissions Screening Committee (2020, 2021)
- UW Statistics Department Directed Reading Program Organizing Committee (2020–2022)
- UW Statistics Department Diversity Equity and Inclusion Committee (2019–2023)
- UW Statisticians and Biostatisticians from Underrepresented Genders Organizing Committee (2019–2022)