Exponent®
Engineering & Scientific Consulting

Rachael Aber, Ph.D.

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Professional Profile

Dr. Rachael Aber is an interdisciplinary expert in statistics and biology and leverages her in-depth knowledge of statistical theory to develop and apply methods tailored to novel client problems and data streams. As the lead statistical consultant on projects across a range of disciplines, she has assisted clients in health sciences, engineering, and environmental sciences in producing rigorous insights from their data. She advises on study design, performs statistical analyses on a wide variety of data types, promotes effective data visualization, and communicates technical findings to both statisticians and non-statisticians. Rachael completed an M.S. in statistics and a dual Ph.D. in statistics and integrative biology; her specialization in infectious disease modeling allows her to support clients in statistical modeling of a wide variety of biological processes. She also brings expertise in R and Python coding for client needs pertaining to data wrangling, simulation, and machine learning tasks.

Prior to joining Exponent, Rachael completed her graduate studies at Oregon State University, where she conducted research at the interface of statistics and epidemiology. While completing her Ph.D. program, she collaborated with government agencies and academic stakeholders to quantify the spatial spread of SARS-CoV-2 to inform data-driven policy. With the support of the Association for Computing Machinery, she leveraged high performance computing to analyze large viral genomic data sets and fit phylogeographic models to understand how SARS-CoV-2 spread between regions in Oregon during the COVID-19 pandemic.

Rachael has also supported industry projects geared towards the development of software tools to forecast the epidemic dynamics of respiratory pathogens. She created a method to identify putative superspreading events directly from case count data and was awarded an Achievement Rewards for College Scientists (ARCS) Scholarship during graduate school. Rachael is affiliated with the American Statistical Association and looks forward to continuing to help clients convert their research questions into testable hypotheses to produce actionable results.

Academic Credentials & Professional Honors

M.S., Statistics, Oregon State University, 2024

Ph.D., Statistics, Oregon State University, 2024

B.A., Biology, University of Portland, 2018

ACM SIGHPC Computational and Data Science Fellowship (2020)

ARCS (Achievement Rewards for College Scientists) Foundation Oregon Scholarship (2019)

Professional Affiliations

American Statistical Association

Publications

Aber R, Di Y, Dalziel BD (2025) Time-series modeling of epidemics in complex populations: Detecting changes in incidence volatility over time. PLoS Comput Biol 21(7): e1012882. doi:10.1371/journal.pcbi.1012882

Aber R, Di Y, Dalziel BD. Time-series modeling of epidemics in complex populations: detecting changes in incidence volatility over time. MedRxiv 2025.02.19.25322557; doi: https://doi.org/10.1101/2025.02.19.25322557

Presentations

Aber R, Di Y, Dalziel BD. Detecting changes in dispersion in COVID-19 case counts using a negative binomial model. Topic-contributed session presentation, Joint Statistical Meetings, Portland, OR, 2024.