

Ellen Graham

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Education

- 2021–Present **PhD, Biostatistics**, *University of Washington, Seattle.*
- 2017–2021 **Bachelor of Arts**, *Macalester College, Saint Paul, Summa Cum Laude.*
Major: Applied Mathematics and Statistics
Minor: Computer Science
Honors Thesis: *A Computationally Efficient Spatio-temporal Generalized Linear Mixed Model*
Extended a computationally efficient model for point referenced spatial data put forth by Guan and Haran to the temporal domain by adding separable temporal effects which can also be reduced using the random projections algorithm.
Advisors: Dr. Brianna Heggeseth, Dr. Alicia Johnson

Professional Experience

- 2021–Present **Research Assistant**, *Fred Hutchinson Cancer Center.*
Develop novel statistical methods to estimate HIV incidence using cross-sectional samples and biomarker-based recency tests.
- 2021–Present **Research Assistant**, *Therapeutics Development Network Coordinating Center, Seattle Children's Hospital.*
Compare methods adjusting for measurement error and confounding by baseline when applied to outcomes of interest for cystic fibrosis research for use in future clinical trial analyses.
- Fall 2022 **Directed Reading Program Mentor**, *University of Washington.*
Met one on one with an undergraduate student to discuss weekly readings on a project titled *Practice and Philosophy of Data Cleaning*
- Summer 2021 **Data Science Consultant**, *R for the Rest of Us.*
Work in small teams to complete data focused projects for local governments and organizations. Participated in full lifetime of project development, from defining goals to data preparation to final deployment. Notable projects include the [API Food Assets Map](#), which displayed food access for Asian and Pacific Islander populations in San Francisco.
- 2018 - 2021 **Teaching Assistant**, *Macalester College.*
Assisted with *Advanced Data Science* with Professor Lisa Lendway, *Linear Algebra* with Professor Thomas Halverson, *Introduction to Statistical Modeling* with Professor Brianna Heggeseth, *Computational Linear Algebra* with Professor Lori Ziegelmeier, and *Introduction to Data Science* with Professor David Shuman and Professor Lisa Lendway. For each course, I ran office hours to assist students with statistics and programming questions, assisted in class, and helped grade assignments.

- Summer 2020 **Research Assistant**, *Biocomplexity Institute, University of Virginia*.
Partnered with two small local governments to help address pressing issues in their communities using data science techniques.
- Worked with the Charlottesville City and Albemarle County Fire and Emergency Medical Services department to help understand the impact that COVID-19 was having on service delivery, especially with respect to ensuring equity. Discovered a precipitous drop in call volume due to COVID-19, and helped determine whether communities were being systemically underserved using spatial modeling. The full project can be found [here](#).
 - Partnered with the Halifax county administrator on reducing rates of incarceration and recidivism within the county. This involved collecting data from disparate sources and presenting it such that community leaders could gain valuable insights from it. The full project can be found [here](#).

Summer 2019 **Research Assistant**, *Macalester College*.
Researched existing methods for clustering longitudinal data with categorical responses with Dr. Brianna Heggeseth. We then applied these methods to both data on cancer patients moving through the healthcare system, and sleep stages as collected by FitBits. In order to streamline analysis, we created this [Shiny App](#) with several novel visualization methods to assess clustering efficacy for these data.

Presentations

- August 2020 Data Science for the Public Good Symposium, Arlington, VA, Finn Roberts, Chase Dawson, Ellen Graham, Saimun Habib, "[The Impact of COVID-19 on the Equitable Delivery of Emergency Medical Services](#)" (poster session).
- August 2019 Macalester Summer Research Symposium, Saint Paul, MN, Brianna Heggeseth, Kieu Giang Nguyen, Ellen Graham, Zuofu Huang, "[Clustering Longitudinal Categorical Data](#)" (poster session).

Service

- January 2021 **Workshop Facilitator**, *Blackwood Gallery, University of Toronto*.
Prepare and run "Reading Open Data: Data Visualization, Citizen Science, and Collective Action" for the *Running with Concepts: Mediatic Edition*, a workshop focused on using and visualizing data for artists and activists.
- Spring 2020 **Data Sensing, Mississippi Barge Project**.
Prepared and Visualized data for Professor John Kim of Macalester College for a project, found [here](#), on the complex ways people interact with the Mississippi River.
- Spring 2020 **Data Science for Good Facilitator**, *Macalester College*.
Arranged and facilitated presentations by local data organizations to Macalester students.

Awards

- 2022 Gertrude M. Cox Scholarship
2021 Kaplan Award for Achievement in Data Science
2017–2021 Dewitt Wallace Distinguished Scholarship, Macalester College
2017–2021 Deans List, Macalester College
2019 Best in Show, DataFest, Macalester College

Membership

- 2021 – Present Phi Beta Kappa
2019 – Present American Statistical Association

Skills

General Statistics and Data Communication, Data Visualization
Languages R, C++, C, Python, JavaScript, Java, D3, SQL