# Hannah Correia

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https://hannahcorreia.github.io

## EDUCATION

### AUBURN UNIVERSITY

**PhD in Biology**
August 2019 | Auburn, Alabama, USA
"Modeling complex climate change effects on fluctuating populations of fish communities in the Northern Pacific Ocean"

**MS in Statistics**
August 2016 | Auburn, Alabama, USA
"Rank-based estimation for generalized additive models"

### HUNTINGDON COLLEGE

**BA in Mathematics and Biology**
May 2011 | Montgomery, Alabama, USA

## GRANTS, AWARDS, & HONORS

- NSF GRFP Fellowship | 2015-19
- NSF GROW Additional Funding | 2017-18
- ESA Katherine S. McCarter Graduate Student Policy Award | 2019
- AU COSAM Dean's Research Award | Spring 2019
- AU COSAM Travel Grant | Fall 2018
- DoD SMART Scholarship | 2015 (declined)

## SKILLS

### PROGRAMMING

Proficient:
R • LaTeX • CSS • HTML
Familiar:
JavaScript • Python • Shell • Fortran • C++
• Sage • SAS

## SELECT CONFERENCES & WORKSHOPS

### 2021

- OTS Course: Google Earth Engine for Ecology and Conservation
- Columbia University Environmental Justice Boot Camp
- Columbia University Causal Mediation Analysis Training

### 2020

- Joint Statistical Meetings
- International Statistical Ecology Conference

### 2019

- Harvard Data Science Initiative Annual Conference
- Harvard Summer Short Course: An Introduction to Causal Inference

### 2016

- Workshop on Infusing Data-Enabled Active Learning in Mathematics and Statistics Courses

## RESEARCH

### HARVARD UNIVERSITY DATA SCIENCE INITIATIVE

**| Postdoctoral Fellow**
September 2019 – present | Cambridge, Massachusetts, USA
Working with **Francesca Dominici** and **Tyler VanderWeele** to expose and ameliorate weaknesses in causal analysis techniques for ecological data and test the performance of such methods in detecting multiple causal influences in dynamic, nonlinear systems. Applying causal analysis methods to well-studied ecological systems using intuitive model frameworks to encourage wider examination, modification and utilization of causal analysis techniques for ecological data.

### AUBURN UNIVERSITY DEPT. OF BIOLOGICAL SCIENCES

**| NSF Graduate Research Fellow**
May 2015 – August 2019 | Auburn, Alabama, USA
Worked with **Prof F. Stephen Dobson** to develop statistical methods for ecological data. Improved and applied complex statistical techniques to fisheries data to explain interactions and quantify trends in fish population dynamics.

### NORWEGIAN INSTITUTE FOR NATURE RESEARCH

**| Visiting Graduate Research Fellow**
August 2017 – February 2018 | Tromsø, Norway
Conducted original research on the effects of climate change on semi-domesticated reindeer in Norway.

### MASAMU ADVANCED STUDY INSTITUTE (MASI) AND WORKSHOPS IN MATHEMATICAL SCIENCES

**| Researcher**
2021 - Virtual | 2020 - Virtual | 2019 - Blantyre, Malawi | 2018 - Palapye, Botswana | 2017 - Arusha, Tanzania | 2015 - Windhoek, Namibia | 2014 - Victoria Falls, Zimbabwe
Leading research working group in statistics (machine learning and causal inference) since 2020. Working with members of the Auburn University Department of Mathematics and Statistics to further research in statistics and mathematical biology in southern Africa.

## RECENT PUBLICATIONS

Buley, R., **Correia, H. E.**, Abebe, A., Issa, T. B., Wilson, A. E. (2021) Predicting microcystin occurrence in freshwater lakes and reservoirs: assessing environmental variables. *Inland Waters*. 11(3): 430–444.

**Correia, H. E.** (2021). Selecting environmental covariates related to adult groundfish catches and weights in the Gulf of Alaska. *Scientific Reports* 11, 9949.

**Correia, H. E.**, Abebe, A. (2021) Regularised rank quasi-likelihood estimation for generalised additive models. *Journal of Nonparametric Statistics*. 33(1).

Levy, B., **Correia, H. E.**, Chirove, F., Ronoh, M., Abebe, A., Kgosimore, M., Chimbola, O., Machingauta, M. H., Lenhart, S., White, K. A. J.(2021) Modelling the effect of HIV/AIDS stigma on HIV infection dynamics in Kenya. *Bulletin of Mathematical Biology*. 83(55).

**Correia, H. E.**, Abebe, A. (2021) Capturing spatio-temporal dynamics of Alaskan groundfish catch using rank estimation for varying coefficient models. *Journal of Applied Statistics*.

**Correia, H. E.**, Abebe, A., Dobson, F. S. (2021) Multiple paternity and the number of offspring: A model reveals two major groups of species. *BioEssays*. 43(4).

Sun, W., Bindele, H. F., Abebe, A., **Correia, H. E.** (2021) Robust functional selection for the single-index varying coefficients regression model. *Journal of Statistical Computation and Simulation*. 91(8). 1681–1697.

Abebe, A., **Correia, H. E.**, Dobson, F. S. (2019) Estimating a key parameter of mammalian mating systems: the chance of siring success for a mated male. *BioEssays*. 41(12).

Sun, W., Bindele, H. F., Abebe, A., **Correia, H. E.**. (2019) General local rank estimation for single-index varying coefficient models. *Journal of Statistical Planning and Inference*. 202(September 2019):57–79.

**Correia H. E.** (2018) Spatiotemporally explicit model averaging for forecasting of Alaskan groundfish catch. *Ecology & Evolution*. 8(24):12308–12321.

Dobson, F. S., Abebe, A., **Correia, H. E.**, Kasumo, C., Zinner, B. (2018) Multiple paternity and number of offspring in mammals. *Proc. R. Soc. Lon. B*. 285(1891).