

# Hannah Correia

E-mail: [hcorreia@hsph.harvard.edu](mailto:hcorreia@hsph.harvard.edu)  
<https://hannahcorreia.github.io>

## EDUCATION

### AUBURN UNIVERSITY

#### PHD IN BIOLOGY

July 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

### 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)

## COURSEWORK

### GRADUATE

Quantitative Methods for Biological Data  
Longitudinal Data Analysis  
Applied Multivariate Statistical Analysis  
Statistical Theory & Methods  
Experimental Statistics

## SKILLS

### PROGRAMMING

Proficient:

R •  $\LaTeX$  • CSS • HTML

Familiar:

Shell • Python • Fortran • C++  
• Sage • SAS

## CONFERENCES & WORKSHOPS

### 2018

- 2018 Joint Statistical Meetings
- 2018 ESA Annual Meeting

### 2017

- 2017 SAMSA Annual Conference
- 2017 Joint Statistical Meetings

### 2016

- Workshop on Infusing Data-Enabled Active Learning in Mathematics and Statistics Courses
- 2016 Ecological Society of America Annual Meeting
- 2016 Joint Statistical Meetings

### 2015

- 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

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. Forthcoming in *Inland Waters*.

**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. 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*. 00(00).

**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).

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).