

# NATALIE Z. KERR

Data Scientist & Quantitative Biologist



## EDUCATION

2014–  
2019

- **Tufts University**  
PhD, Quantitative Biology 📍 Medford, MA, USA

2008–  
2012

- **University of Queensland**  
Bachelor of Environmental Science 📍 St Lucia, QLD, Australia

## WORK EXPERIENCE

2024–  
present

- **Data Analytics Consultant**  
Pocket Prep 📍 Durham, NC
  - Consultant for local company that develops an exam preparation app.
  - Built random forest machine learning models to evaluate lead indicators of users' passing their exams.

2022–  
present

- **Assistant Research Professor**  
Duke University 📍 Durham, NC
  - Lead scientist on a US federal grant.
  - Coordinate funded research among 11 scientists across six institutions.
  - Taught tertiary-level courses (e.g. Human Health, Disease Ecology).
  - Member of several Duke board and department committees.
  - Advised four undergraduate students in data science projects.
  - Statistics consultant for graduate and postdoctoral researchers.
  - Awarded several fellowship awards.

2019–  
2022

- **Postdoctoral Researcher**  
Duke University 📍 Durham, NC
  - Built predictive spatial models for at-risk species under future climate.
  - Produced quarterly and annual reports to stakeholders.
  - Produced statistical analysis plans.
  - Invited to give five University seminars to a diverse audience with both analytical and non-analytical backgrounds.
  - Statistics consultant for graduate and postdoctoral researchers.

2014–  
2019

- **Graduate Researcher**  
Tufts University & UC Davis 📍 Medford, MA
  - Data wrangling and analysis for projects with large longitudinal datasets.
  - Developed novel statistical and modeling techniques for exploring high dimensional systems to solve optimization problems.
  - Published six peer-reviewed publications; four were first author.

## CONTACT INFO

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/github/[github.com/nataliezoekerr](https://github.com/nataliezoekerr)  
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## SKILLS

- Advanced R (+16 years)  
Python & SQL  
Power BI  
Git / GitHub  
Advanced Statistics  
Data Analytics & Visualization  
Population Modeling  
Science Communication

## PACKAGES

R: tidyverse, glmnet, lme4, msm, glmmTMB, gammit, MASS, mgcv, bbmle, sp, among many more.

Python: Pandas, NumPy, scipy, matplotlib, seaborn, Scikit-learn, PySpark.

## CERTIFICATIONS

Applied Data Science, MIT (2023)  
SQL Associate, DataCamp (2024)



## SELECTED WORKSHOPS & TEACHING

- 2020
  - **Frequentist approaches to data analytics in R**  
Two-day virtual workshop series funded by the EntSoc Early Careers Professionals initiative. [GitHub](#)
- 2019
  - **Ecological Models and Statistics**  
Undergraduate and graduate tertiary-level course covering Frequentist and Bayesian statistics. Tufts University, Medford.
- 2018
  - **Biostatistics**  
Undergraduate tertiary-level course covering Frequentist statistics. Tufts University, Medford, MA.
- 2018
  - **Exploiting the Dynamism of R Software**  
Half-day workshop at the Ent Soc Joint Annual Meeting. Vancouver, Canada.
- 2018
  - **Implementing the Delta Method and bootstrapping to estimate variance in covarying model coefficients**  
Half-day workshop exploring R packages & applications. UC Davis, California.



## SELECTED PUBLICATIONS

- 2023
  - **Inclusive fitness may explain some but not all benefits derived from social behavior in a cooperative breeding bird**  
American Naturalist. (2023). [doi:10.1086/728670](#)
- 2021
  - **Larger workers outperform smaller workers across resource environments: Evaluation of demographic data using FLMs**  
Ecology & Evolution. (2021). [doi:10.1002/ece3.7239](#)
- 2020
  - **Developmental trap or demographic bonanza? Opposing consequences of earlier phenology in a changing climate for a multivoltine butterfly**  
Global Change Biology. (2020). [doi:10.1111/gcb.14959](#)
- 2019
  - **Using statistics to design and estimate vital rates in matrix population models for a perennial herb**  
Population Ecology. (2019). [doi:10.1002/1438-390X.12024](#)
- 2016
  - **Prioritizing management actions for invasive populations using cost, efficacy, demography, and expert opinion**  
J. Applied Ecology (2016). [doi:10.1111/1365-2664.12592](#)