

NATALIE Z. KERR

Data Scientist & Quantitative Biologist



EDUCATION

2023

- **Massachusetts Institute of Technology**
Certificate of Applied Data Science 📍 Cambridge, MA, USA

2014–2019

- **Tufts University**
PhD Candidate in 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.

CONTACT INFO



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SKILLS

Advanced R (+16 years)
Python & SQL (+1 years)
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,
Last updated on 2024-03-22.
scipy, matplotlib, seaborn
Resume completed using Scikit-learn. RMarkdown.

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.



SELECTED WORKSHOPS & TEACHING

2020

● **Frequentist approaches to data analytics in R**

Two-day workshop series funded by the EntSoc Early Careers Professionals initiative. [GitHub](#)

📍 Virtual online

2019

● **Ecological Models and Statistics**

Undergraduate and graduate tertiary-level course covering Frequentist and Bayesian statistics.

📍 Tufts University

2018

● **Biostatistics**

Undergraduate tertiary-level course covering Frequentist statistics.

📍 Tufts University

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](#)

NZ Kerr, WF Morris, JR Walters.

2021

● **Larger workers outperform smaller workers across resource environments: Evaluation of demographic data using FLMs**

Ecology & Evolution. (2021). [doi:10.1002/ece3.7239](#)

NZ Kerr, RL Malfi, NM Williams, EE Crone.



CERTIFICATION

MIT Applied Data Science

DataCamp SQL

- 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](https://doi.org/10.1111/gcb.14959)
NZ Kerr, T Wepprich, FS Grevstad, EB Dopman, FS Chew, EE Crone.
- 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](https://doi.org/10.1002/1438-390X.12024)
S Ramula, NZ Kerr, EE Crone
- 2016
- **Prioritizing management actions for invasive populations using cost, efficacy, demography, and expert opinion**
J. Applied Ecology (2016). [doi:10.1111/1365-2664.12592](https://doi.org/10.1111/1365-2664.12592)
NZ Kerr, PWJ Baxter, R Salguero-Gómez, GM Wardle, YM Buckley.