

# NATALIE Z. KERR

Data Scientist & Quantitative Biologist

## EDUCATION

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|-----------|---|--|
| 2023      | ● <b>Massachusetts Institute of Technology</b><br>Certificate of Applied Data Science |  Cambridge, MA, USA       |
| 2014–2019 | ● <b>Tufts University</b><br>PhD Candidate in Biology                                 |  Medford, MA, USA         |
| 2008–2012 | ● <b>University of Queensland</b><br>Bachelor of Environmental Science                |  St Lucia, QLD, Australia |



## EXPERIENCE

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|--------------|--|--|---|
| 2024–present | ● <b>Data Analytics Consultant</b><br>Pocket Prep        |  Durham, NC   | <ul style="list-style-type: none"><li>• Consultant for local company that develops an exam preparation app.</li><li>• Built random forest machine learning models to evaluate lead indicators of users' passing their exams.</li></ul>  |
| 2022–present | ● <b>Assistant Research Professor</b><br>Duke University |  Durham, NC | <ul style="list-style-type: none"><li>• Lead scientist on a US federal grant.</li><li>• Coordinate funded research among 11 scientists across six institutions.</li><li>• Taught tertiary-level courses (e.g. Human Health, Disease Ecology).</li><li>• Member of several Duke board and department committees.</li><li>• Advised four undergraduate students in data science projects.</li><li>• Statistics consultant for graduate and postdoctoral researchers.</li><li>• Awarded several fellowship awards.</li></ul> |
| 2019–2022    | ● <b>Postdoctoral Researcher</b><br>Duke University      |  Durham, NC | <ul style="list-style-type: none"><li>• Built predictive spatial models for at-risk species under future climate.</li><li>• Produced quarterly and annual reports to stakeholders.</li><li>• Produced statistical analysis plans.</li><li>• Invited to give five University seminars to a diverse audience with both analytical and non-analytical backgrounds.</li><li>• Statistics consultant for graduate and postdoctoral researchers.</li></ul>  |

## CONTACT INFO

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📞 +1 415-696-9090

## 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, scipy, matplotlib, seaborn, SCIKIT-learn. *Resume completed using 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.

- 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.