# Madeleine Elizabeth Beckner

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## EDUCATION

**University of California, Los Angeles**, Los Angeles, CA — Sep. 2022 – May 2027 (Expected)
*Ph.D. in Statistics*
Cumulative GPA: 3.9/4.0

**Duke University**, Durham, NC — Aug. 2020 – May 2022
*Master of Science in Statistical Science*
Leadership: Graduate Consultative Committee
Cumulative GPA: 3.9/4.0

**The University of Chicago**, Chicago, IL — Sep. 2015 – June 2019
*B.A. with General Honors in Statistics*
Honors: Dean's List 2015-2019, National Merit Scholarship

## RESEARCH EXPERIENCE

**UCLA Department of Statistics and Data Science**, Los Angeles, CA — Sep. 2022 – Present
*Graduate Research Assistant*
- Advised by Dr. Karen McKinnon
- Currently researching how to leverage statistical methodology to improve land-atmosphere interaction modeling.

**Duke University Department of Statistical Science**, Durham, NC — Aug. 2021 – May 2022
*Graduate Research Assistant*
- Advised by Dr. Jerry Reiter
- Link demographic records of immigrants in the Triangle area to addresses from an InfoUSA database to better understand the social networks and spatial complexities of contemporary immigration.
- Conduct research in probabilistic record linkage methods and relevant string metrics to link records with Chinese naming and transliteration practices.

**Duke University Department of Statistical Science**, Durham, NC — Aug. 2021 – May 2022
*Capstone Project Data Scientist*
- Partner with stakeholders from NOAA, MIT at Woods Hole, and Duke Marine Laboratory to develop a machine learning modeling pipeline to update the abundance estimate for the most critically endangered large whale population.
- Identify and extract North Pacific right whale "gunshot" calls from over 20 terabytes of passive acoustic data for signal range estimation.

**The University of Chicago Department of Statistics**, Chicago, IL — May 2018 – Jan. 2019
*Undergraduate Research Assistant*
- Advised by Dr. Kendra Burbank
- Coded a generative adversarial network to generate predicted heat map images of infield shifts on various Major League Baseball players given images of groundball spray charts.
- Conducted research on how the brain learns to process visual information by using analysis and simulations in Python and TensorFlow and coded a biologically realistic convolutional neural network.

## WORK EXPERIENCE

**Statistician Intern**, Remote — May 2021 – Aug. 2021
*The Lubrizol Corporation*
- Modeled several chemical testing procedures using random forests, Bayesian model averaging, boosting, and polynomial spline methods.
- Coded and managed R-Shiny visualization tool disseminated for company-wide use that processed, modeled, and visualized thermal testing data.

- Won intern-wide Kaggle competition modeling a complex chemical test using eXtreme Gradient Boosting method.

**Staff Analyst**, Houston, TX May 2020 – Aug. 2020
*City of Houston Health Department*
- Used SQL and SAS to read, clean, and match audit data from Houston area labs and hospitals to a disease surveillance database; produced weekly RMarkdown reports containing graphical and statistical summaries and data analysis of COVID-19 data (ggplot2, dplyr) for Houston area officials.
- Identified over 13,000 COVID-19 tests not included in public analyses of Houston COVID-19 spread.

**Student Researcher**, Chicago, IL May 2017 – Aug. 2017
*The Chicago Project on Security and Threats, Minerva Initiative*
- Developed original quantitative and qualitative predictive framework to define and identify patterns within homegrown support for overseas militant terrorist organizations using indictment reports from governmental sources.

**Data Acquisition Intern**, Chicago, IL Apr. 2017 – Aug. 2017
*Urban Labs*
- Launched dynamic workflow processing tools via new intranet site; developed new intake forms and informational materials to coordinate requesting new data agreements.
- Produced inventory of data holdings; used Excel to track data use agreements.

## TEACHING EXPERIENCE

**Statistics Teaching Assistant**, Los Angeles, CA Sep. 2023 – Dec. 2023
*University of California, Los Angeles*
- TA for Introductory Statistics, taught by Dr. Thomas Maierhofer
- Taught statistical theory and R coding; held twice-weekly problem sessions and office hours.

**Statistics Teaching Assistant**, Chicago, IL May 2019 – Aug. 2019
*Chicago Academic Achievement Program (via The University of Chicago)*
- TA for Introductory Statistics, taught by Nathan Gill (PhD student)
- Taught statistics and R coding to first-year students in an intensive pre-orientation program; held twice-weekly problem sessions.

**Statistics Tutor**, Chicago, IL Sep. 2018 – June 2019
*The University of Chicago College Core Tutor Program*
- Provided walk-in tutoring for students in statistics courses including Applied Regression Analysis, Statistical Models and Methods, Econometrics.

**Statistics Grading Assistant**, Chicago, IL Sep. 2017 – June 2019
*The University of Chicago*
- Assessed and provided feedback on >40 problem sets per week for statistics courses including Applied Regression Analysis, Elementary Statistics, Elementary Statistics Through Case Study.

**Statistics Teaching Assistant**, Chicago, IL May 2018 – Aug. 2018
*Chicago Academic Achievement Program (via The University of Chicago)*
- TA for Applied Statistics, taught by Dr. Kendra Burbank
- Taught statistics and R coding to first-year students in an intensive pre-orientation program; held twice-weekly problem sessions.

## SKILLS

**Programming** R (tidyverse, ggplot2), R-Shiny, Python (NumPy, Pandas, SciPy, Matplotlib, Scikit-learn), SQL, HTML/CSS, LaTeX, SAS, GitHub.

**Languages** French and Spanish (professional working proficiency), Portuguese (intermediate), Italian and Basque (elementary)

## Relevant Coursework

**Graduate- UCLA** Applied Probability • Statistics Programming • Research Design, Sampling, and Analysis • Theoretical Statistics • Statistical Modeling and Learning • Monte Carlo Methods for Optimization • Advanced Modeling and Inference • Machine Learning for Physical Sciences

**Graduate- Duke** Introduction to Bayesian Statistics • Programming for Statistical Science • Predictive Modeling and Statistical Learning • Theory of Inference • Computational Statistics and Statistical Computing • Entity Resolution • Hierarchical and Multilevel Models • Theory and Algorithms for Machine Learning • Real Analysis I • Bayesian Inference for Environmental Models

**Undergraduate** Statistical Theory / Methods • Analysis of Categorical Data • Numerical Linear Algebra • Mathematical Probability • Computer Science with Applications • Applied Regression Analysis • Linear Models and Experimental Design • Introduction to Data Science