# Sara A. Stoudt, PhD

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RESEARCH INTERESTS applied and computational statistics in ecology and environmental science, teaching the communication of statistics, data journalism

# EDUCATION University of California, Berkeley, Berkeley, CA

Ph.D., Statistics, Fall 2015 - Summer 2020

Advisors: Will Fithian (Department of Statistics) and Perry de Valpine (Department of Environmental Science, Policy and Management)

Berkeley Institute for Data Science Fellow National Physical Science Consortium Fellow

Data Sciences for the 21st Century: Environment and Society Graduate Trainee

# Smith College, Northampton, MA

B.A., Mathematics and Statistics, 2015

Magna Cum Laude with Highest Honors 3.95/4.0

Major GPA: 4.0/4.0

### GRADUATE RESEARCH

#### Dissertation Research

- Clarifying identifiability controversies in species distribution/abundance models
- Assessing model fit in hierarchical Bayesian models of joint species distributions under model mis-specification
- Statistics communication (with Deborah Nolan): book coming soon, Communicating with Data: The Art of Writing for Data Science

#### Job Experience

#### Data Desk Intern

Summer 2019

- Los Angeles Times
  - Supervisor: Ben WelshCensus data aggregator

#### **Data Science Intern**

Summer 2018

- Farmers Business Network
  - Supervisor: Matt Meisner, Ph.D
  - Crop yield prediction

## Summer (Undergraduate/Graduate) Research Fellow

Summers 2013-2017

- Statistical Engineering Division, National Institute of Standards and Technology
  - Supervisor: Antonio Possolo, Ph.D
  - Measuring optical apertures for solar irradiance monitoring
  - Homogenizating of surface temperature records
  - Errors-in-variables modeling for force calibrations
  - Interpolating atmospheric greenhouse gas fluxes
  - Evaluating the accuracy, consistency, and stability of measurements of the Planck constant

### Programming Languages

- Advanced: R (and Shiny)
- Experience With: Python, SQL, HTML, CSS, D3, JavaScript, bash, Matlab, Java, GIS, AMPL, Mathematica, NIMBLE, WinBUGS, LaTeX

# TEACHING EXPERIENCE

Graduate Student Instructor (GSI), Statistics, UC Berkeley

- Co-developed and co-instructed new writing in statistics course
- Co-developed and co-instructed new blogging for data science independent study Spring

Fall 2017

• Outstanding GSI award

Miscellaneous Primary Instructor

- Introduction to Statistics in R Workshop (NICAR, 2020)
- Data Storytelling Workshop (Correlation One's Women's Summit, 2020)
- Unleashing the power of biodiversity data with data science (Lewis and Clark workshop 2019, co-instructed with Ciera Martinez)

Miscellaneous Teaching Assistant

- Linear Regression Workshop (NICAR, 2020)
- Peer Data Review coach (Open News, 2019)
- R bootcamp (D-Lab/UC Berkeley Statistics Department, 2018)
- Software Carpentry (Data Science for the 21st Century Training Program, 2018)

## Non-Academic Writing

- Berkeley Institute for Data Science Best Practices Series
- Berkeley Science Review
- Ecology for the Masses Stats Corner
- Logic Magazine
- Tidy Tuesday participation
- RStats blog
- What does probability mean anyway?
- Fixed, mixed, and random effects
- Just how does Kidz Bop censor songs?
- You Know Karen

# Awards

RStudio Diversity Scholar	2020	
• Berkeley Institute for Data Science Fellow	2018-2020	
Outstanding Graduate Student Instructor award	2018	
National Physical Science Consortium Fellow	2015-2018	
• Data Sciences for the 21st Century: Environment and Society Graduate Training Program 2015-2017		
Gertrude M. Cox Scholarship	2015	
• 2nd Place USPROC Undergraduate Research Project Competition	2015	
• Best Poster Award: Geocomputation Conference	2015	
• Elected to Mu Sigma Rho	2015	
• Ann Kirsten Pokora Prize for excellence in mathematics	2015	
• Goldwater Scholar	2014	
• Elected to Phi Beta Kappa Society	2014	
• First Place: Statistics in Sports Undergraduate Research Competition at Joint Statistical		
Meetings	2014	
• Honorable Mention Undergraduate CLASS Project Competition	2014	
• Best in Show: Five College Data Fest	2014, 2015	
• Elected to Sigma Xi	2013	
• John Everett Brady Prize for best performance in the beginning Latin course	2013	
• Suzan Rose Benedict Prize for excellence in mathematics	2013	
• Smith College Dean's List	2011-15	
• Smith College First Group Scholar - top 10 percent of class	2011-13	
• Smith College STRIDE (Student Research in Departments) Scholarship	2011-15	
• Possele A Schlemminger C Standt S Prett I P and Williams C I	"Evaluation	

## Publications

• Possolo, A., Schlamminger, S., **Stoudt, S.**, Pratt, J. R., and Williams, C. J. "Evaluation of the accuracy, consistency, and stability of measurements of the Planck constant used in the redefinition of the International System of Units" *Metrologia* Volume 55, Number 1,

- December 2017
- Stoudt, S. "Geostatistical Models for the Spatial Distribution of Uranium in the Continental United States" Advances in Geocomputation: Geocomputation 2015 The 13th International Conference Springer Advances in Geographic Information Science, 2017, pp. 325-334.
- Stoudt, S., Badian-Pessot, P., Mahop, B. N., Earley, E., Menter, J., Flores, Y., Williams, D., Zhang, W., Maharajan, L., Bao, Y., Rosenbauer, L., Nguyen, V., Mendiratta, V., Tania, N. "Modeling Internet Traffic Generations Based on Individual Users and Activities for Telecommunication Applications" American Journal of Undergraduate Research Volume 13, Issue 3, August 2016, pp. 53-65.
- Bartel, T., Possolo, A., and **Stoudt, S.** "Force Calibrations using Errors-in-Variables Regression and Monte Carlo Uncertainty Evaluations" *Metrologia* Volume 53, Number 3, June 2016, pp. 965-980(16).
- Stoudt, S., Cao, Y., Udwin, D., and Horton, N. J. "What Percent of the Continental US is Within One Mile of a Road?" *Statistics Education Web*, 2014.
- Stoudt, S., Santana, L., and Baumer, B. "In Pursuit of Perfection: An Ensemble Method for Predicting March Madness Match-Up Probabilities" *JSM 2014 Proceedings*

#### In Progress

- Stoudt, S., de Valpine, P., and Fithian, W. "Clarifying the identifiability controversy in species distribution modeling"
- Stoudt, S., de Valpine, P., and Fithian, W. "Robustness of latent factor models for estimating community ecology metrics under model misspecification"
- Stoudt, S.\*, Vasquez, V.\*, Martinez, C\*. "Design principles in data analysis workflows and analogies to software development" (\*equal authorship)
- Hong, J., Stoudt, S., and de Valpine, P. "Fast maximum likelihood estimation for general hierarchical models"
- Goldstein, B.\*, **Stoudt**, **S.**\*, de Valpine, P., and Fithian, W. "What can gold standard birders tell us about opportunistic citizen scientists?" (\*equal authorship)

## SERVICE

- Co-organizer of Code and Coffee East Bay for the Bay Area Women in Machine Learning & Data Science Meetup group, Spring 2019-current
- Active member of BIDS Diversity and Inclusion Working Group, Fall 2018-current
- Co-president of the Statistics Graduate Student Association (SGSA), Fall 2017-Spring 2018
- Co-organizer of UC Berkeley DataFest, Springs 2016-2018
- Co-organizer of SGSA Gender Issues Roundtable Discussion, Fall 2016
- Co-organizer of Statistics Graduate Student Association Diversity Discussion, Spring 2017
- Statistics Graduate Student Association Diversity Affairs Member, Fall 2016- Spring 2017
- Graduate Student Volunteer: "Roadless America" Interactive Activity for Cal Day 2016 and 2017

### RELEVANT ACTIVITIES

• Attended JavaScript for Shiny Users at rstudio::conf	2020
• Author of base R to dplyr vignette	2020
• RLadies San Francisco Lightning Talk	2019
• Author of base R to stringr vignette	2019
• Developer of interactive visualization for the Wealth Tax Simulator	2019
• Trans Day of Remembrance Hackathon Participation	2018, 2019
• Graduate Workshop on Environmental Data Analytics	2016
• San Francisco Estuary Institute consulting	2016
• Attended the Google Geospatial Technology Workshop	2015
• SAMSI Summer Program: The International Temperature Initiative	2014