

# Derek Bean

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## Education

Ph.D. Statistics. University of California, Berkeley. May 2014.

B.A. Mathematics, University of Maine. May 2007.

*Summa cum laude* from the College of Liberal Arts and Sciences. 3.98 GPA.

## Significant Knowledge & Skills

*Ph. D. Level coursework*

Mathematical Statistics (1 year), Applied Statistics (1 year), Measure-Theoretic Probability (1 year), Graphical Models, Statistical Learning Theory, Convex Optimization, High-Dimensional Statistics, Semiparametric Models.

*Computing*

### Languages

R (expert), MATLAB (proficient), Python (familiar with), C (familiar with)

### Typesetting

LaTeX (expert), RMarkdown (expert)

## Employment

*University of Wisconsin-Madison*

Teaching Faculty I. November 2021-present.

Provides classroom instruction. Recruits, onboards, supervises, and evaluates non-tenure track instructors. Participates in curriculum development and strategic education planning. Advises students. Coordinates assessment of all Department degree programs. Performs various other administrative and service activities.

Faculty Associate. June 2017-November 2021.

Provided classroom instruction. Recruited, onboarded, supervised, and evaluated non-tenure track instructors. Acted as course coordinator. Participated in strategic education planning. Advised students. Coordinated assessment of all Department degree programs. Performed various other administrative and service activities.

Visting Assistant Professor. Fall 2014 to May 2017.

Provided classroom instruction. Participated in service activities.

### *Bytesumo*

Data Scientist. July 2014 to December 2021.

Provided consultation and services in statistics and data science for clients. Project manager.

### *University of California, Berkeley*

Graduate Student Instructor. Fall 2008 to Spring 2014.

Teaching assistant. Graded homeworks and exams, led recitation sections, held office hours for students.

Graduate Student Researcher. Fall 2007 to Spring 2012.

Performed research in collaboration with academic advisors.

### *University of Maine*

Research Assistant for Sundar Subramanian. Fall 2005 to Spring 2007.

Grader for the Department of Mathematics and Statistics. Graded homeworks and retained records. Courses:

Mat 258 Introduction to Differential Equations with Linear Algebra, Spring 2007. For Sergey Lvin.

Mat 434 Introduction to Statistics, Fall 2006. For Sundar Subramanian.

Mat 258 Introduction to Differential Equations with Linear Algebra, Spring 2006. for Sergey Lvin.

Mat 232 Principles of Statistical Inference, Fall 2005.

Tutor for University of Maine's The Tutor Program. Semester-long tutoring of students in calculus. Fall 2004 to Spring 2005.

## Teaching experience

### *University of Wisconsin-Madison*

Statistics 301: Introduction to Statistical Methods. Instructor of record. Summer 2016 and Fall 2016.

Large service course in introductory statistics for undergraduate students. Taught with a team of instructors overseen by a coordinator. Requires supervision of multiple teaching assistants (TAs).

Statistics 310: Introduction to Probability and Mathematical Statistics II. Instructor of record. Spring 2015.

Theory of statistical inference for undergraduate Statistics majors. Requires supervision of a TA.

Statistics 311: Introduction to Theory and Methods of Mathematical Statistics I. Instructor of record. Fall 2023.

Multivariate calculus-based probability theory aimed at non-statistics majors. Requires supervision of a TA.

Statistics 312: Introduction to Mathematical Statistics II. Instructor of record. Fall 2014, Fall 2020, Spring 2021.

Theory of statistical inference aimed at non-statistics majors. Requires supervision of a TA.

Statistics 371: Introductory Applied Statistics for the Life Sciences. Instructor of record. Spring 2017.

Large service course in introductory statistics for undergraduate students in the biological sciences. Taught with a team of instructors overseen by a coordinator. Requires supervision of multiple TAs.

Statistics 421: Applied Categorical Data Analysis. Instructor of record. Fall 2019, Spring 2020, Fall 2021, Fall 2022.

Advanced undergraduate elective in methods for analyzing categorical data, emphasizing computational techniques and realistic data sets. Requires supervision of a TA.

Statistics 571: Statistical Methods for Bioscience I. Instructor of record. Fall 2015.

Introductory statistics for graduate students in the biological sciences. Taught in collaboration with another instructor. Requires supervision of multiple TAs.

Statistics 609: Mathematical Statistics I. Instructor of record. Fall 2017.

Probability theory for graduate students in Statistics. Requires supervision of a TA.

Statistics 610: Introduction to Statistical Inference. Instructor of record. Spring 2015, Spring 2016, Spring 2017, Spring 2018.

Theory of statistical inference for graduate students in Statistics. Requires supervision of a TA.

### *University of California, Berkeley.*

Stat 154 Modern Statistical Prediction and Machine Learning (Upper Division), Graduate Student Instructor, Spring 2014. For Nouredine El Karoui.

Stat 151A Linear Modeling: Theory and Applications (Upper Division), Graduate Student Instructor, Fall 2013. For Adityanand Guntuboyina.

Stat 134 Concepts of Probability (Upper Division Probability), Graduate Student Instructor, Summer 2013. For Mike Leong.

Stat 151A, Graduate Student Instructor, Fall 2011. For David Brillinger.

Stat 135 Concepts of Statistics (Upper Division Mathematical Statistics), Graduate Student Instructor, Fall 2010. For Ching-Shui Cheng.

Stat W21 Introductory Probability and Statistics for Business, Fall 2010. For Phillip Stark.

Stat 135, Graduate Student Instructor, Fall 2009. For Ani Adhikari.

Stat 134, Graduate Student Instructor, Fall 2008. For Ani Adhikari and Nayantara Bhatnagar.

Explorations in Statistics Research, Columbia University, Summer 2011.

This is a week-long Summer program for undergraduates emphasizing modern statistical techniques, computing and working with real data. I assisted students in writing R code to implement methods and create data visualizations. Organized by Professors Mark Hansen (UCLA), David Madigan (Columbia), Deborah Nolan (UC Berkeley) and Duncan Temple Lang (UC Davis).

## Significant Academic Experience

### *University of Wisconsin, Madison*

#### **Leadership**

Instructor supervisor, Fall 2017-present.

Onboarding, supervising, and evaluating non-tenure track instructors in Statistics. This includes lecturing student assistants (LSAs), fixed-term terminal instructional appointments, and staff lecturers with renewable appointments.

Search Committee Chair, Spring 2021-present.

Lead yearly and semi-yearly recruitment efforts for new non-tenure track instructors for renewable and terminal appointments. Disseminate job ads, screen applications, conduct interviews, and select finalists. Delegate tasks to other committee members.

Associate Director of Instruction, Fall 2017-Spring 2020.

Managed course scheduling and administration. Assisted with assigning instructors to courses. Oversaw assignment of TAs to courses. Coordinated instructional teams for large introductory service courses ("Gateway courses") in Statistics. Position phased out with the creation of a new Instructional Program Manager position to handle administrative tasks, and with the creation of the Gateway Course Coordinator position to oversee all teams of Gateway course instructors.

### **Curriculum development and educational planning.**

Curriculum Committee. Ex officio member. Fall 2016–present.

Coordinate Statistics and Data Science degree program assessment. Participate in new course development and curriculum modernization. Assist with degree program creation. Review and evaluate course and program proposals from around campus relevant to Statistics. Work closely with other units to foster cross-disciplinary educational opportunities while protecting Statistics' interests in general stats and data science education.

TA and Instruction Committee. Ex officio member. Fall 2017-Spring 2021.

Creation of the course schedule and the assignment of instructors and teaching assistants to classes.

Gateway Committee. Ex officio member. Fall 2016–Spring 2018.

Assists in development of the content of the Statistics Department's "gateway" courses: Stat 301, 324, 371.

Undergraduate Committee. Ex officio member. Fall 2016–Spring 2018.

Curriculum modernization, course proposals. Contributed to the Statistics Self-study in Fall 2016.

Assessment Committee. Member. Fall 2015–Spring 2016.

Ad hoc committee charged with developing an assessment plan for all degree programs in Statistics.

### **Departmental service**

Qualifying Exam Committee. Member. Spring 2016–present.

Contributes questions to the Ph.D. qualifying exam and helps proctor it.

Admissions Committee. Member. Fall 2015–Spring 2020.

Evaluate and make admissions recommendations for applicants to the Statistics graduate programs.

Advising Committee. Ex officio member. Fall 2018–Spring 2019.

Assisted in drafting committee procedures, liaison with Admissions Committee, MS program advisor.

## Campus service

College of Letters and Science Teaching & Learning Advisory Council. Member. Spring 2023–present.

Selected to provide advice and guidance to Letters & Sciences (L&S) Teaching & Learning Administration with the goal of establishing a culture of teaching excellence across the college. Acts as a liaison between Statistics and L&S in the support of teaching excellence.

Quantitative Reasoning Assessment Committee. Member. Spring 2024–present.

Selected to participate in developing and refining assessment of UW-Madison’s Quantitative Reasoning (QR) domain.

Faculty Appeals, Summer 2022–present.

Faculty representative serving on and chairing committees that hear student appeals over their dropped status. Provide guidance and support to dropped students. Help decide appeals.

## Academic Advising

Statistics Ph.D. Doctoral Minor advisor. Fall 2017 – Spring 2020; Fall 2022–present.

Sole administrator for Ph.D. minor program, advise students on program requirements and classes.

Statistics M.S. program advisor, Fall 2017 – Spring 2020.

Sole advisor for students in Statistics M.S. program, advise students on classes and program requirements.

## Industry Experience

Bytesumo. Data Scientist, July 2014 to present.

Inventory ranking based on search engine queries. Design of experiments.

## Research Interests

High-dimensional statistics

High-dimensional robust regression

Dimensionality reduction via non-Gaussianity

## Research

### *Publications on high-dimensional robust regression*

D. Bean, P. J. Bickel, N. El Karoui and B. Yu. Optimal M-estimation in high-dimensional regression. *Proceedings of the National Academy of Sciences of the United States of America (PNAS)*, 110 (2013) 14563–14568.

N. El Karoui, D. Bean, P. J. Bickel and B. Yu. On robust regression with high-dimensional predictors. *PNAS*, 110 (2013), 14557–14562.

D. Bean, P. J. Bickel, N. El Karoui and B. Yu. Penalized robust regression in high-dimension. Technical Report No. 813 (2012), Department of Statistics, University of California, Berkeley.

D. Bean, P. J. Bickel, N. El Karoui and B. Yu. Optimal objective function in high-dimensional regression. Technical Report No. 810 (2012), Department of Statistics, University of California, Berkeley.

N. El Karoui, D. Bean, P. J. Bickel, C. Lim and B. Yu. Robust regression with high-dimensional predictors. Technical Report No. 812 (2012), Department of Statistics, University of California, Berkeley.

N. El Karoui, D. Bean, P. J. Bickel, C. Lim and B. Yu. On robust regression with high-dimensional predictors. Technical Report No. 811 (2012), Department of Statistics, University of California, Berkeley.

### *Miscellaneous publications*

P. Grob, D. Bean, D. Typke, X. Li, E. Nogales and R. M. Glaeser. Ranking TEM cameras by their response to electron shot noise. *Ultramicroscopy*, 133 (2013), 1–7.

D. Shilane and D. Bean. Growth estimators and confidence intervals for the mean of negative binomial random variables with unknown dispersion. *Journal of Probability and Statistics*, 2013 (2013), 9 pages.

S. Subramanian and D. Bean. The missing censoring indicator model and the smoothed bootstrap. *Computational Statistics and Data Analysis*, 53 (2008) 471–476.

S. Subramanian and D. Bean. Hazard function estimation from homogeneous right censored data with missing censoring indicators. *Statistical Methodology*, 5 (2008), 515–527.

## Paper Presentations

D. Bean. High-dimensional regression: how to pick the objective function in high-dimension. In *Berkeley Statistics Annual Research Symposium (BSTARS)*, March 11, 2013, University of California, Berkeley.

D. Shilane and D. Bean. A growth estimator for the mean of negative binomial random variables with unknown dispersion. In *Advances in Testing and Estimation: 2011 Joint Statistical Meetings*, Miami, FL.

D. Bean and S. Subramanian. Smoothed bootstrap-based bandwidth estimation. In *Methodology for Survival and Censored Data: 2006 Joint Statistical Meetings*, Seattle, WA.

## Honors, Awards, & Fellowships

National Science Foundation VIGRE Fellowship, 2007 to 2011.

Phi Beta Kappa, 2006.

First prize, University of Maine Dept. of Mathematics and Statistics' Third Annual Math Contest, 2006.

University of Maine Dept. of Mathematics and Statistics George & Hellen Weston Scholarship, 2006. \$4000.

University of Maine Dept. of Mathematics and Statistics George & Hellen Weston Scholarship, 2005. \$1000.