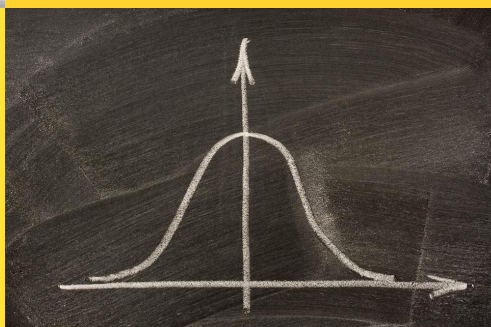


# STATISTICS

UC BERKELEY, SPRING 2015



## INSIDE

- New MA Program
- New Industrial Alliance Program
- Explosion of the Undergraduate Major
- EdX Course
- New Faculty and Retirements
- And more!

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## Cover

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*Top left*, Professor Terry Speed; *top center*, Professor Michael Jordan, Keynote Speaker, 2015 BSTARS; *top right*, the late Professor Emeritus David Blackwell; *bottom left*, Professor Philip Stark (center) urban foraging—photo by Michael Short; *bottom center*, a bell curve.

## Credits

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Designer: Ben Saheli  
Supervising Editor: Laura Slakey

# State of the Department

## Professor and Chair Philip Stark

Dear friends of Berkeley Statistics,

As I write, it is my third year as department chair...and my 29th year in the department. Where has the time gone?

In the last 28 years, the department's pioneers —still active when I arrived—have gone. Their intellectual legacy remains the vibrant inspirational core of the department. Jerzy Neyman had passed away five years before I arrived, and we have since lost the rest of the department's founders and first generation, including David Blackwell, David Freedman, Lucien Le Cam, Erich Lehmann, Joe Hodges, and Betty Scott.

The wave that after that is by now "all grown up," including Rudy Beran, Peter Bickel, David Brillinger, Kjell Doksum, Warry Millar, Roger Purves, Chuck Stone, Aram Tomasian, and Ken Wachter. Leo Breiman was hired about 7 years before I arrived, and the SCF was relatively new. David Donoho, who brought me to Berkeley, was a brand-new assistant professor. The mid-career faculty when I joined the department included David Aldous, Ching-Shui Cheng, Nick Jewell, Michael Klass, and Jim Pitman. Steve Evans and Deb Nolan were hired as assistant professors within +/- a year of me. John Rice, Terry Speed, and Michael Jordan would arrive a little later. Ani Adhikari had just gotten her PhD and was lecturing at Berkeley (FPP was in its second edition). Bin Yu was a PhD student. Sandrine Dudoit wasn't yet!

Time passes and times change, but we're still close to our intellectual roots, blending mathematical rigor and elegance, with real applications across the spectrum of science and engineering, developing revolutionary



methodology and using cutting-edge computational tools to advantage. Many of our former PhD students are faculty at the world's best departments (Berkeley grads currently chair the Stanford and Carnegie-Mellon Statistics Departments!) and hold leadership positions in industry. And Evans Hall is still singularly hideous among campus structures—although, inexplicably, its seismic safety rating has been revised upwards (it's still "poor").

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**“Our faculty have received a dizzying array of international honors.”**

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In the last few years, our faculty have received a dizzying array of international honors, ranging from the National Medal of Science to election to the National Academy of Science, honorary PhDs, COPSS awards, and the (Australian) Prime Minister's Prize for Science (see p. 17). We've hired 7 brilliant new faculty (see p. 9). We've seen the retirements of long-

time faculty, including Ching-Shui Cheng, Roger Purves, and Ken Wachter (see p. 12).

On campus, we've seen the founding of the Simons Institute for the Theory of Computing (Alistair Sinclair is its Associate Director and many Statistics Faculty are affiliated) and the Berkeley Institute for Data Science (Jas Sekhon and I are co-Is; several Statistics Faculty are affiliated). The words "Data Science" are common in meetings of the high administration, and we are expecting Statistics to become a core component of **all** Berkeley undergraduates' education.

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## **“The last few years have been hectic for the department.”**

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The last few years have been hectic for the department, with financial and demographic challenges. The major grew from about 85 students to a highpoint of 450 students, prompting us to raise the major requirements, and taxing human resources and academic funding. We have revived the Neyman Visiting Assistant Professor program and hired several new lecturers. We revamped our MA program into a one-year, semi-professional MA program, which is distinguished by providing students a solid basis in theory in addition to relevant, real-world experience with data. The

program, now in its third year, has been extremely successful. Not only have we had 400+ applicants for 40 spaces, a majority of the MA students get job offers even before completing their first semester!

We've started an Industry Alliance Program (IAP) which currently has a fourteen members, many of whom employ alumni of the department (see p. 6). If you work in industry, perhaps your employer would like to join (<http://statistics.berkeley.edu/industry/iap>). The IAP has had three annual conferences; the most recent was held in March. Citadel LLC has funded a PhD fellowship for the last few years, which has been a huge help, especially as the VIGRE grant expired, leaving us short of PhD support. The IAP, Citadel, and generous donations from alumni and other friends of the department (see p. 19) have helped us weather hard economic times. We are very grateful.

The confluence of Statistics and Computer Science now means that we are competing with CS departments for faculty and students. One consequence of this is that hiring new faculty has become much more expensive, but there is no obvious way to increase revenue to offset it: if you are able to donate to the department, our primary needs are graduate student support and faculty recruiting. Your generosity can help us re-claim the number one position from Stanford.

Finally, we've started an annual alumni gathering at JSM (see photo on p. 6). I hope to see you there!

# New Professional Masters Program



MA Graduates at Spring Commencement 2014

The past few years have seen an explosion in the demand for well-trained data analysts in industry. In 2012, the department introduced a one-year professional M.A. program in Statistics, to equip our students with the varied skills that they will need to become leaders in modern applied statistics. To date, 67 students have been part of this new program, and the first wave of graduates is already hard at work analyzing data at companies ranging from brand-new startups to giants like Google, IBM, and JP Morgan Chase.

In the first semester of the program, students get a solid grounding in statistical theory and computing. The second semester is devoted to data analysis, culminating in a Capstone course in which students conduct and present a statistical analysis of a substantial dataset of their choice. Along the way, students begin to develop professional connections by attending seminars given by visitors from industry and by meeting members of the department's Industrial Alliance program. They also receive guidance on aspects of the job search process, in the department as well as at the Career Center on campus.

Many of the M.A. students take Ph.D. courses as electives. They also participate in the life of the department by taking the consulting class and serving as GSIs for undergraduate courses. A large and energetic group, the M.A. students are a lively presence in the department, whether they are huddled in their own common room arguing over projects or engaged in fierce foosball competitions in the department lounge.

"The overall experience has been great!" is a common response in exit interviews, and in general the program has worked remarkably well right from the start. However, as with all new programs, there are adjustments to be made, and the students have been a crucial part of those adjustments. Their opinions, expressed freely in surveys and in Town Hall meetings, are leading to modifications that will further improve an already successful program. Students are always at the heart of the department's academic programs. We look forward to a strong and productive network of alumni of our new M.A. program in Statistics!

- Ani Adhikari, MA Program Chair

# Industry Alliance Program

In 2013, the Statistics Department founded a new Industrial Alliance Program (IAP) to raise funds and facilitate the connection of faculty and students to industry. The program was a smashing success and in just 3 years 14 companies have joined, each donating \$10k to the department annually. The funds have mainly been used to support graduate students. These firms have been able to better recruit students through utilizing IAP benefits; e.g. hosting info-sessions in Evans Hall, accessing graduate student CVs, and posting jobs on the Statistics LinkedIn Alumni Page.



Lunch at BSTARS 2013

Each year, Allies can also present at the Berkeley Statistics Annual Research Symposium (BSTARS) which highlights recent research developments in the Department and offers opportunities for conversation between faculty, students, and Allies. If you think your employer would be interested in joining, see: <http://statistics.berkeley.edu/industry/iap>. The IAP was founded by Professors Philip Stark, Jon McAuliffe, Lisa Goldberg, and Sandrine Dudoit. Our current IAP members include: Adobe, Citadel, Deloitte, Docomo, Hua Analytical Technology Co., Genomic Health, Google, Genentech, Veracyte, Technicolor, Uber, State Street, Microsoft, and RMS.

- Ben Saheli, Former MA Program Coordinator and Director of Industrial Relations

# Alumni Cocktail Party, JSM 2014

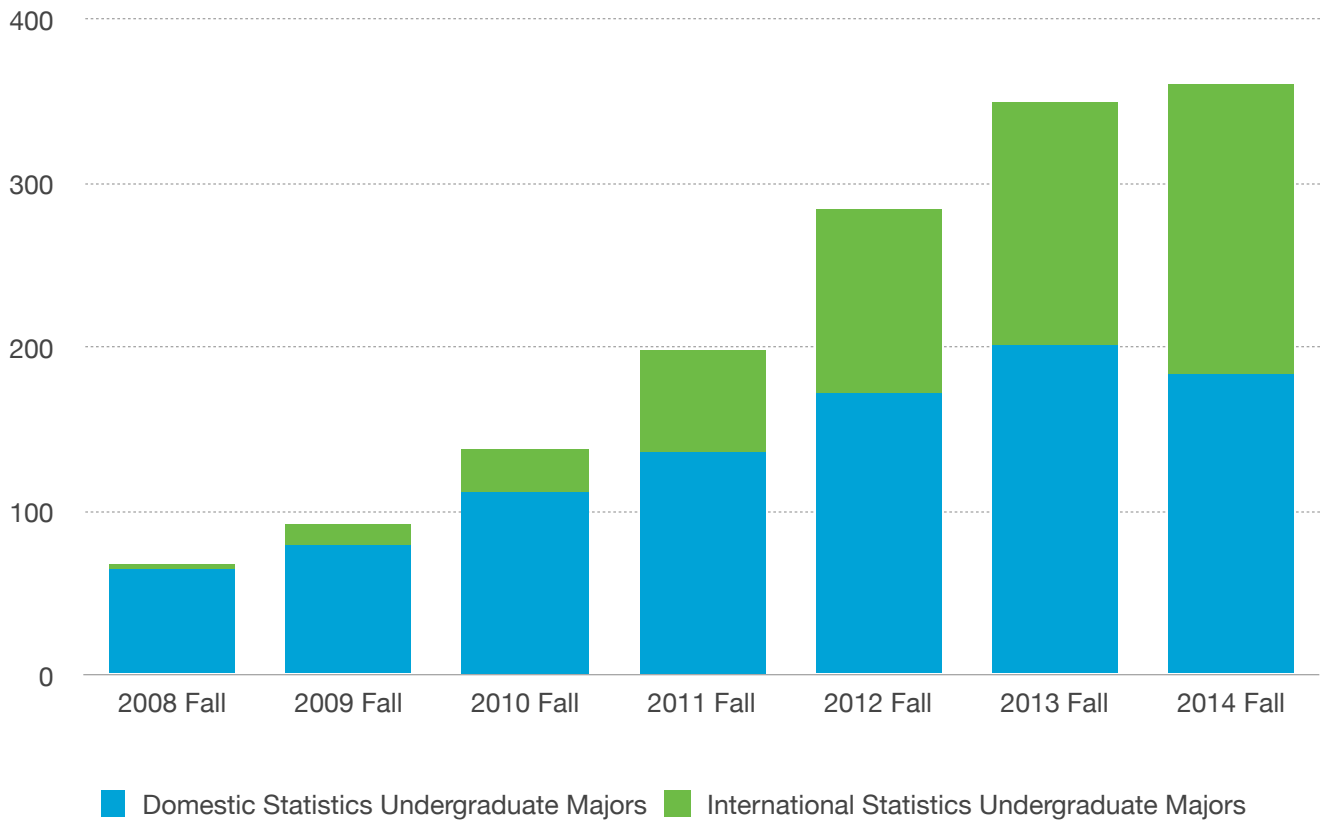
I had a great time at last year's JSM in Boston! It was so much fun to attend the presentations of students and professors from across the country. I also got a lot of interesting questions and good feedback about my talk. At social events, such as the Cal Statistics Alumni Cocktail Party, I got to catch up with old friends and bumped into the chair of my thesis committee from undergrad! JSM was also an excellent networking opportunity. I actually found my (future) Post-Doc advisor and was able to chat with world-famous statisticians whose books are on my desk. Overall, JSM was an amazing experience, and I highly recommend you attend the conference and the Cocktail Party this year.



Alumni Cocktail Party at JSM 2014 in Boston

- Laura B. Balzer, Biostatistics PhD Student

# Explosion of the Undergraduate Major



By far, one of the fastest growing majors at Cal over the past six years has been statistics. In Fall 2008 the Statistics Department had 69 undergraduate majors and by Fall 2014 that number had risen to 361—an increase of 292 majors, or 423%. The rise in popularity of the major came not long after Google Chief economist and Berkeley Professor Emeritus Hal Varian famously said: “I keep saying that the sexy job in the next 10 years will be statisticians. And I’m not kidding.”

“That’s clearly caught on,” says Statistics Department Chair Philip Stark, explaining: there has been an explosion in available data and a parallel increase in computation which allows more to be concluded from that data. “There’s an increasing awareness of the power of statistics in all areas — such as internet companies, business, marketing, medical research, and biotech.” Statistical skills are more in demand than ever. The demand is mirrored abroad, evidenced by the significant increase in international students enrolling in the major.

- Denise Yee, Undergraduate Student Services Advisor

## Git That Data

The Department is now offering a new course, STAT 157: Reproducible and Collaborative Data Science. It will be part of the core of a new Data Science for the 21st Century curriculum joint with Integrative Biology.

See a YouTube video about the class: <https://www.youtube.com/watch?>

# Commencement Ceremony 2015



Class of 2015, Bachelor of Arts, Statistics



Class of 2015, Doctor of Philosophy - Statistics and Biostatistics





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*Top left: Commencement Speaker, Yoav Benjamini, The Nathan and Lily Silver Professor of Applied Statistics, Tel Aviv University; Top Right: Dean Frances Hellman, Division of Math & Physical Sciences, College of Letters & Sciences; Bottom: Class of 2015, Master of Arts, Statistics.*

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# 53,000 Students in Berkeley Stats EdX Course

In Spring 2013, the Statistics Department launched its first massive open online course (MOOC), in the form of Stat 2X on the EdX platform developed by MIT and Harvard. The course is the equivalent of Berkeley's Statistics 2. This course and all courses on EdX are completely free. In addition to courses by MIT and Harvard, EdX contains open courses from a number of other universities, such as Caltech and Dartmouth.



Instructed by Professor Ani Adhikari, Stat 2X consists of three 5-week modules: descriptive statistics, probability, and inference. The course is taught with a distinct pedagogical approach which is reiterated in each module and is explained in the course description: “There will be no mindless memorization of formulas and methods. Throughout the course, the emphasis will be on understanding the reasoning behind the calculations, the assumptions under which they are valid, and the correct interpretation of results.”

Material is delivered through voice-over slideshow videos, with some introductory videos of the instructor; the textbook is Professor Philip Stark's SticiGui, which is available free online and includes interactive exercises, in-line HTML5 tools, simulations, and a set of video-recorded lectures with deep anchors to each concept.

In the first offering, Stat 2X enrolled approximately 53,000 students and approximately 20,000 to 25,000 in subsequent runs. It also boasts a much higher completion rate than standard MOOCs (16% as opposed to 6.8%) which instructor Adhikari attributes in part to her careful attention to and monitoring of its online forum. Despite the already high completion rate, Professors Adhikari, Stark, and Marti Hearst of the School of Information, are conducting research on ways in which communication with course instructors keeps students motivated to complete MOOCs.

Student satisfaction has been consistently high. A sample of comments for the current run of the course:

“I must admit that this series of courses specifically, and the EdX platform in general, has been the finest of the MOOC offerings.”

“Stat 2X, all 3 [modules] taken together, is one of the best offerings of introductory Stat anywhere on the net”

- Ben Saheli, Former MA Program Coordinator and Director of Industrial Relations

## New Faculty



### Allan Sly, Assistant Professor - Fall 2011

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Allan Sly received his BSc and MPhil in mathematics from the Australian National University and a PhD in statistics in 2009 from UC Berkeley. Following that he spent two years as a postdoc in the theory group of Microsoft Research before returning to Berkeley. His research is in discrete probability theory, particularly different stochastic

processes on networks and their applications to problems from statistical physics and theoretical computer science. One major focus of his research are the analysis of the mixing times of Markov chains for sampling distributions, particularly the Glauber dynamics for the Ising model. Another is the role phase transitions play in the computational complexity such as for random constraint satisfaction problems or for sampling distributions. This spring he is teaching undergraduate stochastic processes and a graduate course in applied probability.



### Adityanand Guntuboyina, Assistant Professor - Spring 2012

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Adityanand Guntuboyina joined Berkeley in January, 2012 after finishing a six-month post-doc at the Wharton Statistics Department in the University of Pennsylvania. He finished his PhD in Statistics at Yale University; his PhD advisor was Professor David Pollard. His undergraduate degrees are from the Indian Statistical Institute, India. He currently mainly works on statistical

problems involving convexity typified by the estimation of convex sets and functions from various types of noisy measurements. He has also worked on classical decision-theoretic quantities such as Bayes and minimax risks, respondent driven sampling and measure concentration for large random matrices.



### Ben Recht, Assistant Professor- Fall 2013

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Benjamin Recht holds a dual appointment the Department of Electrical Engineering and Computer Sciences. Ben was previously an Assistant Professor in the Department of Computer Sciences at the University of Wisconsin-Madison. Ben received his B.S. in Mathematics from the University of Chicago, and received a M.S. and PhD from the MIT Media Laboratory. After completing his doctoral work, he was a postdoctoral fellow in the Center for the Mathematics of Information at Caltech. Ben's research focuses on

scalable computational tools for large-scale data analysis, statistical signal processing, and

machine learning. He explores the intersections of convex optimization, mathematical statistics, and randomized algorithms. He is particularly interested in simplifying the analysis and manipulation of noisy and incomplete data by exploiting domain-specific knowledge and prior information about structure. Ben is the recipient of the Presidential Early Career Award for Scientists and Engineers, the SIAM/MOS Lagrange Prize in Continuous Optimization, the Alfred P. Sloan Research Fellowship, and the NSF Career Award. He is currently on the Editorial Boards of Mathematical Programming and the Journal for Machine Learning Research.



## Michael Mahoney, Adjunct Associate Professor - Spring 2014

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In addition to his professorship, Michael Mahoney is a Senior Researcher at the International Computer Science Institute. He works on algorithmic and statistical aspects of modern large-scale data analysis. Much of his recent research has focused on large-scale machine learning, including randomized matrix algorithms and randomized numerical linear algebra, geometric network analysis tools for structure extraction in large informatics graphs, scalable implicit regularization methods, and applications in genetics, astronomy, medical imaging, social network analysis, and internet data analysis. He received his PhD from Yale University with a dissertation in computational statistical mechanics, and he has worked and taught at Yale University in the mathematics department, at Yahoo Research, and at Stanford University in the mathematics department. Among other things, he is on the national advisory committee of the Statistical and Applied Mathematical Sciences Institute (SAMSI), he was on the National Research Council's Committee on the Analysis of Massive Data, he runs the biennial MMDS Workshops on Algorithms for Modern Massive Data Sets, and he spent fall 2013 at UC Berkeley co-organizing the Simons Foundation's program on the Theoretical Foundations of Big Data Analysis.



## Alan Hammond, Associate Professor - Fall 2014

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Alan Hammond researches probability theory and the rigorous theory of statistical mechanics. After graduating from Berkeley Statistics in 2005, he did postdocs at U.B.C. and the Courant Institute as well as a research-oriented fellowship at Oxford Statistics. He returned to Berkeley as an associate professor jointly appointed in Statistics and Mathematics.



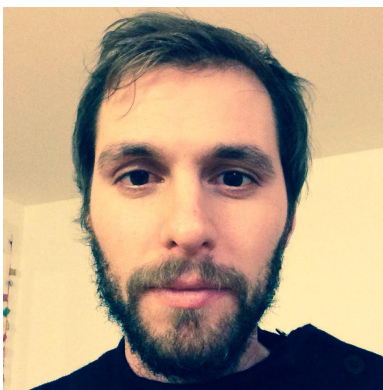
## Ben Brown, Adjunct Assistant Professor - Spring 2015

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Ben Brown is a statistical biologist with diverse interests ranging from ecotoxicology to developmental biology. A common theme uniting his work is the study of gene regulation. Responses to endogenous stimuli, including hormones, or exposure to foreign compounds, like titanate nanoparticles in a donut, involve cascades of transcriptional and post-transcriptional regulation that modulate and define cellular phenotypes. Dr. Brown's lab develops and applies biostatistical and machine learning tools to elucidate

regulatory cascades and hierarchies in basal and ecologically adverse conditions in model organisms.

Dr. Brown completed a BA in Mathematics at UC Santa Cruz, followed by a PhD in Applied Science and Technology at UC Berkeley in 2009. During his postdoctoral work with Susan Celniker (LBNL) and Peter Bickel (UCB), he received a highly competitive K99 award from the National Human Genome Research Institute. In 2013, he joined the faculty of the LBNL Life Sciences Division and is currently building a program focused on the development and application of tools for the integrative analysis of large, diverse and multi-scale biological datasets. In 2015, Dr. Brown joined the UC Berkeley Statistics faculty as an Adjunct Assistant Professor to further his work on ensemble models and network analysis. He has been a member of the ENCODE Project since 2004, and in the modENCODE Consortium (2009-2014), led the analysis of the data generated by the fly transcription consortium (2011-2014). He currently leads integrative analysis for the Consortium for Environmental Omics and Toxicology (CEOT). He is also actively involved in the Microbes to Biomes Initiative (M2B) at Berkeley Lab (<http://m2b.lbl.gov/>), within which he leads the computational analysis for a DOE sponsored Laboratory Directed Research and Development Project aimed at understanding host-microbiome interactions that may aid adaption to environmental challenges.



## Joan Bruna, Assistant Professor - Spring 2015

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Joan Bruna graduated from Universitat Politècnica de Catalunya in both Mathematics and Electrical Engineering, and he obtained an MSc in applied mathematics from ENS Cachan. He then became a Research Engineer in an image processing startup, developing real-time video processing algorithms. In 2013 he obtained his PhD in Applied Mathematics at École Polytechnique, under the supervision of Prof. Stéphane Mallat. After a postdoctoral stay in the Machine

Learning group at the Courant Institute in NYU, New York, he became a postdoctoral fellow at Facebook AI Research, in New York. His research interests include invariant signal representations, stochastic processes, harmonic analysis, deep learning, and its applications to computer vision.

# Retirements



## Roger Purves - Fall 2013

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I entered the Statistics Department as a graduate student in the fall of 1959, and except for eight years, remained until June 2013 when I retired.

I wrote my dissertation, which dealt with a certain property of Borel functions, under David Blackwell. (Borel functions are a basic ingredient of the mathematical framework of probability theory.) One of my cherished memories of graduate school was sitting in the department coffee room when David Blackwell and Lester Dubins were there, working on a problem together. They mainly talked, only occasionally getting up to the blackboard to write or draw a simple diagram. I was struck by how little notation they used. (In a context where a mathematician would typically use an “ $x$ ”, Lester would sometimes use a particular number, like 5 or 7, to play the role of the variable.) Although, at the time, I did not know enough to follow the reasoning, I could recognize a way of doing mathematics that was at a much higher level than anything I was familiar with.

I graduated in June of 1963, and went off to Imperial College (London, England) for two years. I returned to Berkeley as a new assistant professor in the Fall of 1965. Not long after my arrival, I began working with William Sudderth, and about twenty years after that we were joined by Ashok Maitra. Bill was a student (in Mathematics) of Lester Dubins, and Ashok (in Statistics), of David Blackwell. Ashok and I were friends from graduate school. The three of us wrote a number of papers on problems arising from a theory of gambling devised by Lester Dubins and Jimmie Savage.

Around 1973, David Freedman, Bob Pisani (a graduate of the department), and I began writing notes for Statistics 2, a lower division course in the subject aimed at social science and humanities majors. This activity continued, culminating in the publication of a text in 1978. David Blackwell wrote us a short comment about the book, using words to the effect that he did not feel that comfortable outside mathematics, but that he did enjoy reading it. That was a wonderful complement, because we worked very hard to get mathematics out of the text (for example, some key notions lack definitions) and David picked that up immediately.

As you can see, as far as my work-life is concerned, I am definitely a creature of the Berkeley Statistics department. I consider myself incredibly lucky for that.

## Professor Ching-Shui Cheng - Fall 2013

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Ching-Shui Cheng received his B.S. from National Tsing Hua University in Taiwan and his Ph.D. from Cornell University. He joined the Berkeley Statistics Department in 1977 and retired in 2013. Currently he is the director of the Institute of Statistical Science, Academia Sinica, a position he also held from January 2003 to December 2005. He is a fellow of the Institute of Mathematical Statistics and the American Statistical Association, and was an associate editor of the Journal of Statistical Planning and Inference, Annals of Statistics, Statistica Sinica, Biometrika, and Technometrics. He also served as the chair-editor of Statistica Sinica from 1996 to 1999.



## Professor Ken Wachter - Fall 2014

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Ken Wachter has held a joint appointment in Demography and Statistics at Berkeley since 1979. He received his B.A. from Harvard in 1968 and his Ph.D. in Statistics from Cambridge in 1974, completing a thesis on random matrix eigenvalues under the supervision of David Kendall and John Kingman. After time at Bell Laboratories, at St. Catherine's College, Oxford, and teaching at Harvard, he came to Berkeley originally as a Miller Fellow. His books include Statistical Studies of Historical Social Structure (1978), Height, Health, and History (1990), and the collection Between Zeus and the Salmon (1997). "A Mutation-Selection Model for General Genotypes with Recombination", written with Steve Evans and David Steinsaltz, was published in 2013 and his textbook, Essential Demographic Methods, was published by Harvard University Press in 2014. A member of the National Academy of Sciences since 1999, he serves on the Editorial Board of PNAS handling social sciences. His wife is a CAL alumna and his poodle Ambrose an enthusiastic CAL fan.

## Fall Welcome 2012



# What are Our Recent Grads Doing now?

## 2013-2014 PhD Cohort

PhD Graduate	Advisor	Dissertation Title	Currently
Bean, Derek	Peter Bickel and Nouredine El Karoui	Non-Gaussian Component Analysis	Visiting Assistant Professor, Statistics Department, University of Wisconsin - Madison
Broderick, Tamara	Michael I. Jordan	Clusters and Features from Combinatorial Stochastic Processes	Assistant Professor, MIT Electrical Engineering and Computer Science Department
Loh, Po-Ling	Martin Wainwright	High-Dimensional Statistics with Systematically Corrupted Data	Assistant Professor, University of Pennsylvania
Ruddy, Sean	Elizabeth Purdom	Shrinkage of dispersion parameters in the double exponential family of distributions, with applications to genomic sequencing	Completing a research project at UC Berkeley in collaboration with Professor Elizabeth Purdom
Sapp, Stephanie Karen	Mark van der Laan	Subsemble: a Flexible Subset Ensemble Prediction Method	Quantitative Analyst, Google

## 2013-2014 MA Cohort, Sample Companies and Titles

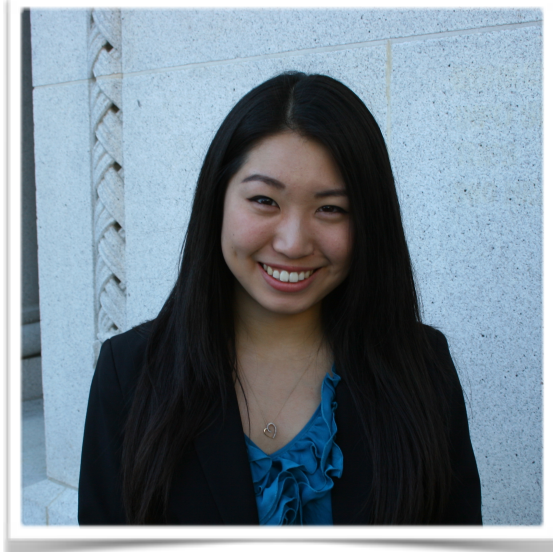
Company	Title	Company	Title
Quick Bridge Funding	Risk Analyst - Modeling	Affinova Inc.	Statistician
ZS Associates	Business Analytics Associate	US Bureau of Labor Statistics	Economist
JP Morgan Chase	Technology Associate- Investment Banking Division	State Farm	Actuarial Analyst
Nielsen	Statistician	Salford Systems	Marketing Statistician
DNV GL	Analyst	Banco De Mexico	Financial Risk Analyst
Yammer, Inc.	Data Scientist	Cheiron	Actuarial Analyst
Bank of the West	Quantitative Analyst, AVP	kWh Analytics	Data Science Intern
Wells Fargo	Senior Marketing Database Analyst	IBM	Statistician
Indosys Corporation	YouTube Video Reviewer	U.S.-China Chamber of Commerce	Intern
McKinsey and Company	Provider Analyst	AIG	Senior Risk Analyst
Hewlett Packard	Supply Chain Data Analyst	Acumen LLC	Data and Policy Analyst
Quick Bridge Funding	Risk Analyst - Modeling	Google	Quantitative Analyst



# Undergraduate Statistics Association (USA)

My name is Jessica Huang and I am a 4th-year student in the Statistics department, minoring in Industrial Engineering and Operations Research. I also have the honor of being the current President of the Undergraduate Statistics Association at Berkeley (USA).

Founded in 2012 by three Statistics Majors, Paul Matsiras (Class of 2013), Tristan Tao (Class of 2014), and Brian Liou (Class of 2013), USA is the only organization for the undergraduate Statistics student population, and serves as a resource to help students develop not only academically, but also professionally. We strive to foster a warm community among the undergraduate Statistics majors through various social events such as Tele-BEARS Advising, Resume and Cover Letter Workshops, Professor Talks with Statistics faculty, Statistics Career Panels, and various socials including Pi Day (3/14) co-hosted with the Mathematics Undergraduate Students Association and the Economics Undergraduate Students Association.



Jessica Huang, USA President

Additionally, USA has formed three committees this semester: Events, Marketing, and Project. We created these committees to allow for more students to become actively involved in our organization and to help develop leadership, communication, and teamwork skills for our members as well.

We have been actively partnering with the department staff to connect USA with alumni. This way, we can tap into our talented pool of alumni and potentially work with you all for future career panels, workshops, or even conduct mock interviews. This way, we can further improve the quality of our organization and truly help out our undergraduate Statistics students with their future endeavors.

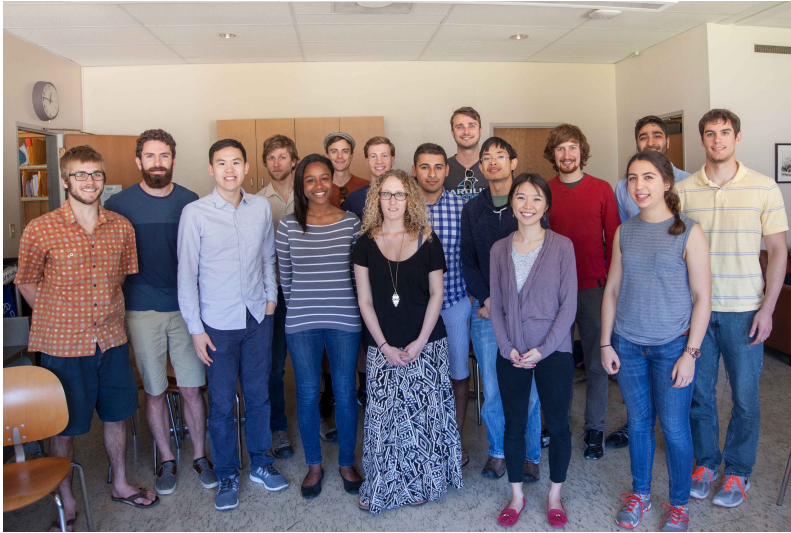


USA Officers (left to right): Emily Lin, Sandra Herchen, Diana Li, Curtis Tang, Yijia Mao, Dai Chen, Jessica Huang

Please don't hesitate to reach out to us at [usa.berkeley@gmail.com](mailto:usa.berkeley@gmail.com), or check out our [Facebook Profile](#) for more information on our club and how to get involved in our activities. We would greatly appreciate any partnerships or ideas for future events, and this will be a great way to give back to the Statistics Department as well.

- Jessica Huang, USA President

# Statistics Graduate Student Association (SGSA)



(Left to right): Karl Kumbier, Geno Guerra, Andrew Do, Ryan Giordano, Ashia Wilson, Jonathan Terhorst, Miklos Racz, Rebecca Barter, Arturo Fernandez, Andre Waschka, Jason Wu, Lisha Li, Soeren Kuenzel, Kellie Ottoboni, Omid Shams Solari, Jonathan Fischer

“Enhancing the academic, social, and professional lives of graduate students by building community inside the department and beyond.”

Another eventful year for the Statistics Graduate Student Association has come to a close, a year which saw the continuation of many of the SGSA's traditions, as well as the reintroduction of some forgotten events. For the fourth year, members of the SGSA organized a Fellowship Workshop for new statistics graduate students. Guiding students through the fellowship application process, and introducing many funding opportunities available, the workshop ran weekly in the Fall semester.

Attendees were able to gain valuable feedback from fellow students and faculty as they prepared their applications. In the four years, 8 participants have successfully won fellowships. In its second year hosted at noon, the Freedman hospitality lunch has had great success as a precursor to each week's Neyman seminar. Highly attended, many students come to chat and get to know the visiting speaker. A re-emerging tradition within the SGSA is the presence of Faculty Talk seminars. A weekly seminar series which saw 13 of the Berkeley Statistics faculty present a brief overview of their research interests in an effort to assist first and second year students in finding an advisor. As in past years, SGSA helped to recruit a top-notch class of incoming PhD students for the fall. An SGSA student representative sat on the admissions committee, and a large number of current PhD students pitched in during visit day. All told, 23 student volunteers contributed in some way to the admissions and recruiting process. This great level of involvement and enthusiasm resulted in a large and diverse group of 11 PhD students accepting the offer! In an effort to bring the department community together, the SGSA hosted a few large events throughout the academic year, including a welcome week picnic, a fall party, and a weekend spring barbecue. All were well attended by graduate students, faculty, and loved ones. Other events of note include the weekly wind-downs each Friday evening, foosball tournaments hosted each semester, and the continuation of the SGSA's intramural co-ed soccer team, the Outliers.

The SGSA is extremely thankful to the department, and the Graduate Assembly for helping to fund us through the year. As our other major source of funding, the SGSA also sells annual statistics department t-shirts, with an open contest for staff, faculty, and students to submit designs.

The SGSA gratefully welcomes all donations, as we strive to worry less about funding and more about providing new workshops, seminars, and events for student/faculty interaction each year. We are already in preparations for the 2015-2016 academic year, with newly appointed committees, representatives, and co-presidents!

- *Geno Guerra, SGSA President*

# Faculty Awards since 2010

## David Aldous

American Mathematical Society (AMS) Inaugural Fellow (2012)  
Elected as Foreign Associate of National Academy of Sciences (2010)

## Peter Bartlett

Elected Fellow of the Institute of Mathematical Statistics (IMS) (2011)  
Australian Laureate Fellowship (2011)

## Peter Bickel

Honorary Doctorate from the ETH in Zurich (2014)  
R. A. Fisher Lectureship (2013)

## David Blackwell

Posthumous National Medal of Science (2014)  
IMS Establishes Blackwell Lecture (2012)

## David Brillinger

Received Honorary D.Sc from the University of Toronto (2014)

## Sourav Chatterjee

Loève Prize (2013)  
Rollo Davidson Prize (2010)

## Sandrine Dudoit

Elected Member, International Statistical Institute (2014)  
Fellow, American Statistical Association (2010)

## Steve Evans

American Mathematical Society (AMS) Inaugural Fellow (2012)

## Lisa Goldberg

Graham and Dodd Scroll Award for (2012)

## David Goldschmidt (Visiting Professor)

American Mathematical Society (AMS) Inaugural Fellow (2012)

# Archival Photos



Above: Left Jerzy Neyman, middle Jostein Kåre Lillestøl, right Erich Lehmann.



Left: Jerzy Neyman



Above: Left unknown, right Jerzy Neyman



Right: David Brillinger

**Leo Goodman**

Paul F. Lazarsfeld Award for a career of distinguished contributions to the field of sociological methodology from the American Sociological Association Section on Methodology (2010)

**Alan Hammond**

EPSRC Career Acceleration Fellowship in (2010)

**Nick Jewell**

Berkeley Faculty Service Award (2013)

**Michael Jordan**

ISBA Fellow (2014)

SIAM Fellow (2012)

Elected to the American Academy of Arts and Sciences (2011)

IMS Special Lecture: Neyman Lecture (2011)

Elected to National Academy of Sciences (2010)

Elected to National Academy of Engineering (2010)

**Deborah Nolan**

Gave the Third Biennial David K. Pickard Memorial Lecture (2014)

An endowed chair: Zaffaroni Family Undergraduate Chair in Education (July 2014)

Wins Princeton University William R. Kenan, Jr., Visiting Professorship for Distinguished Teaching (2013-14)

**Ben Recht**

William O. Baker Award (2015)

Presidential Early Career Award for Scientists and Engineers (PECASE) Award (2013)

Sloan Research Fellowship in Mathematics (2012)

**Alistair Sinclair**

Elected Fellow of the Association for Computing Machinery (2012)

Diane S McEntyre Award for Excellence in Teaching (Computer Science) (2010)

**Allan Sly**

Rollo Davidson Prize (2013)

Sloan Research Fellowship in Mathematics (2012)

**Terry Speed**

Jerome Sacks Award for Cross-Disciplinary Research (2014)

Received Honorary D.Sc from the University of Chicago (2014)

CSIRO Eureka Prize for Leadership in Science (2014)

Australian Prime Minister's Prize for Science (2013)

Elected to the Royal Society of London for Improving Natural Knowledge (2013)

Victoria Prize for Science and Innovation (2012)

UC Berkeley Faculty Research Lecture (2012)

**Philip Stark**

ASA Fellow (2014)

Chancellor's Award for Public Service, Research in the Public Interest (2011)

John Gideon Award for Election Integrity (2011)

**Charles J. Stone**

American Mathematical Society (AMS) Inaugural Fellow (2012)

**Bernd Sturmfels**

American Mathematical Society (AMS) Inaugural Fellow (2012)

SIAM Fellow (2014)

**Martin Wainwright**

Committee of Presidents of Statistical Societies (COPSS) Award (2014)

Elected Fellow of the Institute of Mathematical Statistics (IMS) (2014)

Invited Section Lecturer, International Congress of Mathematicians (2014)

IMS Medallion Lecturer (2013)

Joint IEEE Communications and Information Theory Best Paper Award (2012)

IEEE Communications Society Best Paper Award (2010).

**Bin Yu**

Institute of Mathematical Statistics (IMS) President (2013-2014) President-elect (2012-13) Past President (2014-15)

Elected to the National Academy of Sciences (2014)

Women of the Year Award, Nancy Skinner's office, 15th district (2014)

Elected to the American Academy of Arts and Sciences (2013)

Distinguished Achievement Award, ICSA (2013)

Inaugural Pao-Lu Hsu Award, International Chinese Statistical Association (ICSA) (2012)

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This year the campus announced cuts to the permanent budget. Now more than ever, we depend on the interest and generosity of our donors to help Berkeley Statistics remain one of the two preeminent centers for Probability and Statistics in the world. There are several ways to donate to a variety of identified needs in Berkeley Statistics, such as graduate student support, funds for the renovation of our classrooms and facilities, support to hold department seminars, and support for the student associations (USA and SGSA).

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SGSA President Geno Guerra (L) and fellow graduate student Ashia Wilson at the annual picnic.

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# In Memoriam

## David Harold Blackwell Professor Emeritus of Mathematics and Statistics, 1919-2010

David Harold Blackwell, an eminent statistician at the University of California, Berkeley, who was the first African American admitted to the National Academy of Sciences, died Thursday, July 8, 2010, of natural causes at Alta Bates Medical Center in Berkeley. He was 91. In 2014 Blackwell was posthumously awarded the National Medal of Science by President Barack Obama, the nation's highest honor for a scientist.

Blackwell joined the UC Berkeley faculty in 1954 and was the first tenured black professor in campus history. He later chaired the Department of Statistics and served as president in 1955 of the Institute of

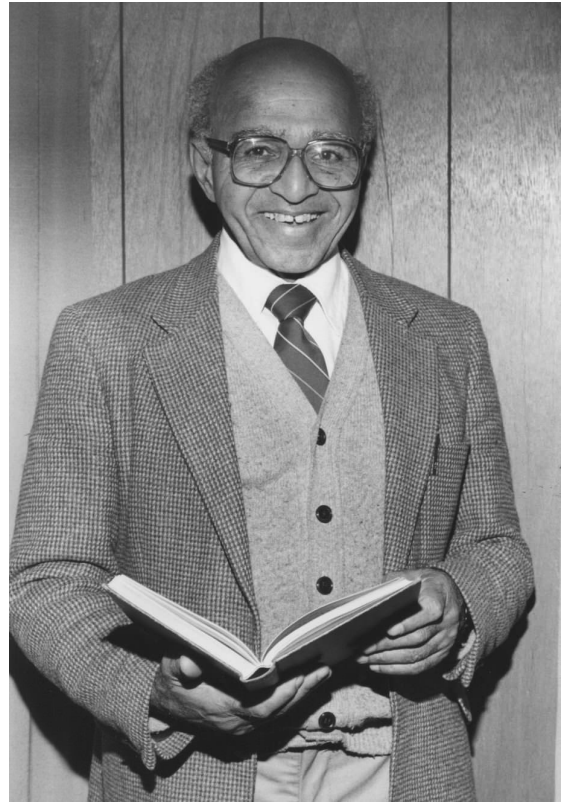
Mathematical Statistics, an international professional and scholarly society. A mathematician as well as a statistician, Blackwell contributed to many fields, including probability theory, game theory, and information theory. In an interview for the book "Mathematical People: Profiles and Interviews" (1985), he referred to himself as "sort of a dilettante," and said that he chose problems because he was interested in understanding them, no matter what the field of mathematics or statistics.

"He had this great talent for making things appear simple. He liked elegance and simplicity. That is the ultimate best thing in mathematics, if you have an insight that something seemingly complicated is really simple, but simple after the fact," said Blackwell's colleague Peter Bickel, a UC Berkeley professor of statistics who has known him since 1960. "Blackwell was a wonderful man and, given the trials and tribulations of his life, a very optimistic person."

According to Bickel, Blackwell was known for his independent invention of dynamic programming, which is used today in finance and in various areas of science, including genome analysis. He also is known for the renewal theorem, used today in areas of engineering, and for independently developing the Rao-Blackwell Theorem, a fundamental concept in modern statistics.

"He went from one area to another, and he'd write a fundamental paper in each," said Thomas Ferguson, professor emeritus of statistics at UCLA. "He would come into a field that had been well-studied and find something really new that was remarkable; that was his forte."

Teaching was Blackwell's other passion. "He never introduced himself as a professor, he always called himself a teacher," said his son, Hugo Blackwell of Berkeley. David Blackwell, in explaining why he liked to teach mathematics, once said that, "in transmitting it, you appreciate its beauty all over again."



## Early years

Blackwell was born in Centralia, a small town in southern Illinois, on April 24, 1919, as the oldest child of Grover Blackwell, a railway worker, and Mabel Blackwell, who raised the family's four children. Expecting to become an elementary school teacher, David Blackwell entered the University of Illinois at Urbana-Champaign in 1935 at the age of 16, at a time when there were no black professors. After graduating with a B.A. in mathematics in 1938, he set his sights higher and continued at the University of Illinois to earn his M.A. in math in 1939 and eventually his Ph.D. in math in 1941, at the age of 22.

After graduating, Blackwell was appointed to a one-year postdoctoral fellowship at the Institute for Advanced Study in Princeton, N.J., one of the top research institutes in the nation that included Albert Einstein and John von Neumann among its fellows.

He subsequently applied to 104 black colleges, assuming, he once said, that the doors were closed to blacks at non-black institutions. After a one-year stint as a statistician in the U.S. Office of Price Administration, originally set up to control prices and rents during World War II, he took an instructorship at Southern University in Baton Rouge, La., and at Clark College in Atlanta, Ga., before joining the faculty of Howard University in 1944. By 1947, he had become a full professor and head of the mathematics department, a position he held until 1954.

Even before Blackwell moved to Howard, Jerzy Neyman, the leading statistician at the time at UC Berkeley, had courted Blackwell to come to the campus, but had run into objections about his race. After World War II, however, the atmosphere throughout the country had improved, and Neyman was able to convince the mathematics department to hire Blackwell. Blackwell arrived in 1954 as a visiting professor and joined the statistics department as a full professor when the department split off from the mathematics department in 1955. He succeeded Neyman as chair between 1957 and 1961 and served as assistant dean of the College of Letters and Science between 1964 and 1968,

### **'Totally dedicated'**

Although Blackwell retired in 1988, he continued to visit the department, talking with colleagues about statistical ideas, according to his son Hugo. "He was totally dedicated to his field, and always thought that it's not what you have, but what you think, that is important," he said.

Blackwell mentored 65 Ph.D. students, wrote two books and published more than 80 papers during his career. He held 12 honorary degrees, including from Harvard, Yale, Carnegie Mellon and Howard universities and from the National University of Lesotho.

Blackwell is survived by four of his eight children: Hugo of Berkeley; Ann Blackwell and Vera Gleason of Oakland; and Sarah Hunt of Houston, Texas. He was preceded in death by his wife, Ann Madison Blackwell, who died in 2006 after 62 years of marriage; and children Julia Madison Blackwell, David Harold Blackwell Jr., Grover Johnson Blackwell and Ruth Blackwell Herch.

Source (abridged): Sanders, Robert (July 15, 2010). Eminent statistician David Blackwell has died at 91. *UC Berkeley News Center*. Retrieved from <http://newscenter.berkeley.edu/2010/07/15/blackwell/>

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